
Chapter 17: Interrelationships, Major Accidents and Cumulative Effects

Chapter 17 Interrelationships, Major Accidents & Cumulative Effects

17.1 Introduction

In addition to the assessment of impacts on individual topics presented in the previous chapters of this Environmental Impact Assessment Report (EIAR), the interaction between these factors has also been considered. This chapter also assesses the expected effects arising from the vulnerability of the project to risks of major accidents and disasters that are relevant to the project. Finally, the cumulative effects of the proposed development with those of previous developments and developments for which planning authorisation has been received and development objectives in the development plans for the areas through which the development is proposed, have been assessed and are described in this chapter.

17.2 Methodology

17.2.1 Interrelationships

The determination of interrelationships was facilitated through an iterative design process that included consultation between designers, environmental specialists and technical specialists. In addition, the process was informed by consultation with statutory and non-statutory consultees and in particular with the Department of Culture, Heritage and the Gaeltacht (the National Monuments Service and National Parks and Wildlife Service) and Inland Fisheries Ireland. Where potential exists for interaction between two or more environmental topics, the relevant specialists have taken these into account when making their assessment and, where possible, complimentary mitigation measures have been proposed.

17.2.2 Major Accidents and Disasters

Article 3 of the Environmental Impact Assessment (EIA) Directive, as amended by Directive 2014/52/EU, requires that: *“The effects referred to in paragraph 1 on the factors set out therein shall include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned”*. Furthermore, Annex IV, Section 8 of the Directive states that the EIAR shall contain:

“A description of the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned.” The Directive also states that where appropriate, *“this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.”* This section comprises an assessment of the vulnerability of the proposed development to risks of major accidents and/or disasters which are relevant to the proposed development.

The assessment of major accidents and disasters is a new requirement and national guidelines are not yet available. In the absence of such guidance, Highways England's (equivalent body to Transport Infrastructure Ireland (TII)) guidance has been consulted.

As identified in the EIAR chapters, the proposed development is designed, and will be built and operated, in accordance with best practice. It has been ensured that the

proposed development is capable of being constructed safely and without risk to health, can be maintained safely, and complies with all relevant health and safety legislation.

An understanding of the potential consequences of major accidents and disasters due to the proposed development was gained through a desktop study, the results of which are discussed in Section 17.4.

In assessing the expected effects arising from the vulnerability of the project to risks of major accidents and disasters that are relevant to the project, the assessment has assessed:

- The potential of the project to cause major accidents and disasters, including implications for human health, cultural heritage, and the environment; and
- The vulnerability of the project to potential accidents and disasters, including the risk to the project of both natural disasters (e.g. flooding) and man-made disasters (e.g. technological disasters).

The methodology adopted included three main stages, as follows:

- Stage 1: a long list of all possible major accident and disaster events was developed. This list drew upon a variety of sources, including the UK Government's Risk Register of Civil Emergencies. Major events with little relevance (for example volcanic eruptions) were not included. Stage 1 also included an initial review of potential receptors to identify any groups that were considered necessary to include in the assessment;
- Stage 2: a screening exercise was undertaken to review the long list of major events and to give consideration to their relevance to the proposed scheme, and therefore whether they should be included on the project specific short list of events requiring further consideration; and
- Stage 3: where further design mitigation is unable to remove the potential interaction between a major accident and disaster event and a particular topic, the relevant EIAR chapter identifies the potential consequence for receptors covered by the topic and gives a qualitative evaluation of the potential for the significance of the reported effect to be increased as a result of that event.

The qualitative evaluation of the potential for the significance is presented in Table 17.2 of this chapter. The residual assessment is based on the exceptionality of the major accident and disaster event to this scheme and whether there is a significant effect after the application of mitigation.

17.2.3 Cumulative Effects

In assessing cumulative effects, the following were the principal sources consulted:

- Wexford County Council Planning Department;
- Wexford County Development Plan, 2013-2019;
- Wexford Town and Environs Development Plan, 2009-2015 (as extended);
- Wexford Local Economic and Community Plan 2016-2021;
- An Bord Pleanála website; and
- EIA Portal.

A 1km buffer of the Slaney Estuary, as far upstream as Ferrycarrig Bridge (5km north of the development) and as far into the Slaney Estuary as Rosslare Point (4km south east) and the Raven Point (5.6km northeast), was identified to search for any projects

identified within close proximity to the proposed development site. An online planning search was also carried out for projects within 15km of the site for projects which have potential for pathways for cumulative impacts to occur.

Development objectives in the relevant current development plans were also considered. This cumulative assessment has considered cumulative impacts that are:

- a) Likely;
- b) Significant; and
- c) Relating to an event which has either occurred or is reasonably foreseeable together with the impacts from this development.

Proposed and existing developments and plans, identified as having potential for cumulative effects in combination with the proposed development, are assessed in Section 17.5.

17.3 Interrelationships

Interrelationships arise from the interaction between the impacts and proposed mitigation for one discipline with another associated discipline. An example of this would be the provision of noise barriers to mitigate the impacts of noise on the surrounding environment could have a negative impact in terms of landscape and visual impact.

The impacts and the mitigation provided has been considered by all disciplines to ensure all the interactions have been fully considered within this EIAR.

Table 17.1 shows the principal interrelationships identified for the proposed development and they are described in Sections 17.3.1 to 17.3.11.

Table 17.1 Matrix of Key Interrelationships

Receptor / Activity	Traffic	Population and Human Health	Biodiversity	Soils and Geology	Hydrogeology	Hydrology	Landscape and Visual	Noise and Vibration	Air Quality and Climate	Archaeological and Cultural Heritage	Architectural Heritage	Material Assets and Land
Traffic	✓	✓	✓					✓	✓			✓
Population and Human Health	✓	✓	✓									
Biodiversity		✓	✓	✓		✓	✓	✓				✓
Soils and Geology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hydrogeology					✓							
Hydrology		✓	✓			✓	✓					✓
Landscape and Visual		✓	✓				✓			✓		✓
Noise and Vibration		✓	✓				✓	✓				✓
Air Quality and Climate		✓	✓						✓			✓
Archaeological and Cultural Heritage		✓								✓		
Architectural Heritage											✓	
Material Assets and Land		✓			✓	✓	✓					✓

17.3.1 Traffic Will Interact / Interrelate with the Following:

Population and Human Health

During the construction stage, the haulage of materials to and from the site will interrelate with road users and residents along Trinity Street, adding to the noise and vibration, air quality and visual impacts. However, restricted haulage routes have been outlined as part of this EIAR to ensure that the population along Wexford Quays is not affected by increased traffic volumes as a result of construction traffic.

Operation stage traffic will also interact with population on Trinity Street including residents and road users. A new road junction layout has been developed to accommodate traffic accessing the site which will remove 16 no car park spaces, however the analysis of car parking demands in the area has been undertaken as part of Chapter 05 Traffic Analysis of this EIAR and has found there to be sufficient parking within the area.

The boardwalk link to Paul Quay will result in positive effects on population and human health, providing a pedestrian and cyclist friendly access to the site, incorporating a link to the town centre. The promotion of walking and cycling will have a positive human health effect on future Trinity Wharf users, providing a direct link to Wexford Town which benefits from improved safety and scenic views.

Biodiversity

The impact of construction traffic including piling barges and machines required for sheet piling have been assessed in Chapter 07 Biodiversity for their impact on the biodiversity within Wexford Harbour and the surrounding European and nationally designated sites. Air quality and dust emissions as a result of construction traffic and the potential for interactions with designated sites have also been assessed in Chapter 13 Air Quality and Climate. Air quality mitigation measures including a Dust Minimisation Plan, will reduce impacts on the biodiversity of the area as a result of construction traffic.

Operational traffic will increase noise levels within the site which has potential to adversely impact biodiversity. However, the road layout will bring the majority of vehicles straight to the multi-story carpark, containing most of the traffic to one area of the site which will keep noise levels low along the perimeter, thereby reducing noise impacts for biodiversity.

Noise and Vibration

Noise and vibration levels will increase as a result of construction traffic. Mitigation measures, as well as compliance with measures outlined in the Outline Construction Environmental Management Plan (CEMP) in Appendix 4.1 of this EIAR, will be put in place during construction to reduce the short-term noise impacts of construction traffic. Operation stage traffic will increase noise and vibration levels within the surrounding area. The assessment of the impacts on noise and vibration levels is detailed in Chapter 12 Noise and Vibration of this EIAR and has taken into account the predicted traffic levels modelled for operation stage.

Air Quality and Climate

Air pollutant emissions will also increase during the construction stage as a result of construction traffic. Mitigation measures such as a Dust Minimisation Plan have been developed and are presented in Chapter 13 Air Quality and Climate of this EIAR to mitigate potential short-term air quality impacts from construction traffic.

The increase in operation stage traffic levels will result in an increase in air quality emissions within the project location and its surrounding area. The assessment of the impacts on air quality and climate is detailed in Chapter 13 Air Quality and Climate and has taken into account the predicted traffic levels modelled for operation stage.

Material Assets and Land

The construction phase of the development will require the construction of a new access to the site and a new junction layout on Trinity Street to accommodate traffic

entering the site. Short term impacts on users of Trinity Street will arise due to road works on Trinity Street. The impact of this on road users is addressed in Chapter 16 Material Assets and Land.

The new traffic layout on Trinity Street will impact on local infrastructure, resulting in the removal of 16 no. parking spaces along Trinity Street, while the boardwalk tie-in on Paul Quay will require the removal of 21 no. parking spaces. The impact of this requirement on the demand for parking within the area has been addressed in Chapter 05 Traffic Analysis and Chapter 16 Material Assets and Land.

17.3.2 Population and Human Health Will Interact / Interrelate with the Following:

Traffic Analysis

The construction stage of the development will increase traffic visiting the site as a result of the workforce. The impact of these traffic movements have been incorporated in the traffic assessment.

The introduction of mixed-use land-use into the site and general area of Trinity Street will increase traffic counts entering and exiting the site. The workforce employed within the 3 no. new office buildings, residents of the housing units and visitors to both the hotel and cultural centre / events space will result in vehicles accessing the site at peak hours. The impact of this increased traffic has been assessed in Chapter 5 Traffic Analysis of this EIAR.

Biodiversity

Increased visitors to the site during operation will alter the existing setting of the site and will result in potential impacts on the receiving biodiversity environment. Impacts on the biodiversity of the site are assessed in Chapter 7 Biodiversity of this EIAR.

17.3.3 Biodiversity Will Interact / Interrelate with the Following:

Population and Human Health

The removal of Invasive Alien Species (IAS) from the site will remove the risk of spreading of IAS in its current state by population and human beings visiting the site during both construction and operation stages. Therefore, the resultant risk of damage to nearby properties and infrastructure will be removed and the site will be more appealing to the population. An Invasive Species Management Plan is in place at the site and is presented in Appendix 7.4 of this EIAR.

Soils and Geology

The removal of IAS from the site will improve the soil quality and remove the risk of IAS spreading across the site.

Hydrology

The removal of IAS will also reduce the risk of spread of IAS through the Slaney River, upstream or throughout Wexford Harbour.

Landscape and Visual

The existing biodiversity and coastal character of the site has been incorporated into the Landscape Design Statement for the site which is included in Appendix 4.6 of this EIAR. Planting species that can withstand the harsh maritime environment have been selected to be included within the landscape plan to ensure the robust landscape plan compliments the site's unique location on the water.

Noise and Vibration

It is expected that biodiversity will reduce noise and vibration impacts as the sensitivity of migratory fish to noise and vibration impacts has resulted in the implementation of noise and vibration mitigation measures. For example, reduced working hours for piling operations are required to reduce noise and vibration impacts on migratory fish.

Material Assets and Land

The removal of IAS will remove the threat of spread to neighbouring properties. The presence of IAS can devalue and degrade properties and land. An Invasive Species Management Plan will be put in place at the site and is presented in Appendix 7.4 of this EIAR.

17.3.4 Soils and Geology Will Interact / Interrelate with the Following:

Traffic Analysis

Construction traffic will arise from the earthworks stage of development from the removal of waste material off site and the importation of infill required to raise the site. Traffic counts have been predicted for the earthworks stage of construction and have been assessed in Chapter 5 Traffic Analysis.

Population and Human Health

The excavation and removal of asbestos containing materials from the site will be controlled by specific mitigation measures, as outlined in Chapter 4 Description of the Proposed Development and Chapter 8 Soils and Geology of this EIAR. The appointed asbestos contractor will be required to ensure all construction workers have the required training, personal protective equipment and management strategies in place to reduce the risk of being exposed to asbestos containing materials. The development of the site will remove the risk of impacts to human health through remediation of both asbestos and contaminated land within the site. This will have a positive impact during the operation stage of the development, making the site a safer place to live and work.

The construction stage will have the potential to have adverse population and human health impacts within the area due to earthworks, the transport of material to and from the site and the installation of foundations which will include piling. The impacts on population and human health have been assessed in the respective specialists' chapters and Chapter 06 Population and Human Health of this EIAR. These chapters have taken increases in noise and vibration, and air quality and climate impacts into account due to the movement of construction material.

Biodiversity

Earthworks during the construction stage have the potential to impact on the Slaney River Valley Special Area of Conservation (SAC) and the Wexford Harbour and Slobbs Special Protection Area (SPA) through construction site runoff, the risk of release of contaminants from the ground, noise and vibration, and air quality impacts. A suite of best practice techniques, mitigation measures and guidelines have been outlined in Chapter 09 Hydrogeology, Chapter 10 Hydrology, Chapter 07 Biodiversity and the Outline CEMP and Environmental Operating Plan (EOP) presented in Appendices 4.1 and 4.2 of this EIAR to mitigate impacts on the European and nationally designated sites within Wexford Harbour.

The operation of the development will enhance the biodiversity of the. The importation of clean fill and the use of native species which have been developed by the landscape

architect and the project ecologist, will enhance the biodiversity within the site during the operational stage.

Hydrogeology

Earthworks such as localised excavations, where required, will have positive impacts on hydrogeology by removing contaminated soils from the site and reducing the risk of contamination of groundwater. Sheet piling has the potential to release contaminants to the surface which is discussed in Chapter 09 Hydrogeology of this EIAR.

Hydrology

Earthworks during construction have the potential to impact on the water quality of the Slaney River and Estuary. A suite of mitigation measures has been proposed to mitigate water quality impacts due to earthworks, as contained in Chapter 7 Biodiversity, Chapter 10 Hydrology and within the Outline CEMP presented in Appendix 4.1 of this EIAR.

Landscape and Visual

Earthworks on site will have an impact on the landscape of the site during the construction stage however the site is already a brownfield site with mounds of rubble and is not of particular landscape importance. Any landscape and visual impacts due to earthworks and the movement of material will be short term and hoarding will be provided during construction to mitigate impacts. Landscape and visual effects have been assessed in Chapter 11 Landscape and Visual Analysis of this EIAR.

Noise and Vibration

Earthworks activities and the movement of construction materials will have potential for short term impacts on noise and vibration during construction. Earthworks machinery have been included in a noise model and mitigation measures have been included in Chapter 12 Noise and Vibration and in the Outline CEMP to mitigate noise and vibration impacts due to earthworks and the movement of construction materials where possible.

Air Quality and Climate

Earthworks and the movement of construction materials have the potential to create airborne dust. A Dust Minimisation Plan is presented in Appendix 13.3 of this EIAR and aims to mitigate this short term potential impact.

Archaeological and Cultural Heritage

Earthworks have the potential to impact on unidentified archaeological sites during excavation and construction. The location of known archaeological sites have been assessed and mitigation measures have been put in place. The dockyard walls will be recorded prior to removal and an underwater archaeology impact assessment will be undertaken prior to construction. Impacts and mitigation measures proposed for the earthworks stage are discussed further in Chapter 14 Archaeological and Cultural Heritage of this EIAR.

Architectural Heritage

The construction of the sheet pile wall and clearance of the site will require the removal of old stone walls within the site. The significance of this impact and mitigation measures put in place are discussed in Chapter 15 Architectural Heritage of this EIAR.

Material Assets and Land

Earthworks during the construction stage have the potential to impact on water quality within the SAC if not mitigated. Active aquaculture licences are operational within Wexford Harbour and would be affected if sediment movement was to occur as a result of the project within the Lower Slaney Estuary. Mitigation measures have been put in place to prevent sediment entering the surface water through site runoff during construction. The potential for impacts on aquaculture licences is discussed in Chapter 16 Material Assets and Land while mitigation measures for preventing impacts to the Lower Slaney Estuary are outlined in Chapters 7 Biodiversity and 10 Hydrology while also being outlined in the Outline CEMP attached as Appendix 4.1 of this EIAR.

17.3.5 Hydrology Will Interact / Interrelate with the Following:

Population and Human Health

The proposed development has been designed to avoid the potential for flooding through the provision of a steel sheet pile sea wall, breakwater and rock armour, thereby avoiding the impact of flooding on population and human health.

Biodiversity

Construction activities have potential to pose a risk to watercourses, particularly if contaminated surface water was to enter the River Slaney. Chapter 7, Chapter 10 and the Outline CEMP set out measures to prevent the runoff of contaminants during construction. These measures will mitigate the risk to biodiversity within the Lower Slaney Estuary and the European sites.

The proposed drainage system has been designed to avoid or minimise the water quality impact to the River Slaney by means of SuDS treatment and attenuation prior to discharge.

Landscape and Visual

During the operation of the proposed development, SuDS features, such as swales, will be incorporated into the Landscaping Strategy (see Appendix 4.6) and will create landscaped areas which will be integrated into the planting and surface finishes.

Material Assets and Land

The provision of a SuDS surface water drainage system will provide treatment to surface water runoff from the site during operation. There is currently no surface water drainage system within the Trinity Wharf site with runoff draining directly to the Lower Slaney Estuary. The SuDS system will ensure that no sediment will runoff directly into the Slaney Estuary as per the existing situation, avoiding potential impacts on aquaculture licences.

17.3.6 Landscape and Visual Will Interact / Interrelate with the Following:

Population and Human Health

The development of a public realm and landscaping design as detailed in Chapter 4 of this EIAR and included in Appendix 4.6 will provide positive impacts on population and human health during the operation stage. The use of native plants and species and settings which incorporate the current setting of the site will help mitigate the impact of the development as a whole and will also create a modern urban quarter for the population and visitors to enjoy.

Biodiversity

The Landscaping Strategy (see Appendix 4.6) encourages the use of native tree species and has been developed in conjunction with the recommendations of the project ecologist. Species have been chosen for the site and for the green roofs to enhance and support biodiversity within the site. Pollinator friendly species and coastal grasses have been selected to enhance the biodiversity of the site as part of the landscaping scheme. These mitigation and enhancement measures are provided in Chapter 7 Biodiversity and Chapter 11 Landscape and Visual Analysis of this EIAR.

Archaeological and Cultural Heritage

Visual impacts due to the construction and operation of the proposed development may impact on the setting of archaeological sites. However, mitigation measures, including information boards, will improve the archaeological setting and raise awareness among site users of the archaeological history of the site during the operational phase.

Material Assets and Land

During operation, landscape mitigation measures will help create a modern urban quarter which will attract visitors and tourists to the area, representing a positive impact on material assets and land.

17.3.7 Noise and Vibration Will Interact / Interrelate with the Following:

Population and Human Health

Noise and vibration impacts will interact with population and human health during the construction stage due to construction noise. Operation stage noise and vibration levels will also interact with population and human health. Potential population and human health impacts as a result of noise and vibration increases have been assessed in Chapter 12 Noise and Vibration and Chapter 06 Population and Human Health of this EIAR.

Biodiversity

During construction and operation, noise and vibration impacts have potential to interact with the biodiversity within Wexford Harbour, in particular that of the Slaney River Valley SAC and the Wexford Harbour and Slobs SPA. The predicted impacts are discussed in Chapter 07 Biodiversity and mitigation measures have been included in the Outline CEMP located in Appendix 4.1 of this EIAR.

Landscape and Visual

Noise mitigation measures during construction has potential to positively interact with landscape and visual impacts. The use of high quality noise mitigating hoarding around the site during construction will help mitigate the visual impacts of the construction stage.

Material Assets and Land

Noise and vibration levels during construction stage will also interact with Material Assets and Land. Businesses along Trinity Street may be subject to indirect impacts during construction and operation as a result of noise and vibration increases.

17.3.8 Air Quality and Climate Will Interact / Interrelate with the Following:

Population and Human Health

Increases in air pollutant and dust emissions have potential to impact on population and human health. Impacts associated with air pollutant and dust emissions during both the construction and operation stages are discussed in Chapter 13 Air Quality and Climate and Chapter 06 Population and Human Health of this EIAR.

Biodiversity

Air pollutant and dust emissions have the potential to interact with the biodiversity of the area due to pollutant deposition. The potential for deposits on the Slaney River Valley SAC and Wexford Harbour and Slobbs SPA are assessed in Chapter 13 Air Quality and Climate of this EIAR.

Material Assets and Land

Dust generated from construction activities may cause annoyance or nuisance to businesses within the area. Measures to control the production of dust such as the Dust Minimisation Plan, which has been prepared as part of this EIAR, will be put in place by the contractors to reduce any potential impacts experienced by receptors. Good communication between the contractors and business owners in the proximity of construction activities will facilitate on-going operations.

17.3.9 Archaeological and Cultural Heritage Will Interact / Interrelate with the Following

Population and Human Health

Information boards proposed as per the mitigation for Archaeological and Cultural Heritage will create a cultural element to the coastal walkway around the site for Population and visitors to enjoy, enhancing the visitors experience.

17.3.10 Material Assets and Land Will Interact / Interrelate with the Following:

Population and Human Health

The Trinity Wharf development, including the marina, will result in positive Population and Human Health impacts, providing public realm facilities and leisure opportunities for locals and visitors to enjoy. The redevelopment of the site will provide jobs and will help redevelop the Trinity Street area, bringing increased business and footfall to local businesses.

Hydrogeology

The provision of improved utilities such as a surface water drainage system across the site will have a positive impact on the hydrogeology of the area. There are currently no drainage facilities within the site and rainwater runs off into the Lower Slaney Estuary with infiltration also occurring throughout the site.

Hydrology

There are no current utilities within the site. Surface water and foul water facilities will be provided as part of the development to service the site. Surface water drainage and foul drainage designs have been incorporated into the design of the proposed development to prevent any foul or surface water runoff directly entering the River Slaney. Foul water is directed to a pumping station which connects to Wexford Town's foul drainage system and all of the surface water is attenuated prior to direct discharge to the estuary.

Landscape and Visual

The development of the land will have an impact on the Landscape and Visual setting of the site. The impact as a result of the development of the site from a brownfield site to a mixed use development providing public realm facilities, a marina and boardwalk is contained in Chapter 11 Landscape and Visual.

17.4 Major Accidents and Disasters

17.4.1 Potential for Major Accidents and Disasters

In the absence of national guidance on assessment of major accidents and disasters, the following methodology has been developed:

- Identifying hazards;
- Screening these hazards;
- Defining the impact;
- Assessing the likelihood of occurrence; and
- Assessing the remaining risks.

17.4.2 Stage 1 Assessment

A copy of the long list of major accident and disaster events is provided in Appendix 17.1 of this EIAR. Although the majority of these major events are already considered under other legislative or design requirements, this is not considered to be sufficient reason to eliminate them from further consideration. However, where it is concluded that the need for compliance is so fundamental, and the risk of any receptors being affected so remote, such major events have not been included on the shortlist.

Likewise, it is considered reasonable and proportionate to exclude certain receptor groups from the outset. Construction workers, as a receptor, can be excluded from the assessment, because existing legal protection is sufficient to minimise any risk from major events to a reasonable level.

Another potential source of major events related to the proposed scheme is road traffic accidents during its operation. These can clearly impact on people through fatalities and serious injury, but can also impact on the environment through the spillage of fuel and hazardous loads. However, for the proposed development, Chapter 5 Traffic Analysis of this EIAR has included elements in its design to minimise this risk.

As such, although the EIAR will still consider the risk of spillages, as part of the assessment of surface water drainage and the water environment (See Chapter 10 Hydrology of this EIAR), the potential for such accidents to affect people, as receptors under the topic of human health, is not considered further.

17.4.3 Stage 2 Assessment

In general, major accident and disaster events, as they relate to the proposed development, will fall into three categories:

- Events that could not realistically occur, due to the type of development or its location;
- Events that could realistically occur, but for which the proposed development, and associated receptors, are no more vulnerable than any other development; and

- Events that could occur, and to which the proposed development is particularly vulnerable, or which the proposed development has a particular capacity to exacerbate.

The screening stage was undertaken primarily to identify this third group of major events, which would then form the shortlist of events to be taken forward for further consideration. The results of the screening exercise undertaken for the long list of events are provided in Appendix 17.1 of this EIAR.

17.4.4 Stage 3 Assessment

Stage 3 of the assessment requires more detailed consideration of the short list of major events developed during Stage 2, though this may only mean that the risk needs to remain on the design risk register until it is closed out through design. Major events that were included on the short list and which have subsequently been considered in more detail are presented in Table 17.2.

Table 17.2 Assessment of Remaining Risks Associated with the Proposed Development

Major Event	Reason for consideration on Short List	Potential Receptors	Mitigation	Residual Significance
Floods	<p>The Trinity Wharf site currently floods occasionally in its existing brownfield state. The preliminary flood risk assessment (PFRA) map at the proposed development location indicates that the site is located within the 1 in 200 year and extreme coastal flood extents.</p> <p>The PFRA mapping shows the 1 in 100 year and extreme pluvial flood extents immediately to the south east of the site. The vulnerability of the project to flooding is covered in the Flood Risk Identification as reported in Chapter 10 Hydrology of the EIAR in terms of the risk to the proposed scheme.</p>	Road users, property and people in areas of increased flood risk.	<p>A review of the previous flood risk assessments and the study carried out for this project has determined that a minimum ground floor level of 2.64mOD should be adopted for all buildings within the development. The local roads within the site should have a minimum level of 2.34mOD. These satisfy the requirements of the Office of Public Works' (OPW's) Flood Risk Management Guidelines for Local Authorities and the Wexford Town and Environs Development Plan (2009 – 2015) as extended. The lowest proposed finished floor level for the development has been set at 3.00mOD while the lowest road level will be at 2.80mOD.</p> <p>In addition to raising the floor level, a new steel sheet pile sea wall is to be provided along the north-western and north-eastern edges of the site as part of the development, while the south-eastern side will comprise of sheet piled wall and the placement of rock armour to provide wave attenuation.</p> <p>The marina will also be sheltered by a breakwater on the seaward side. A Wave Climate assessment undertaken by RPS in the Trinity Wharf Marina Feasibility Report found that the proposed marina option and floating breakwater would result in the height and period of incident waves under all weather conditions to be within the wave height accepted threshold conditions as per the guidelines published by the Yacht Harbour Association and the Australian Standard (AS3962) '<i>Guidelines for design of Marinas</i>'. The proposed marina breakwater, sea wall and rock armour revetment along the perimeter of the site will protect the development against storm surge and wave action. This assessment accounted for a 1 in 100 year storm and a 1 in 50 year storm event from the north-east.</p> <p>Chapter 10 of the EIAR concludes that the proposed mitigation measures outlined above indicate that the risk associated with flooding can be reduced from moderate/significant to slight.</p>	Not significant

Major Event	Reason for consideration on Short List	Potential Receptors	Mitigation	Residual Significance
Road Accidents	The risk posed by spillage from hazardous loads as a result of a road traffic accident, e.g. fuel tankers, is considered in the Hydrology and Hydrogeology chapters of this EIAR. The proposed development will introduce these types of vehicles to the site.	Road users, aquatic environment.	<p>As described in Chapter 05 Traffic Analysis, a stage 1 Road Safety Audit has been carried out for the site. The circular route around the development is proposed as a pedestrian priority shared surface and will cater for one-way vehicular traffic only.</p> <p>Low traffic speeds will be achieved with entry and exit ramps, use of traffic calming pavement, street furniture and landscaping and narrow carriageway widths with tight corner radii in accordance with the Design Manual for Urban Roads and Streets (DMURS).</p> <p>Current collision statistics have shown that only 3 incidents have occurred on Trinity Street and William Street Lower in the ten year period between 2005 and 2014.</p> <p>Therefore it is expected that spillages as a result of traffic accidents will be unlikely due to speed reduction measures etc.</p> <p>Chapter 10 Hydrology of this EIAR has looked at spillage events during construction such as accidental spillages of hydrocarbons, concrete, cement products etc. Mitigation measures have been included in Chapter 10 Hydrology and in the Outline CEMP and Outline EOP prepared for the development which will, as a minimum, require the development to be formulated in consideration of standard best practice. An Outline Incident Response Plan has also been included in the Outline EOP for the construction stage. Mitigation measures for the operation stage to deal with impacts from runoff include SuDS components which will convey runoff to the Lower Slaney Estuary with very limited infiltration to ground, while attenuation will be provided for the 1 in 100 year six hour event plus a climate change factor (between tidal cycles). These mitigation measures will attenuate and cleanse the surface water runoff from the site prior to discharge to the sea through multiple locations along the extent of the proposed sea wall.</p>	Not significant

Major Event	Reason for consideration on Short List	Potential Receptors	Mitigation	Residual Significance
Rail Accidents	<p>The risk of rail accidents is considered as the access to the proposed development requires crossing of the Dublin to Rosslare railway line. As the passenger trains that traverse this line are travelling at a reduced speed on approach to Wexford Town, the risk of accident is reduced. A level crossing which will be used by fuel tankers etc. will pose risk of spillage from hazardous loads if an accident was to occur as a result of the railway crossing.</p>	<p>Road users, aquatic environment.</p>	<p>The road network will be connected to Trinity Street via a new road to be constructed perpendicular to the Trinity Street that will cross the railway line by means of a level crossing. This will be the main vehicular access to the site.</p> <p>The proposed link road into the development site will form a new level crossing with the Dublin to Rosslare railway line. Iarnród Éireann have agreed, in principle, to the design of the level crossing which will consist of signalised automatic-controlled boom barriers.</p> <p>A temporary level railway crossing will be established for the duration of the construction works for the access road. Towards the end of the construction phase, this crossing will be made permanent. Pavement works will be constructed on the railway and temporary accommodation arrangement for Iarnród Éireann flag man and look-out staff who will control the crossing for the duration of the works.</p> <p>Exact arrangements of this crossing will have to be agreed with Iarnród Éireann. The maintenance and operation of the level railway crossing at the main site access road will be taken over directly by Iarnród Éireann including the operation of the signalling, and maintenance of the barriers and mechanical and electrical equipment. New signalling equipment will be installed at the remote-control centre where signalling personnel can monitor and control the level crossing in use and new equipment will be installed along the railway on each approach to the level crossing.</p>	<p>Not Significant</p>

Major Event	Reason for consideration on Short List	Potential Receptors	Mitigation	Residual Significance
Building Failure or Fire	There are a number of buildings on the site with up to 6 storeys including a multi-storey carpark. The buildings have been designed to the most recent design regulations and fire exits have been incorporated into the designs.	Building users and population	<p>Once the proposed development is in operation, it is not likely to cause any major accidents and/or disasters due to the nature of the development. In the event of a fire or emergency, Wexford County Council's Fire Officer has been involved in the design to ensure that standard requirements are met.</p> <p><u>Emergency / Fire Tender Access:</u></p> <p>Wexford County Council's Fire Officer was satisfied that the vehicular circulation system provides a clear route and access around more than 50% of the buildings. However, they also asked for that the perimeter cycle/footpath be designed to allow additional fire tender access to the buildings facing the waterfront and a reinforced grass area to the side of the hotel.</p> <p>An inlet pipe from the estuary will be provided as per the designs in Chapter 4 and Figure 4.19 of Volume 3 of this EIAR, which will provide adequate water supply for fire-fighting, as required.</p> <p><u>Evacuation:</u></p> <p>The two principle routes from the site are the main entrance road from Trinity Street and the pedestrian/cycle boardwalk. Due to the size of the site and form of development, the site is large enough also for people to move to different areas within the overall site, from which there is scope for gradual evacuation.</p> <p><u>Buildings:</u></p> <p>All buildings are designed to comply with Building Regulations Technical Guidance Documents (TGD) Part B – Fire Safety (2006). At this stage, the main focus has been with regard to B1 'Means of Escape in Case of Fire' and B5 'Access and Facilities for the Fire Service'.</p> <p>Buildings have been considered in terms of vertical and horizontal compartmentation, internal travel distances, stair core locations, etc.</p> <p>Consideration has also been given to B4: 'External Fire Spread' in terms of building separation distances and materials.</p>	Not Significant

Major Event	Reason for consideration on Short List	Potential Receptors	Mitigation	Residual Significance
			<p>For the residential building the design has worked to comply with BS5588 Part 1, for offices BS5588 Part II, and for the cultural/performance centre to comply with BS5588 Part 6.</p> <p>Buildings can be provided with either wet or dry risers – however hydrants are to be located around the site and building heights are limited with top floor levels under 20m above ground level.</p>	
<p>Utilities failure (gas, electricity, water, sewage, oil, communications)</p>	<p>The release of foul sewage to the Slaney Valley SAC in the event of infrastructure failure could have significant impacts.</p>	<p>Biodiversity of Wexford Harbour and Slaney Estuary</p>	<p>The foul pumping station which will be installed will have standby pumps in the event of main pump failure. The pumping station will also have capacity to provide 24-hour effluent storage in the event of standby pump failure. Further to these measures, if overflow did occur, foul water would not discharge directly into the SAC. It would pond on the surface of the site, where it would travel through the swales and permeable paving which would provide some level of treatment and attenuation to the foul water. This would allow the relevant authority some time to address the overflow issue prior to the foul water making it into the SAC.</p>	<p>Not Significant</p>
<p>Animal and Plant disease</p>	<p>There is currently IAS within the brownfield site which will be dealt with before construction. However biosecurity will be considered in the construction and operational phases for both the landside developments and the marina.</p>	<p>Land-users, biodiversity</p>	<p>An Invasive Alien Species Management Plan (see Appendix 7.4) has been put in place by Envirico Ltd. on behalf of Wexford County Council since 2017 to eradicate the IAS within the site prior to construction.</p> <p>A site survey will be carried out prior to development to ensure that IAS have been eradicated as per the Management Plan and that no regrowth has occurred. The contractors will be in charge of the management of IAS during construction and where eradication has not been successful they will need to put in place a Management Plan for the treatment of any remaining IAS.</p>	<p>Not significant</p>

The likelihood of the proposed development causing major accidents and /or disasters is very small and is not significant.

17.5 Cumulative Effects

Cumulative effects are effects that result from incremental changes caused by other existing or approved projects together with the proposed development of Trinity Wharf. Cumulative effects were assessed by looking at all previous developments and current developments for which planning has been received.

Plans and projects which were identified and may be of significance are discussed below.

17.5.1 Irish Water (Planning Reference: 20151160)

Permission for the installation of a new outfall pipe to serve Wexford Wastewater Treatment Works was granted to Irish Water in February 2016. The permission included the installation of a 900mm diameter high-density polyethylene outfall pipeline to be constructed adjacent to the existing outfall pipeline from the shoreline to the existing outfall point in Wexford Harbour. A Natura Impact Statement (NIS) was submitted as part of the planning application which found that all impacts would not be significant and would be temporary. The works were scheduled from April to September to avoid the main wintering season for birds and were scheduled to be completed by September 2016. This work was only recently carried out in September 2018, however the works did not require the installation of a new pipe and repair works were carried out to the existing pipe instead.

As the location of the outfall pipe is 2km downstream of the proposed Trinity Wharf site, the Trinity Wharf site was assessed as one of two possible compound locations to be used during the works. As new pipes were not required however, the Trinity Wharf site was not needed as a compound. Taking into consideration the distance of the work from the proposed Trinity Wharf Development, the predicted short term of the effects and the temporal duration between the two projects, no cumulative effects are predicted as a result of the two projects.

17.5.2 Wexford Creamery Extensions

Glanbia Ingredients Ireland Limited

Alterations to Existing Plant Rooms (Planning Reference: 20150576)

Permission to carry out alterations to existing plant rooms in order to accommodate new natural gas fuelled boilers was granted in July 2015. The proposal consists of the removal of an existing canopy structure, an extension at ground floor level, the replacement of a roof at an increased height incorporating a penthouse structure of 10.125m as well as 3 new boiler stacks at a total height of 13.125m. An Appropriate Assessment (AA) was carried out for this planning application and found that during both the construction and operational phases, there would be no likely significant effects on the surrounding area. Therefore, no cumulative effects are predicted as a result of this project and the proposed Trinity Wharf Development.

Extension of production facilities (Planning Reference: 20160176)

A further application for the extension and modification of the existing production facilities at Wexford Creamery was granted in April 2016, subject to conditions. The modifications involved the replacement of the existing low-level roof from 5m to an increased height of 16.5m, an extension to accommodate new storage and dispatch areas and the removal of an existing penthouse structure along with all associated site

works and drainage within the site complex. Although the site is located only 800m away from the proposed development and the site entrance is located on the R730, it was found that there would be no likely significant impact. An AA Screening found that the extension was not considered to have any significant impact on Natura 2000 sites due to the nature and scale of the development. Furthermore, a Planning and Environmental Considerations Report identified that any significant environmental impacts would be managed through design considerations and mitigation measures. As a result, there are no likely significant cumulative impacts predicted as a result of the expansion and the proposed Trinity Wharf development.

Nutricia Infant Nutricia Ltd

Water Tank and Pump House (Planning Reference: 20150569)

Planning was granted for the construction of a 10.5m high water storage tank and an associated single storey pump house which will be used for the provision of a new fire prevention sprinkler system. The AA found that there will be no change to the overall surface water drainage system at the site. Therefore, no cumulative effects are predicted as a result of this project and the proposed Trinity Wharf Development.

Extension to existing production & warehouse facilities (Planning Reference: W2011083)

The development of an extension to existing production and warehousing buildings to accommodate an extended parking facility underwent AA Screening and Environmental Assessment in 2011. The Environmental Assessment Report found that the development will have no significant impact on the surrounding environment while the AA Screening found that the development would not result in likely significant direct or indirect impacts to Natura 2000 sites within 10km. Therefore, no cumulative effects are predicted as a result of this project and the proposed Trinity Wharf development.

Wexford Creamery EPA Licence Amendment (IED Licence No. P0794-01)

An EIAR was carried out for the Industrial Emissions Licence Review required as a result of production expansion (Industrial Emissions Directive (IED) licence P0794-01). The EIAR assessed the impact of the increase in production and increase in operational emission limits on the surrounding environment. The EIAR was submitted in November 2018 alongside a NIS. The NIS and EIAR found that there would be no significant effects to ecological and environmental receptors as a result of the plant upgrade and that with the mitigation measures proposed, the expansion of production will not cause significant adverse impacts on the flora and fauna within the receiving environment. It also found that compliance with the future IED Licence P0794-02 and the Trade Effluent Discharge Licence (SS/W182/05/16R1) will ensure that the potential impacts on surface or groundwater water resources as a result of the plant upgrade will not be significant. It is therefore considered that cumulative impacts are not predicted as a result of the existing production in Wexford Creamery and the proposed Trinity Wharf Development.

17.5.3 COANT Entertainments Ltd (Planning Reference: 20180589)

Planning permission was granted to COANT Entertainments Ltd in October 2018 for a development at Commercial Quay, Charlotte Street and 84 North Main Street in Wexford Town. The site is approximately 1km north of the Trinity Wharf Development on a vacant brownfield site along the Wexford Quays opposite the Wexford Bridge. The development consists of the demolition of all existing structures on the site and redevelopment of the site including an 8-storey mixed use development accommodating a hotel fronting to Commercial Quay, a retail space and 9 residential

units. This application was granted permission subject to conditions by Wexford County Council in October 2018 but has subsequently been appealed to An Bord Pleanála in November 2018. Due to the distance, the proposed development is not likely to have any cumulative effects with the proposed Trinity Wharf Development.

17.5.4 Colm Neville Construction Unlimited Co. (Planning Ref: 20171297)

Colm Neville Construction was granted permission for the extension and modification to their previous planning application W2010012 which they held under their previous name Orchard Lane Investments. The original application was refused by Wexford County Council and subsequently granted by An Bord Pleanála in 2010 following appeal. It comprised permission for 189 no. dwellings and 1 no. creche with all connections to existing public services, demolition of an existing agricultural building and construction of a temporary extension to be located on a cul de sac on Mulgannon Rd, Mulgannon, Co. Wexford. Modifications were granted to the application in March 2011 which allowed for the extension of the site area, inclusion of an additional 6 no houses, and possible future roundabout. Extension of the above planning permission for 5 years was granted in 2016.

The proposed housing development is located approximately 1km south west of the proposed development and due to the distance and difference in topography, is not likely to have any cumulative effects.

17.5.5 Morrowpoint Properties Limited (Planning References: 20181215 and 20181216)

Two planning applications from Morrowpoint Properties are currently with Wexford County Council for review, following submission in October 2018 for a mixed-use development along the Rosslare Road in Roxborough, approximately 1.8 km from the proposed development. Permission for Phase 1 (Planning Reference: 20181215) includes for the construction of a mixed-use and residential development comprising of the following; 71 no. residential units to include 62 semi-detached houses and a three-story apartment block comprising the remainder; a single storey creche/childcare facility building; a new access onto the R730 public road; and ancillary drainage works including foul water pumping station, site attenuation and rising main connection to existing Wexford town Wastewater Treatment Plant.

Permission for Phase 2 (Planning Reference: 20181216) comprises permission for the construction of 71 no. Residential units including detached, semi-detached and terraced dwellings; shared access with Phase 1 onto the R730 and shared ancillary drainage works, as described above.

While permission is currently with Wexford County Council, the NIS for phases 1 and 2 concluded that as a result of the mitigation proposed, the proposed development will have no adverse effects on key habitats or species and the overall integrity of the Natura 2000 sites. As part of the application, a Traffic and Transport Impact Assessment was also provided which, when assuming worst case scenario and including future development of additional zoned lands, found it will have minimal impact on other road users and the local road network well into the future. Considering the above assessments and the distance from the development, it is concluded that there will be no significant cumulative impacts from these planning applications with the proposed development.

17.5.6 WRM Investments (Planning Reference: 20170283)

Permission for the erection of a warehouse facility with ancillary two storey office block (6564m²), external signage, a heavy goods vehicle (HGV) trailer park and all

associated site development works was granted in June 2017. The development will be located off the Rosslare Road, east of the existing Omniplex building, approximately 2.2km from the proposed Trinity Wharf Development. An NIS was submitted with the application which concluded that there would be no adverse impacts on key habitats, species and the overall integrity of nearby Natura 2000 sites as a result of the development while an Environmental Noise Impact Assessment also concluded that there would be no significant increases in noise as a result of the development. Due to the distance from the proposed development and the results of the above assessments, no cumulative impacts are predicted with the proposed Trinity Wharf Development.

17.5.7 M11 bypass Scheme

The M11 Bypass Scheme will realign the N11 national primary road from south of Gorey to south of Enniscorthy, providing 27km of new motorway. The scheme also includes 8km of new single carriageway, to the west of Enniscorthy, linking from the existing Scarawalsh Roundabout to Templescoby on the N30. In addition a further 4 km of new dual carriageway will link those two sections. The scheme also includes a crossing of the River Slaney approximately 3km north east of Enniscorthy. An EIAR and AA was completed for the Scheme and following planning permission being granted it is currently under construction and is programmed to be operational in 2019.

The EIAR found that no significant impacts would occur to watercourses including the Slaney River Valley SAC as a result of the Scheme while the AA concluded that correct implementation of the mitigation measures provided will result in no significant residual impact on the integrity of the SAC. While the EIAR predicted short term changes to water quality and siltation were predicted during watercourse crossing construction, long term impacts on watercourses and biodiversity were found to be not significant.

The completion of the M11 Gorey to Enniscorthy is also anticipated to have a beneficial effect on traffic levels in Wexford Town as commuter traffic will use the new scheme rather than bypass Enniscorthy via Wexford Bridge and the R741, with potential to have positive cumulative effects with the proposed Trinity Wharf Development.

17.5.8 Wexford County Development Plan (2013 – 2019)

The vision set out in the Plan is to create a county which “*offers high quality, sustainable employment opportunities and residential developments*” with “*high quality urban and rural environments supported by excellent sustainable physical and social infrastructure*” and which “*offers visitors a range of high quality experiences*”. The Plan’s Economic Development Strategy seeks to harness the economic potential of the county’s urban areas, in particular the hub of Wexford Town, and maximise the potential for job creation.

The proposed development will support the County Development Plan’s vision not only through creating high quality office space for businesses but it will also provide opportunities for tourism development through the proposed hotel and marina and through the potential to connect with the planned coastal walk which is envisaged to travel via the Trinity Wharf site. Therefore, positive cumulative effects are predicted as a result of the proposed development.

17.5.9 Wexford Town and Environs Development Plan (2009-2015) (as extended)

The Trinity Wharf site is zoned as ‘Town Centre’ under the Wexford Town and Environs Development Plan 2009-2015, as illustrated in Figure 2.1 in (Volume 3 of this EIAR). The proposed development will contribute to a number of key aims within the Wexford

Town and Environs Development Plan as outlined in Chapter 2 of this EIAR. The Trinity Wharf site is also outlined as a '*Key Opportunity Site*' and as a site '*of a scale that they have significant capacity for redevelopment and represent significant opportunities to facilitate enterprise and employment opportunities*'.

The proposed development will support the Development Plan and will result in positive cumulative effects.

17.5.10 Wexford Local Economic and Community Plan (2016-2021)

The Wexford Local Economic and Community Plan has highlighted the issue of unemployment as a concern in County Wexford. The development of Trinity Wharf will support a number of objectives within the Plan, including specific objectives for the rejuvenation of the Trinity Wharf lands, creating positive cumulative effects. The proposed development will therefore result in positive cumulative impacts in respect of the Wexford Local Economic and Community Plan.

17.5.11 Wexford Quay Economic Development and Spatial Implementation Plan (2018)

The Wexford Quay Economic Development and Spatial Implementation Plan provides a strategic vision for revitalising and regenerating the Wexford Quays area, including the redevelopment of the Trinity Wharf site. The Plan also includes a number of Actions and Outcomes for the Trinity Wharf site focusing on the development of the site as a new urban mixed-use business quarter within walking distance of the town centre. The proposed development will strive to satisfy the outcomes of the Plan, by fulfilling the actions outlined. The proposed development will therefore result in positive cumulative impacts in respect of the Wexford Quay Economic Development and Spatial Implementation Plan.

17.6 Conclusion

Interrelationships

The interrelationships between the individual environmental disciplines have been considered and assessed. It is concluded that once relevant mitigation measures are implemented, no residual likely significant effects will exist as a result of the construction or operation of the Trinity Wharf Development.

Major Accidents and Disasters

The design of the proposed development has taken account of the potential for flooding, road and rail accidents, spillages, building failure or fire and on site and animal and plant disease in the design of the development and the construction methodology. In relation to accidents resulting in a spillage of polluting material, the risk of these occurring will not be significant. The likelihood of the proposed development causing major accidents and /or disasters is therefore found to be slight and is not significant.

Cumulative Impacts

Although it is acknowledged in Chapter 11 that the proposed development will result in adverse landscape and visual effects of certain localised views along the coastline it is not considered that there is potential for significant negative cumulative impacts arising in combination with any of the other assessed plans or projects. Positive cumulative impacts are predicted with strategic plans for the area as the proposed development supports various objectives of these plans.

Based on the above, it can be objectively concluded, in view of best scientific knowledge, on the basis of objective information and provided effective mitigation is in place, that the proposed development, either individually or in combination with other plans and projects, will not have a significant adverse effect on the receiving environment.

Appendix 17.1 Stage 2 Assessment of Major Accidents and Natural Disasters

Stage 1 Assessment for Accidents and Disasters

		Relevant for long list?	Why? (note if risk to the project, or project exacerbates risk)	Potential Receptors	Covered already in EIAR? If so, where?	Continue to Stage 3 (see Chapter 4)?
Natural Disasters						
1 Geological Disasters						
1.1	Avalanches and landslides	Yes	Landslides have been considered as a fundamental part of the design. This will ensure that the risk is designed out, both in terms of the vulnerability of the proposed scheme to these types of event, and also in terms of the potential for the proposed scheme to increase the risk of such an event happening. There is considered to be no receptor that could therefore be of greater risk.	N/A	N/A	No
1.2	Earthquakes	No	The site is not in a geologically active area and as such, earthquakes are not considered to be a real risk or serious possibility.	N/A	N/A	No
1.3	Sinkholes	No	The geology of the study area is not prone to sinkholes.	N/A	N/A	No
2 Hydrological Disasters						
2.1	Floods	Yes	Both the vulnerability of the project to flooding, and its potential to exacerbate flooding, have been covered in the Hydrology Chapter and has been reported on in the EIAR, both in terms of the risk to the scheme and increased risk due to the scheme.	The proposed development, railway line and adjacent Goodtide Harbour.	Yes - Chapter 10: Hydrology	Yes
2.2	Tsunami / Storm surge	Yes	The site is exposed to sea levels and the effect of storm surges have been considered in the assessment of Flood Risk. See Item 2.1 above.	N/A	Yes - Chapter 10: Hydrology	No

		Relevant for long list?	Why? (note if risk to the project, or project exacerbates risk)	Potential Receptors	Covered already in EIAR? If so, where?	Continue to Stage 3 (see Chapter 4)?
3 Meteorological Disasters						
3.1	Blizzards	No	Blizzard conditions could affect users of the development, however the risk is no different from other coastal developments in Ireland. As part of the Masterplan for the site, Wind and Microclimatic Analysis was carried out for the proposed layout to determine the predicted performance of the buildings and their impact on their surrounding environment in terms of microclimate.	Population	N/A	No
3.2	Cyclonic storms	No	No - not applicable.	N/A	N/A	No
3.3	Droughts	No	Droughts are only considered as a disaster due to water shortages for essential services and where there are indirect impacts on food production, loss of soils etc. The proposed scheme is not considered to be vulnerable to drought.	N/A	N/A	No
3.4	Thunderstorms	Yes	The proposed building designs will consider the potential risk of lightning strikes, though the risk is not considered to be any greater than any other buildings.	Population	No	No
3.5	Hailstorms	No	No	N/A	N/A	No
3.6	Heat waves	Yes	The building and pavement design will consider the effect of high temperatures; however the proposed mixed-use development will be no more vulnerable than any other development.	N/A	N/A	No
3.7	Tornadoes	No	Although there are tornadoes in Ireland, their destructive force tends to be much less than in other parts of the world and the proposed scheme is not particularly vulnerable to any potential effects.	N/A	No	No
3.8	Wildfires	Yes	The landscaping proposed for the propose development will not be very dense, however the risk of wildfires is thought to be no greater than the existing urban developments.	Development users, habitats and species.	No	No
3.9	Air Quality Events	Yes	Although relevant, as vehicles emissions can contribute to poor air quality, it is not considered necessary to undertake any more assessment than is already proposed for the Air Quality assessment.	Population	Yes - Chapter 13: Air Quality & Climate	No

		Relevant for long list?	Why? (note if risk to the project, or project exacerbates risk)	Potential Receptors	Covered already in EIAR? If so, where?	Continue to Stage 3 (see Chapter 4)?
4 Space Disasters						
4.1	Impact events and airburst	No	The proposed scheme is considered to be no more vulnerable than any other development.	N/A	N/A	No
4.2	Solar flare	No	The proposed development is considered to be no more vulnerable than any other development.	N/A	N/A	No
5 Transport						
5.1	Road Accidents	Yes	The risk posed by spillage from hazardous loads as a result of a road traffic accident e.g. fuel tankers will be considered in the Hydrology and Hydrogeology Chapters.	Road users, aquatic environment.	Yes - Chapter 9: Hydrogeology and Chapter 10: Hydrology	Yes
5.2	Rail Accidents	Yes	Access to the proposed development requires the crossing of a live railway. A level crossing will be put in place to provide an access.	Road users, aquatic environment.	No	Yes
5.3	Aircraft Disasters	No	There is not considered to be an increased risk to road users or building occupants, or members of the public.	Road users, pilots and aircraft.	N/A	No
5.4	Maritime Disasters	Yes	The proposed development is located adjacent to the sea. The marina is the most vulnerable aspect of the development which would be subject to maritime disasters. The Marina Feasibility Study carried out by RPS Group modelled for the effect of extreme tidal levels, wave and wind conditions in designing the marina.	Material Assets, Population	Yes – Trinity Wharf Development, Marina Feasibility Study	No
6 Engineering Accidents/Failures						
6.1	Bridge Failure	Yes	The pedestrian boardwalk to Paul Quay will comprise the only bridge proposed as part of the development. This will be designed to modern safety standards.	Population	No	No
6.2	Tunnel Failure or Fire	No	No proposed tunnels.	N/A	N/A	No
6.3	Dam Failure	No	There are no dams that would affect the proposed scheme.	N/A	N/A	No

		Relevant for long list?	Why? (note if risk to the project, or project exacerbates risk)	Potential Receptors	Covered already in EIAR? If so, where?	Continue to Stage 3 (see Chapter 4)?
6.4	Flood Defence Failure	Yes	The site has been designed to protect against flooding by means of raising the height of the site and constructing a sheet piled sea wall. This sea wall has been designed to the required standards and a stone revetment will be placed on the outer side of this sea wall on the southern side of the site to attenuate any incoming waves.	N/A	Chapter 4: Description of the Proposed Development	No
6.5	Mast and Tower Collapse	Yes	Roadside signs and lighting will be part of the scheme. They will be designed to modern design standards.	Road users	No	No
6.6	Building failure or fire	Yes	Buildings have been designed to the latest design standards and measures as requested by Wexford County Council's fire officers have been incorporated into the development.	Population, Biodiversity	Chapter 4: Description of the Proposed Development	Yes
6.7	Utilities failure (gas, electricity, water, sewage, oil, communications)	Yes	Utilities including water and wastewater provisions have been designed and will be provided as part of the proposed development. These include provision of freshwater and sewage facilities for the marina users.	Hydrology, Hydrogeology	Chapter 04: Description of the Proposed Development Chapter 09: Biodiversity	No
7 Industrial Accidents						
7.1	Defence industry	No	None in the study area	N/A	No	No
7.1	Energy Industry (fossil fuel)	No	None in the study area	N/A	No	No
7.1	Oil and gas refinery / storage	No	None in the study area	N/A	No	No
7.1	Food Industry	Yes	A restaurant is proposed as part of the development. Health and Safety will be implemented by the occupier when appointed. Wexford Creamery is located approximately 800m south of the proposed development. The proposed scheme is not within the area and is unlikely to be affected in such events.	Population, Biodiversity	No	No
7.1	Chemical Industry	No	None nearby	N/A		

		Relevant for long list?	Why? (note if risk to the project, or project exacerbates risk)	Potential Receptors	Covered already in EIAR? If so, where?	Continue to Stage 3 (see Chapter 4)?
7.1	Manufacturing Industry	No	None nearby	N/A	N/A	No
7.1	Mining Industry	Yes	None nearby	N/A	No	No
8 Crime/Civil Unrest						
8.1	Crime or Civil Unrest	No	No more vulnerable than any other developments.	N/A	No	No
8.2	Cyber attacks	Yes	No more vulnerable than any other developments.	N/A	No	No
9 Disease						
9.1	Human disease	No	No more vulnerable than any other infrastructure.	N/A	No	No
9.2	Animal and Plant disease	Yes	The removal of onsite Invasive species is required to permit development. Biosecurity will be considered in the construction and operational phases.	Biodiversity	Chapter 07 Biodiversity	Yes