

# Strategic Environmental Assessment Statement



## Port of Waterford Master Plan

### Co. Waterford



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## Strategic Environmental Assessment Statement

### Port of Waterford Master Plan

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## 1.0 INTRODUCTION

This Strategic Environmental Assessment (SEA) Statement has been prepared by MOR as the final part of the SEA for the Port of Waterford's (POW) 25-year Master Plan (the Master Plan). This report outlines how the SEA Environmental Report was progressed through the SEA process, detailing the way in which baseline environmental considerations, consultation inputs and the assessments of environmental impacts and their proposed mitigation measures were included into the POW 25-year Master Plan.

This SEA Statement has been prepared in accordance with the provisions of Article 12 of European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I 435 of 2004) and European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 (S.I 200 of 2011).

### 1.1 The Master Plan

The proposed POW Master Plan (hereafter referred to as the Master Plan) is a high-level strategy outlining the main infrastructural works envisaged to facilitate continued growth and trade in the region for the next 25 years. Please refer to the main Master Plan document for details.

The Master Plan will provide a physical framework for the sustainable development of the Port, describing the strategic intentions necessary to improve overall Port performance and illustrating a clear vision of future Port operations. The development of this 25-year Master Plan is considered critical to increase the commercial success and ultimately increase the capacity of the Port.

Key objectives of the Master Plan include:

1. To reduce dredging requirements at the Port.
2. To increase navigational safety and access to the Port.
3. To provide additional capacity at the Port.
4. To facilitate the development of new shore side berthing provisions and facilities.

A range of both shore and marine based projects will be included in the Master Plan to achieve these objectives. The area that will be covered by the Master Plan is shown Figure 1-1.

Figure 1-1: POW Master Plan Area



## 2.0 SUMMARY OF SEA PROCESS

### 2.1 The Requirement for SEA

SEA is required under the European Union (EU) Council Directive 2001/42/EC on the Assessment of the Effects of Certain Plans and Programmes on the Environment (herein referred to as the 'SEA Directive'). The SEA Directive was transposed into Irish Law through the EC (Environmental Assessment of Certain Plans or Programmes) Regulations (S.I. 435 of 2004) as amended by S.I. No. 200 of 2011 (EC (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011) and S.I. No. 436 of 2004 (Planning and Development (Strategic Environmental Assessment) as amended by S.I. No. 201 of 2011 (Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011) respectively.

The aim of these Regulations is to enable plan making authorities to incorporate environmental considerations into early decision-making and in an integrated way throughout the plan making process.

### 2.2 The SEA Process

The SEA process is undertaken in four stages, see Table 2-1 below.

**Table 2-1: The Stages in SEA**

Stage	Description	Status
<b>1. Screening</b>	Determines whether SEA is required for a plan / programme in consultation with the designated statutory consultees.	Completed Q2 2018
<b>2. Scoping</b>	Determines the spatial and temporal scope of the SEA in consultation with the designated statutory consultees.	Completed Q2 2018
<b>3. Environmental Report</b>	Formal and transparent assessment of the likely significant impacts on the environment due to implementation of a plan / programme including all reasonable alternatives. The output from this stage is an Environmental Report which is required to go on public display along with the draft plan / programme.	Completed Q2 2019
<b>4. SEA Statement</b>	Summarises the process undertaken and identifies how environmental considerations and consultations have been integrated into the final Plan / Programme.	<b>Current Stage</b>

The SEA process is an essential part of achieving sustainable development in public planning and policy making. SEA ensures that negative environmental effects arising from a plan / programme or other strategic action are properly:

5. Identified and assessed;
6. Taken into account by the responsible authority / decision makers;
7. Transparent to the public through public consultation; and,
8. Regularly monitored.

#### 2.2.1 Screening – Stage 1

A Screening Report was completed for the Master Plan and it concluded that a SEA needs to be undertaken as part of the Master Plan.

## 2.2.2 Scoping – Stage 2

A Scoping Report has been completed and circulated to the relevant environmental authorities, see Table 4-1. The Scoping Report identified the geographical and temporal scope of the Master Plan and the level of detail for the environmental assessment. The Report outlined the proposed methodology for addressing these impacts during the assessment stage.

## 2.2.3 SEA Environmental Report – Stage 3

Stage 3 of the SEA process (the assessment stage) was undertaken in a number of phases, as set out in Table 2-2 below.

**Table 2-2: SEA Assessment Stages**

Assessment Stage	Description
<b>Consultation &amp; Baseline</b>	Information gathered during the SEA scoping exercise was collated and expanded upon. This included a review of the findings of the consultation submissions received during the scoping stage.
<b>Plan &amp; Policy Review</b>	A review of relevant national and regional plans and policy documents was undertaken both to identify the key environmental issues and to ensure that the objectives set out in the Master Plan meet the requirements of all relevant plans and policies.
<b>Key Environmental Issues</b>	The key environmental issues were identified based on the baseline data, and the plans and policy review.
<b>Environmental Objectives</b>	The environmental objectives outlined in the Scoping Report were finalised.
<b>Assessment</b>	Using the environmental objectives, the assessment of the potential significant effects associated with the Master Plan (objectives, projects and alternatives to the Plan) was undertaken.
<b>Mitigation &amp; Recommendations</b>	Based on this assessment, and the potential environmental impacts, mitigation and recommendations have been proposed.
<b>Monitoring</b>	The final step is the development of the SEA monitoring framework.

## 2.2.4 SEA Statement – Stage 4 (Current Stage)

The main purpose of this SEA Statement is to provide information on the decision-making process for the Master Plan in order to illustrate how decisions were taken and how the environment has been considered in the development of the Master Plan. In doing so the SEA Statement documents how the recommendations of the SEA Environmental Report and NIS, as well as the views of the statutory consultees and other submissions received during consultation have influenced the preparation of the Master Plan.

The SEA Statement also provides information on the arrangements put in place for monitoring and mitigation. The SEA Statement is available to the public, along with the adopted Port of Waterford 25-Year Master Plan

The SEA Statement includes the following information:

- Summary of how environmental considerations have been integrated into the Master Plan;
- Summary of how submissions received during consultation have been taken into account in the Master Plan;

- Reasons for choosing the recommended option, in light of other reasonable alternatives considered; and,
- Measures that are to be undertaken to monitor and mitigate the potential significant environmental effects of implementing the Master Plan.

### 2.3 Baseline Data

The baseline describes the current environmental conditions in the absence of the Master Plan at a defined point in time. This provides a benchmark to which the predicted environmental effects can be assessed.

Baseline data was collated using existing data sources, on the environmental indicators in the SEA Directive, namely those listed in Table 2-3.

**Table 2-3: List of Environmental Indicators in SEA**

Environmental Indicators	
Biodiversity, Flora & Fauna	Climatic Factors
Population & Human Health	Material Assets – Infrastructure, Fisheries & Aquaculture
Geology, Soils & Land-use	Cultural Heritage (Architectural & Archaeological)
Water	Landscape & Visual Amenity
Air Quality	Acoustics

### 2.4 Difficulties Encountered and Information Gaps

This SEA has been prepared based on desk-top studies. No surveys were carried out in the Master Plan area. Such surveys will be carried out at individual project planning stages.



### 3.0 PREFERRED MASTER PLAN OPTION

The preferred alternative comprises the full development of the proposed Master Plan as presented in Table 3-1 in a phased manner.

**Table 3-1: Development Options**

No.	Option	Description
1	<b>Options to minimise dredging and improve marine access</b>	
1.1	Cheekpoint Lower Bar River Training Wall	<p>The Cheekpoint Lower Bar area is regularly maintained by dredging, resulting in the need for the disposal of high volumes of dredged material and high ongoing maintenance costs. The key project within the Master Plan is construction of a river training wall at a strategic location, which would significantly reduce the need for ongoing dredging, as shown by the hydrodynamic model completed for the estuary (ABPmer, 2018a).</p> <p>The training wall will be a double line of sheet piles, ca.6m wide – such design minimises environmental impacts, while maximising hydrodynamic benefits.</p>
1.2	Carter Patch Channel Widening	<p>Carter Patch represents an area of the navigational channel (from Passage East to Sheagh Light) that poses a navigational safety hazard to longer trade vessels. The curve of the navigational channel requires vessels to ‘crab’ when manoeuvring the channel. This results in a limiting length of vessel through the area.</p> <p>This project would involve widening this area by 50m to approximately 150m total width to remove this restriction and increase navigational safety and access.</p>
1.3	Approach Channel Deepening	<p>To accommodate larger vessels, it is required to deepen the approach channel, from the mouth of the estuary to the quays, from 6.5mBCD to a more appropriate level, potentially to a depth of 8mBCD.</p> <p>Approach channel deepening would likely be completed in three phases – deepening to 7mBCD, 7.5mBCD and 8mBCD.</p>
1.4	Turning Basin Development	<p>Currently, areas where vessels can turn have constraints preventing larger vessels accessing the Port. Therefore, it is proposed to enlarge one of these turning basins to safely accommodate trade vessels which are foreseen to possibly visit the Port over the next 25 years.</p> <p>This would require widening of the Bingleadies channel area, i.e. removal of the rock outcrop to widen and deepen approach channel for maritime safety and manoeuvrability.</p>
2	<b>Options for development/improvements to berths</b>	
2.1	Belview Quay Extension	<p>Construction of up to 400m extension of the main Belview Quay to provide two new berths is proposed. This project would require 6 hectares (ha) of land reclamation and capital dredging.</p> <p>This would likely be completed in two phases – the first phase would comprise 200m extension, facilitating one new berth, and the second phase would comprise another 200m facilitating the second new berth.</p>
2.2	O'Brien Quay Extension	<p>O'Brien's Quay can currently accommodate 120m long ships. Extension to accommodate 190m long ships is proposed. Extension on either side of the existing quay is considered.</p> <p>Turning circle will be required in the vicinity of this Quay to allow longer ships to turn, which would require deepening and maintenance dredging.</p>
2.3	Quay Wall Continuity	<p>There is currently a break of 230m in the continuity of the quay wall between Belview Quay and O'Brien's Quay. This area is prone to sedimentation and impinges on safe navigational depths in the adjacent</p>

No.	Option	Description
		downstream berth. To minimise this feature and provide additional berthing and storage area, the construction of a quay wall in this area is proposed.
2.4	Berth Deepening	Deepening of berths at Belview or O'Brien's Quay is proposed to accommodate deeper drafted vessels at the terminals.
3	<b>Shore Side Developments</b>	
3.1	Improvements to road access to port	Alterations to N29 in the vicinity of the Port to allow access to roadside lands will be required.
3.2	Improvements/development of services infrastructure	Development of services including water supply, effluent treatment, and broadband will be required. Potentially, other shore side infrastructural developments required to support the above shore side projects.
3.3	Serviced sites	Provision of serviced development sites.
3.4	Office Buildings	POW is seeking a wider zoning designation on Marine Point.
3.5	Development of additional warehousing	Development of additional warehousing required for forecasted increased Port throughput.
<p>Current Project: <b>Pontoon Relocation</b></p> <p>The tugs serving Belview Port berth at the pontoon system on the South Quays in Waterford City will be relocated to the Belview Port, downstream from the Belview Quay.</p>		

These developments will occur in phases throughout the 25-year Master Plan period, and the Master Plan and associated environmental documentation will be reviewed every 5 years and updated as required.

This approach allows meeting all medium-term and long-term objectives of the proposed Master Plan. Phased development will also mostly avoid cumulative and in-combination environmental impacts, and is feasible in terms of capital investment and adaptable to economic conditions.

### 3.1 Integration of Environmental Considerations into the Master Plan

Due to environmental concerns, certain projects were excluded from the Master Plan; these include reclamation of land behind the training wall, construction of deep berths at the training wall, engineering approach to the training wall design, materials and construction.

The wall design has been completely re-designed several times to allow for structural integrity while minimising potential impact on habitats.

## 4.0 CONSULTATION

In accordance with Article 6 of the SEA Directive and Article 11 of S.I. No. 435 of 2004, consultation should be undertaken with specific environmental authorities (statutory consultees) on the scope and level of detail to be included in the SEA Environmental Report. In line with S.I. No. 200 of 2011, the five statutory consultees are established as being the:

- The Environmental Protection Agency (EPA);
- Department of Housing, Planning and Local Government (DHPLG);
- Department of Agriculture, Food and the Marine (DAFM);
- Department of Communications, Climate Action and the Environment (DCCA); and,
- Department of Culture, Heritage and Gaeltacht (DCHG).

### 4.1 SEA Scoping Phase Consultation

As part of the SEA Scoping process (in accordance with S.I. No. 435 of 2004), environmental authorities were notified in July 2018 that a submission or observation in relation to the scope and level of detail of the information to be included in the Environmental Report may be made to POW. A total of five statutory consultees and twenty-one non-statutory consultees were consulted, see Table 4-1 below.

Notifications were accompanied by a covering letter and a hard / soft copy of the SEA Scoping Report.

**Table 4-1: List of Consultees during the Scoping Stage**

Statutory	Non-Statutory
EPA	An Taisce
Department of Housing, Planning and Local Government (DHPLG)	Bord Iascaigh Mhara (BIM)
Department of Agriculture, Food and the Marine (DAFM)	Chamber of Commerce (Waterford, Wexford & Kilkenny)
Department of Communications, Climate Action and the Environment (DCCA)	Coastwatch Europe
Department of Culture, Heritage and Gaeltacht (DCHG)	Department of Business, Enterprise and Innovation (DBE)
	Department of Rural and Community Development (DRCD)
	Department of Transport, Tourism and Sport (DTTS)
	Inland Fisheries Ireland (IFI)
	Irish Environmental Network (Environmental Pillar)
	Irish Maritime Development Office (IMDO)
	Irish Ports Associations
	Local Amenity Groups including the Cheekpoint and Faithlegg Development Group

Statutory	Non-Statutory
	Local Authorities (Waterford, Wexford & Kilkenny)
	Local Heritage Officers (Waterford, Wexford & Kilkenny)
	Marine Institute
	National Parks and Wildlife Service (NPWS)
	Office of Public Works (OPW)
	Passage East Ferry Company Limited
	Sea-Fisheries Protection Authority (SFPA)
	Southern Regional Assembly
	Transport Infrastructure Ireland (TII)

A SEA Scoping Workshop was held on 8<sup>th</sup> August 2018 to allow for statutory and non-statutory consultees to participate in the scoping phase of the Master Plan. A revised Scoping Report was prepared to incorporate comments received from this workshop as well as those revised during the statutory consultation period.

Submissions were received from the following stakeholders:

- The Environmental Protection Agency (EPA);
- Department of Culture, Heritage and the Gaeltacht (DCHG);
- Transport Infrastructure Ireland (TII); and,
- Bord Iascaigh Mhara (BIM).

All submissions have been reviewed and taken into account in preparation of the SEA Environmental Report and the accompanying Natura Impact Report (NIR). Key changes include:

- Including the permitted Disposal Site for dredged materials in the Master Plan area shown in Figure 2-1 of the Environmental Report.
- Including temporal scope of the Master Plan; and,
- Significant iterative changes to Alternatives considered were included.

#### **4.2 Public Consultation on the Master Plan and SEA Environmental Report**

In line with SEA Regulations, the Master Plan and this SEA draft Environmental Report were made available to the public and the consultees listed in Table 4-1 above. The public consultation was advertised in the local and the national press. Consultation on the Master Plan and this SEA Environmental Report ran from the 12<sup>th</sup> July until 31<sup>st</sup> August 2019. Of the Statutory Consultees, the following replies were received:

- Environmental Protection Agency, via email on 17<sup>th</sup> of July;
- Department of Culture, Heritage and Gaeltacht (including the National Parks and Wildlife Service and the Development Applications Unit) via two separate emails on the 6<sup>th</sup> of June and 26<sup>th</sup> of August; and,

- Department of Communications, Climate Action & Environment (including the Geological Survey Ireland) via two separate emails on the 24th and 26th of July.

During the consultation period the POW held three public consultation meetings over two days. The first two public consultation meetings were held at the POW offices on the 26<sup>th</sup> of June, and the third public consultation meeting was held at Passage East on the 18<sup>th</sup> of July.

In addition to these public consultations, three consultation meetings with stakeholders were also held at the POW offices. Meetings were held with South East Port Services on the 23<sup>rd</sup> of July; with Suir Shipping on the 25<sup>th</sup> of July and with Target Fertilisers on the 30<sup>th</sup> of July.

A total of ten email and postal responses to the draft SEA and Master Plan were received during the consultation period; six of which were from members of the public, and the remaining four were from stakeholders, namely Kilkenny County Council, Waterford City and County Council, the Southern Regional Assembly and the Cheekpoint Boat Owners Association.

Responses from the public bodies were in general very positive in regards to the Master planning process.

Responses and suggestions from the public consultation were reviewed in detail and included in the Master Plan and this report as far as practical. In particular, Department of Communications, Climate Action & Environment's Geological Survey and Waste Division's recommendations regarding geo-hazards and waste management were included in this report. Also, the EPA's comments in regards to Objectives, Targets and Mitigation measures were included in this report, as well as many other EPA's suggestions and recommendations.

## **5.0 MITIGATION AND MONITORING**

### **5.1 Mitigation**

Mitigation measures have been recommended where potential negative impacts have been identified. These mitigation measures aim to prevent and where this is not possible minimise negative environmental impacts envisaged as a result of implementing the Master Plan.

The primary mitigation recommendation is that predicted negative impacts should be considered in more detail at project level stage, when the specifics of the development options will be available. Full details of the proposed construction methodologies will be developed at the design stage and subject to detailed assessment to ensure that impacts can be both avoided or minimised.

Table 5-1 outlines specific mitigation measures that will be adopted as part of the Master Plan.

**Table 5-1: Mitigation Measures**

No.	Topic	Potential Impact	Mitigation
1	General	Negative impacts the environment.	<p>An overall Environmental Management Plan, Dredge Management Plan and Habitat Management Plan will be prepared for the Port in accordance with best practice guidelines. These plans will be agreed with the relevant statutory bodies.</p> <p>A Construction Environmental Management Plan (CEMP) and comprehensive Working Method Statements (WMS) will be created for the individual projects as required. All relevant key findings, recommendations and mitigation measures arising from the Master Plan SEA and AA processes will be integrated into the project-level CEMPs, WMSs and environmental assessments in a tiered manner.</p>
2	Biodiversity	<p>Impact on European sites, habitats and species from construction and operational phase.</p> <p>Disturbance / displacement to species.</p>	<p>Pre-construction surveys will be undertaken by a suitably qualified and experienced ecologist for each of the relevant projects. These will confirm the extent and quality of the habitat to be impacted by the various elements of the works.</p> <p>Contact with IFI and the National Parks &amp; Wildlife Service will also be established at the design stage.</p> <p>This information will be used at the project level to inform design / approach to the project to ensure the impacts can be either minimised or avoided.</p> <p>Full details of the proposed construction methodologies will be developed at the design stage and subject to detailed assessment to ensure that impacts can be both avoided and minimised.</p> <p>In cases where impacts cannot be avoided, the appropriate statutory bodies will be consulted and should detailed surveys at the project level to identify the presence of protected / notable species within the area, then it will be necessary to acquire the suitable derogation licence from the relevant statutory body.</p> <p>On-going consultation with the NPWS will be required for the full life cycle of the Master Plan to ensure that the NPWS are fully informed and that the mitigation measures employed remain current / relevant in the context of the impacted Natura 2000 sites and their conservation objectives.</p> <p>Ongoing monitoring, including water quality monitoring during projects that take place either in or adjacent to the estuary. This will help monitor impacts on the environment and aquaculture. Thresholds for action (trigger levels) for water quality monitoring will be set.</p> <p>If mitigation cannot adequately avoid impacts at the project level and no alternatives can be identified that are suitable, it will be necessary to identify the Imperative Reasons of Overriding Public Interest (IROPI). Any reliance on IROPI will need to be appropriately documented and the required statutory consents sorted.</p> <p>Any future infrastructure developments that require IROPI will need to meet the requirements of European Commission guidance, i.e. that any compensation measures must be available, achievable and judged likely to be effective; and must be in place before the adverse effect occurs.</p>

No.	Topic	Potential Impact	Mitigation
3	Biodiversity	Accidental introduction / spread of invasive species.	<p>As part of initial habitat surveys completed for planning applications for specific projects, invasive species survey will be carried out. If required, a pre-construction survey to identify any potential invasive species will also be carried out.</p> <p>In order to ensure biosecurity in terms of aquatic invasive species, all works requiring access to the marine environment will be required to prepared method statements detailing their biosecurity protocol in relation to use of equipment between different Sites.</p> <p>The method statements will be based on the relevant guidance for the works being undertaken.</p> <p>In order to mitigate against the unintentional introduction of invasive species to the Site as part of the works, all shore side developments works will be undertaken in line with best practice.</p>
4	Biodiversity	Impacts to movement / migration.	<p>Good planning and timing of works, with sensitive construction methods and adherence to best practice construction guidelines including NRA guidelines '<i>On Crossing Watercourses, On treatment of Otters</i>' etc., and Eastern Fisheries Board '<i>Requirements for the Protection of fisheries habitats during Construction and development works at river sites.</i>'</p>



No.	Topic	Potential Impact	Mitigation
5	Biodiversity	Potential impacts on habitats as a result of dredging and disposal of dredged material.	<p>Dredging regime will employ best-practice measures to minimise the release of suspended particulate matter within the water column by:</p> <ul style="list-style-type: none"> <li>• Preparation of an Environmental Management System (EMS) which meets the recommendations as outlined in the EC Guidance on the implementation of the EU nature legislation in estuaries and coastal zone (EC, 2011a);</li> <li>• Maintaining a low speed during dredging;</li> <li>• Only utilising water jets when necessary to ensure adequate production and efficient loading;</li> <li>• Minimise the use of overflowing whenever possible to achieve an economic load; and,</li> <li>• Dredging will be undertaken as efficiently as possible so that the number of dredger movements is minimised.</li> </ul> <p>The disposal regime will employ the following best practice measures:</p> <ul style="list-style-type: none"> <li>• Maintain an acceptable speed to ensure against losses during transit during inclement weather;</li> <li>• Division of the disposal site into sectors with each used in turn; and,</li> <li>• Maintain a low speed during disposal to disperse material over disposal area.</li> </ul> <p>The above measures are standard best practice and serve to minimise impacts on the environment.</p> <p>The POW will be bound by the conditions as set out by the EPA in their Dumping at Sea permit. This will ensure a sustainable maintenance / or capital dredging strategy is adopted.</p> <p>The POW will ensure that all dredging works are optimized in line with the ESPO guidance (ESPO, 2007).</p>
6	Population & Human Health Air Quality Acoustics	Disturbance to the local communities during the construction of development options.	<p>Disturbances can be kept to a minimum through effective planning and timing of works in addition to adherence of construction best practice guidelines.</p> <p>Noise-producing activities in sensitive locations should be undertaken in line with the EPA's Guidance Note for Noise in Relation to Scheduled Activities (NG4) and monitoring of these activities should be ongoing. Mitigation measures, such as limited operational hours, will be implemented where necessary.</p> <p>Development of Dust and Noise Minimisation Plans as applicable.</p> <p>Continued liaison with local communities is recommended with regard to complaints related to air, noise and vibration emissions resulting from POW construction works.</p>

No.	Topic	Potential Impact	Mitigation
7	Population & Human Health	Disturbance to the local communities from Port operations / Port traffic.	Disturbances can be kept to a minimum through effective planning and good site management practices. Continued liaison with local communities should be undertaken to ensure that concerns raised are addressed.
8	Sediments, Geology, Soils & Land-use  Water (Groundwater)	Contamination of soils and groundwater during construction works from concrete, oil and other hazards.  Contamination of <b>groundwater body</b> from construction works and pollutants being discharged to soils and groundwater.	Good construction management and planning will ensure soil and groundwater contamination is prevented. Preparation of Erosion and Sediment Control Plans, Emergency Response Plans and Accident Prevention Procedures.  Adherence to best practice measures outlined the above plans and the CEMP. These will include, inter alia, pollution prevention and control, sediment management, suitable storage of hazardous materials, minimising surface water runoff and flow from sites, bunded refuelling areas, exposed soil management and dust control.
9	Sediments, Geology, Soils & Land-use	Disposal of dredged material.	Appropriate surveys will be undertaken to assess the dredged material and to ensure compliance with the current Dumping at Sea Permit. POW will continue to search for a viable beneficial use of dredged material and minimise the amount of dredging being undertaken wherever possible.
10	Water	Deterioration of water quality, including accidental spillage / runoff entering the watercourse.	Good construction management and planning will ensure water quality disturbance to be kept to a minimum. Any potential water quality issues from construction activities should be contained and treated to ensure no impact to the receiving water body.  Works should adhere to best practice guidelines, such as CIRIA C532 - <i>Control of Water Pollution from Construction Sites</i> .  An Erosion and Sediment Control Plan and CEMP will be prepared prior to works commencing. Effluent will continue to be monitored at the Port. Drainage from bunded and waste storage areas will be treated in onsite WWTP.  Project designs should aim to ensure WFD objectives are not compromised.

No.	Topic	Potential Impact	Mitigation
11	Water	Impact on the watercourse from dredging (increasing suspended solids).	Dredging and construction will have to be planned appropriately, using Best Available Techniques (BAT) at all times, to ensure water quality issues are kept to a minimum, with no significant adverse effects. Adherence to Dredge Management Plan which will include a dredge mitigation strategy.  The Plan will address the potential effects of an increase in ship movements, sediment resuspension, contaminated sediments, and potential for changes to the hydrodynamic regime.  Conditions outlined in the Dumping at Sea Permit for dredging activities to be maintained.
12	Water	Potential for flood risk.	All Master Plan developments will be subject to a detailed FRA at planning stage. Future port development will be designed for flood risk and reducing the risk to Port assets. All facilities will include Sustainable Urban Drainage (SuDS) design.  Ensure that all sewer and foul water drains are adequately equipped to cope with flood events in order to prevent water contamination.
13	Air Quality	Dust and Particulate Matter resulting from construction related activities at the Port.	Good site management.  Dust Management Measures will be included in CEMP on project basis.  Adherence to best practice dust management measures.
14	Air Quality Climatic Factors Material Assets	Emissions to air resulting from increased vessel size and number of vessels operating at the Port.	Good management of vessel movements within the Harbour to avoid the adverse effects of emissions build-up during periods of high Port activity.  Ensure any new Port equipment purchased in the coming years is energy efficient to reduce operational emissions.
15	Air Quality Climatic Factors Material Assets	Negative effects on air quality from increased road traffic emissions at the Port.	Good planning and traffic management to minimise emissions, especially during peak hours.  Improved fuel efficiency and increased electric and low emission cars on Irish roads over the next two decades. Port will provide charging facilities for electric vehicles.

No.	Topic	Potential Impact	Mitigation
16	Climatic Factors	Increase in the frequency of extreme weather events, higher rainfall and sea level rise will affect coastal areas and rivers.	<p>Ensure all Master Plan developments are designed with predicted climatic change factors in mind i.e. greater potential for significant storms, flooding, increase in water level rises and increase and intensity in rainfall events.</p> <p>All Master Plan developments will be subject to a detailed FRA at planning stage.</p> <p>POW will develop a climate mitigation plan, with short, medium and long term objectives and targets.</p>
17	Material Assets	Increased transport volumes as a result of construction activities and increase in cargo volumes to the Port.	A Traffic Impact Assessment (TTA) will be prepared for specific Master Plan projects that will result in increased traffic. Each planning application for future projects at the port will have to consider traffic growth at the time of the application.
18	Material Assets	<p>Increased waste generated at the Port as a result of construction and operational activities.</p> <p>Increased wastewater generation at the Port as a result of construction and operational activities.</p>	<p>For construction phase of each project, a Construction Environmental Management Plan will be prepared, which will include waste management requirements, including requirement for implementing prevent-reuse-recycle hierarchy.</p> <p>Review the current Waste Management Plan to assess how best to accommodate additional predicted waste outputs from the new developments.</p> <p>Continue engagement with the commercial shipping companies on the benefits of waste prevention / reuse/ recycling.</p> <p>Maintain good-standard of recycling and waste disposal at the Port and ensure adequate waste-reception facilities are available.</p> <p>Liaise with the Southern Regional Waste Management Office on all aspects of waste.</p> <p>Upgrade of the current WWTP facilities at the Port will be assessed further at project level.</p> <p>Wastewater discharges will be compliant with requirements of the European Communities Environmental Objectives (Surface Water) Regulations 2009.</p>
19	Material Assets	Increased energy demand at the POW.	Continue with the energy efficiency programme at the Port. Purchase of electric vehicles for the Port, and provision of charging stations.
20	Material Assets Population & Human Health	Impact to the commercial fisheries and shellfish production sites in the area.	A sediment transport and coastal process modelling should be undertaken for all marine development to ensure there are no significant impacts on species and habitats during the lifetime of the Master Plan.

No.	Topic	Potential Impact	Mitigation
21	Material Assets	Increased water usage at the POW. Increased wastewater generation at the POW.	Monitoring of water usage and wastewater generated will ensure changes are recorded and suitably managed.
22	Cultural Heritage	Potential for underwater heritage sites to be negatively impacted during construction and / or dredging operations.	Consultation with a qualified archaeologist and further sonar and bathymetry research of the estuary prior to construction, channel widening or changes in dredging. Consultation with the DCHG in advance of works taking place in respect of protected heritage features. Maintenance of appropriate exclusions zones, the extents of which will be agreed with the DCHG. Where agreed necessary from consultation with the DCHG, dredging operations will be supervised by a qualified archaeologist.
23	Cultural Heritage	Disturbance to registered monuments (SMRs) located within the Master Plan Area.	Maintenance of a strict buffer around the registered monuments (SMRs). No works will be undertaken within this buffer. Sensitive construction measures will be employed during all works.
24	Cultural Heritage	Disturbance to the RPS sites located within the Master Plan Area.	Maintenance of a strict buffer around the Glass House, Mill and Bellevue House. No works will be undertaken within this buffer. Sensitive construction measures will be employed during all works.
25	Landscape and Visual	Construction phase impacts on landscape and visual amenity.	Good site management and planning. Adherence to best practices measures outlined in the CEMP.
26	Landscape and Visual	Increased Port activity affecting the visual amenity of Waterford Harbour	Good planning and management of vessel movements within the Harbour.
27	Landscape and Visual	Physical infrastructure may be visually intrusion / spoil landscape and views.	Where possible, sensitive designed aiming assimilation into the surrounding landscape will be ensured.

## **5.2 Monitoring**

Article 10 of the SEA Directive requires that the significant environmental effects of the implementation of the Master Plan are monitored in order to identify, at an early stage, unforeseen adverse effects and in order to undertake appropriate remedial action. The environmental monitoring programme outlined in Table 5-2 has been developed based on the SEA Objectives, Targets and Indicators presented in Section 3.2 of the Environmental Report.

POW is committed to implementing ongoing monitoring and reporting as presented in Table 5-2 and this report. Results from each round of monitoring will be reviewed by the POW staff with environmental responsibilities to facilitate an early response to any environmental issues that may arise, including remedial action as appropriate.

**Table 5-2: Environmental Monitoring Programme**

Environmental Topic	Objectives	Targets	Indicators	Responsible Authority and Possible Data
<b>Biodiversity, Flora &amp; Fauna (B)</b>	<b>B1:</b> Preserve, protect and where possible enhance, the biodiversity, flora and fauna at and in the vicinity of the Port of Waterford in particular designated sites and their qualifying features of interest.	To maintain and or enhance European sites and species in accordance with conservation objectives.	Status, condition, area and number of European sites and their habitats and species, within Master Plan area.	NPWS – Conservation Action Plans NPWS – Status of EU Protected Habitats and Species in Ireland Report (Every 6 years) IFI – Fisheries research and monitoring
	<b>B2:</b> Prevent and control as far as possible the entry of invasive species to the Master Plan area due to the Port operations and understand associated risks.	Prevent and control as far as possible the entry and spread of invasive species within Master Plan area due to Port operations.	Presence, absence, location, quantity of invasive species, within Master Plan area.	NBDC – National Invasive Species Database
<b>Population &amp; Human Health (P)</b>	<b>P1:</b> To maximise positive impacts and minimise the negative impacts of the proposed Master Plan projects to the local communities and mitigate any potential negative effect of development on the local communities.	Noise and air quality impacts arising from the proposed projects (on-shore and offshore) shall not exceed statutory and/or recommended guideline values.  Increasing direct and indirect employment created by the delivery of the projects set-out in the Master Plan.  Implementing corporate social responsibility programmes at local communities.	Noise levels and air quality indicators (primarily dust, NO <sub>x</sub> , CO, SO <sub>x</sub> ).  A long-term employment figures associated with the Port.  Implementation of specific community projects or sponsorships.	CSO statistics and Census data POW monitoring, records and reporting Local Authorities
<b>Geology, Sediments, Soils &amp; Land-use (G)</b>	<b>G1:</b> To minimise coastal erosion and soil / sediment contamination.	Protect the coastline from further erosion.  Prevent contamination of soils / sediments at lands within or in the vicinity of the Master Plan area.	Erosion rates, and / or presence of new areas of erosion within the Master Plan area.  The number and significance of soil / sediment contamination incidents.	EPA – CORINE landcover mapping  Local Authorities – County Development Plans, Local Area Plans

Environmental Topic	Objectives	Targets	Indicators	Responsible Authority and Possible Data
	<b>G2:</b> Beneficial use of dredged materials to support circular economy.	Seek to introduce the reuse of dredged materials.	Proportion of dredge material reused.	POW monitoring and reporting
<b>Water (W)</b>	<b>W1:</b> Prevent the deterioration of the status of water bodies (surface / ground / coastal) in line with the objectives of the WFD and River Basin Management Plan.  Protect the local designated bathing areas and shellfish waters.	Maintain the status of any water bodies (surface / ground / coastal) and support the ability of any water body to maintain or achieve its WFD status.  Maintain status and prevent the deterioration of water quality the local designated bathing areas and in shell fish waters.	WFD water body status as indicated by the EPA.  Status of local designated bathing areas and shellfish waters.	EPA – WFD / RBMP status reporting and updates  POW monitoring and reporting
	<b>W2:</b> Minimise the impacts on water resources and flood risk and to ensure implementation of the Flood Directive within the Master Plan.	No increase in flood risk at the Port or in the estuary.	Flood risk within the Master Plan area.	OPW – Flood Risk Management Plans (Reviewed every 6 years)
	<b>W3:</b> Limit the impacts of the dredging regime in the long-term.	Maintain suspended sediment concentrations at baseline levels.	Suspended sediment concentrations in the estuary during and after dredging operations.	NPWS – Conservation Action Plans NPWS – Status of EU Protected Habitats and Species in Ireland Report (Every 6 years) IFI – Fisheries research and monitoring
<b>Acoustics (A)</b>	<b>A1:</b> To minimise acoustic impacts to local communities and aquatic environments during construction stage  <b>A2:</b> To minimise acoustic impacts to local communities and aquatic	Daytime noise emissions, of Lar,T of 55dB and night-time emissions of LAeq,T of 45dB at sensitive receptors.  To achieve a 'Good Environmental Status' (GES) for the acoustic aquatic environment from direct	Noise levels.  Underwater acoustics shall comply with the Marine Strategy Framework Directive (2008/56/EC) to 'not adversely affect the marine environment'.	POW monitoring and reporting



Environmental Topic	Objectives	Targets	Indicators	Responsible Authority and Possible Data
	environments during operational stage.	and indirect activities as part of the Master Plan.		
<b>Air Quality (AQ)</b>	<b>AQ1:</b> To minimise the impacts on air quality.	Maintain a 'Good' Status on the EPA Air Quality Index for Health.  Compliance with Air Quality Standards as set out in the CAFE Directive.	The EPA's Air Quality Index for Health.  Ambient concentrations of relevant pollutants.	EPA – Air Quality in Ireland Report (Annual)  Local Authorities
<b>Climatic Factors (CF)</b>	<b>CF1:</b> To minimise greenhouse gas (GHG) emissions and the carbon footprint of the Port.	To ensure no increase in GHG emissions and the carbon footprint, expressed per unit of cargo at the Port.	Carbon emissions from Port activities.	POW monitoring and reporting
	<b>CF2:</b> Adaptation to the potential climate change effects.	No increased risk from climate change induced flooding events and more frequent/intense storms	Flood risk associated with climate change within the Master Plan Area.  Frequency and severity of dry periods and extreme temperatures.	OPW - Flood Risk Management Plans (Reviewed every 6 years)  POW - monitoring and records
<b>Material Assets - Infrastructure, Fisheries &amp; Aquaculture (MA)</b>	<b>MA1:</b> To support the development of sustainable commercial fisheries and aquaculture within the Port Waterford Estuary / Harbour.	To support the development of sustainable commercial fisheries and aquaculture within the Port.	Annual turnover of fisheries and aquaculture in the area of the Master Plan.	BIM monitoring and reporting  Marine Institute monitoring and reporting
	<b>MA2:</b> To protect existing and develop new material assets and infrastructure.	To develop new infrastructure which supports sustainable development within the Port.	Number of new pieces of infrastructure at the Port.	ESB, Irish Water, EPA, Local Authorities and POW reporting
	<b>MA3:</b> To reduce waste generation from Port related activities.	To limit any potential increase in the quantity of waste being directed to landfill from the Port and increase, wherever possible, the quantity of material for reuse	Percentage of waste being directed to landfill, recycled or reused.	POW monitoring and reporting

Environmental Topic	Objectives	Targets	Indicators	Responsible Authority and Possible Data
		and recycling at the Port, supporting a circular economy.		
<b>Cultural Heritage Architectural &amp; Archaeological (CH)</b>	<p><b>CH1:</b> To prevent damage to / loss to heritage features with particular regard to the local maritime heritage.</p> <p><b>CH2:</b> To support the research of underwater archaeology in the Master Plan area.</p> <p>To improve by record and publication the diverse range of underwater archaeology of the locality.</p>	<p>To ensure no significant impacts on known Sites and Monuments Record or Record of Protected Structures sites.</p> <p>To prevent potential impact on unknown archaeological sites (on-shore and underwater).</p>	The record of known cultural, archaeological, underwater artefact or shipwreck finds, and the quality of these objects.	<p>Department of Culture, Heritage and the Gaeltacht – National Monuments Service (NMS) and NIAH</p> <p>Local Authorities</p> <p>POW monitoring and reporting</p>
<b>Landscape &amp; Visual Amenity (L)</b>	<b>L1:</b> To avoid adverse impacts to the landscape as far as possible and where possible enhance the landscape character and visual amenity at and in the vicinity of the Port.	No avoidable significant impacts on the landscape character and visual amenity as a result of the Master Plan.	The number of residential properties affected by significant visual impacts from the development of the Master Plan. This includes post development impacts of the Master Plan.	Local Authorities – Landscape Character Assessments, County Development Plans, Local Area Plans

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