Alexandra Basin Redevelopment 2

Bringing Dublin Port To 2040

Draft Construction Environmental Management Plan (CEMP)



CALAFORT ÁTHA CLIATH
DUBLIN PORT

TETRA TECH

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1.0 Introduction

1.1 Objectives of the Construction Environmental Management Plan (CEMP)

This document comprises a draft Construction Environmental Management Plan (CEMP) for the ABR2 (Alexandra Basin Redevelopment 2) Project. It is a 'live' document and will be updated as the project progresses, including incorporating the requirements of conditions attached to the statutory consents granted in respect of the ABR2 Project.

This draft CEMP sets out the **minimum requirements** which will be adhered to during the construction phase of the ABR2 Project.

Dublin Port Company (DPC) is the promoter of the ABR2 Project. DPC seeks to achieve the highest possible standards of environmental management during both the construction and operation of the proposed development.

The CEMP comprises two main parts:

Summary of Mitigation Measures (Chapter 2)

All mitigation measures and monitoring requirements proposed within the Environmental Impact Assessment Report (EIAR) and the Natura Impact Statement (NIS) are contained in this Chapter. In addition, the requirements of conditions attached to statutory consents granted in respect of the ABR2 Project will also be inserted post consent.

This part of the CEMP will form part of the Contract Documents for the construction stage to ensure that the Contractor undertakes the works required to implement the mitigation measures.

Management of Environmental Impact (Chapter 3)

The objective of this part of the draft CEMP is to identify Construction Phase Environmental Management Plans (EMPs) which will be developed upon the grant of permission. The content of these EMPs will be developed through discussion and agreement of Dublin City Council (DCC). The identified list may be updated as deemed necessary.

1.2 ABR2 Project

The proposed ABR2 Project is the completion of DPCs first Strategic Infrastructure Development (SID) project, (Alexandra Basin Redevelopment (ABR) Project), which was not fully completed before planning permission expired in July 2025. The ABR2 Project is itself not an SID project.

The ABR2 Project focuses on completing the remaining works permitted as part of the ABR Project as follows:

1. Final phase of dredging within Alexandra Basin West, including treatment of sediment.
2. Demolition of existing marine infrastructure and subsequent infilling of the Terminal 5 Ro-Ro basin using treated material.
3. Raising yard levels at Terminal 5 to support the future Unified Ferry Terminal (already permitted under the MP2 Project).

No expansion beyond the existing Port footprint is proposed, and thus the redevelopment works for the ABR2 Project will focus on two areas of Dublin Port:

- Alexandra Basin West; and
- Berth 52/53.

The locations of these areas within the Dublin Port Estate are shown in **Figure 1-1**.

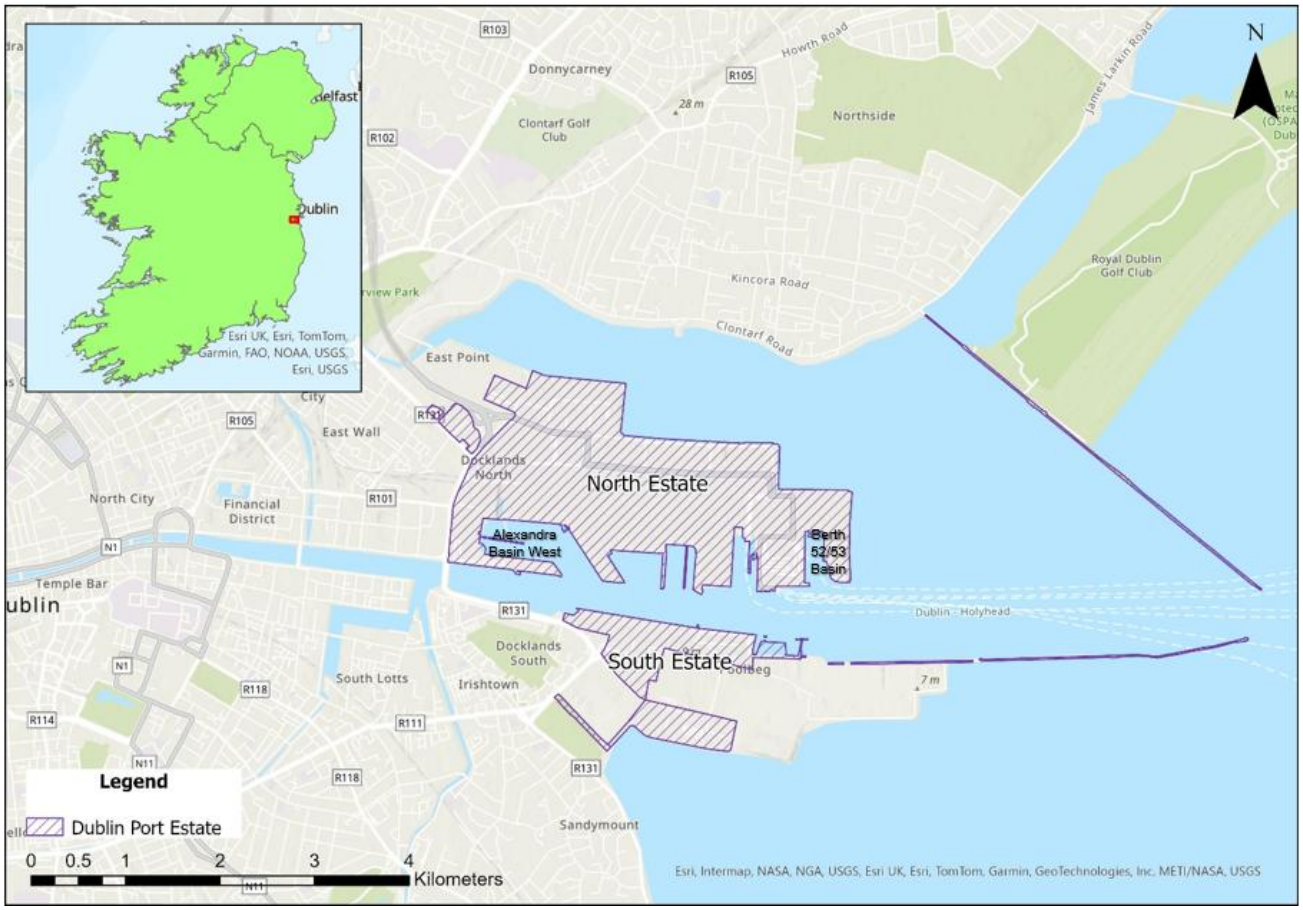


Figure 1-1: Location of works pertaining to the ABR2 Project

Alexandra Basin West

Capital dredging will be undertaken to achieve a standard depth of -10m CD at Alexandra Basin West to enable Alexandra Basin West to handle deeper draught ships. In addition, undertaking the works in Alexandra Basin West will allow a legacy contamination issue in the basin to be addressed and remediated, which restricts DPC's ability to carry out routine and essential maintenance dredging operations. The berths in Alexandra Basin West will become increasingly busy in the future, and it is important (including, operationally) that DPC is able to include these berths within routine maintenance dredging campaigns.

Environmental sampling of sediment within Alexandra Basin West (above a depth of -10m CD) has demonstrated that the bed of the basin is contaminated with a range of heavy metals and organotins (Dibutyltin (DBT) and Tributyltin (TBT)) as a result of past ship building, maintenance, and repair activities, handling of ores, and other shipping activities. The levels of contamination in the existing materials within Alexandra Basin West result in this material being unsuitable for disposal at sea. The extent of contamination has been confirmed following recent site investigation surveys of the less contaminated sediments at the entrance of Alexandra

Basin West, with the analysis demonstrating that no material required to be dredged and removed from Alexandra Basin West may be disposed of at sea (above a depth of -10m CD).

Berth 52/53

The second SID project, as set out in the Dublin Port Masterplan 2040, reviewed in 2018, is the MP2 Project, which was granted planning consent in July 2020 (ABP-304888-19). The MP2 Project, as permitted, amended elements of the ABR Project, with respect to the alignment of Riverside Berth 52, to allow for the insertion and alignment of a new Riverside Berth 53. The new Riverside Berth 53 is currently under construction, and once the new Riverside Berths 53 and 52 have been constructed, the basin will be closed off from the main navigational channel, and the operational basin berths can be decommissioned. Works can then commence to infill the basin, as proposed under the ABR2 Project, which will facilitate the construction of the Unified Ferry Terminal, consented under the MP2 Project. The area around Berth 49 (subject to extension works under the MP2 Project) and Riverside Berth 52 (as consented under the MP2 Project) will be used for possible receipt of remediated dredged material and to facilitate working areas for the ABR2 Project (**Figure 1-2**).

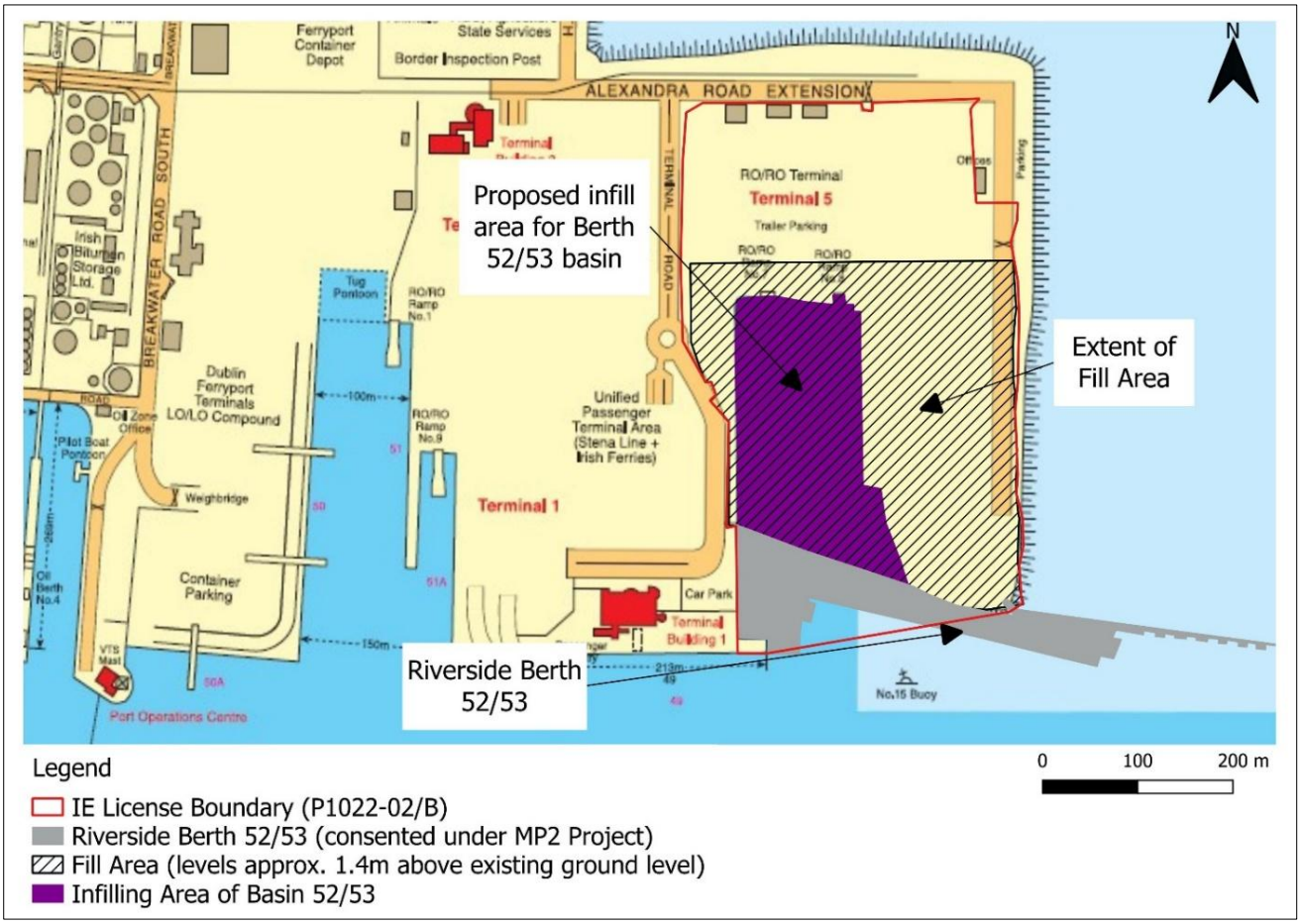


Figure 1-2: Interface with MP2 Project

An Industrial Emissions (IE) licence was issued by the EPA (Licence Register No: P1022-02/B) for the ex-situ treatment by stabilisation/solidification (S/S) and recovery of contaminated dredge material at specific locations within Dublin Port as part of the ABR Project (now to be completed under the ABR2 Project). The waste to be treated under this IE licence comprises contaminated dredged sediment taken from Alexandra Basin West. The

area of the infilled existing basin of Berth 52/53, the landside area to the immediate east, between this infilled basin and Terminal Road South, and the landside area to the west of this infilled basin, will have the existing levels raised by 1.4m over an area of 95,000m^2, using a combination of clean imported materials and, where suitable, treated remediated material from dredged sediments originating from Alexandra Basin West

The proposed development areas and the IE licence boundary are illustrated in **Figure 1-3**.

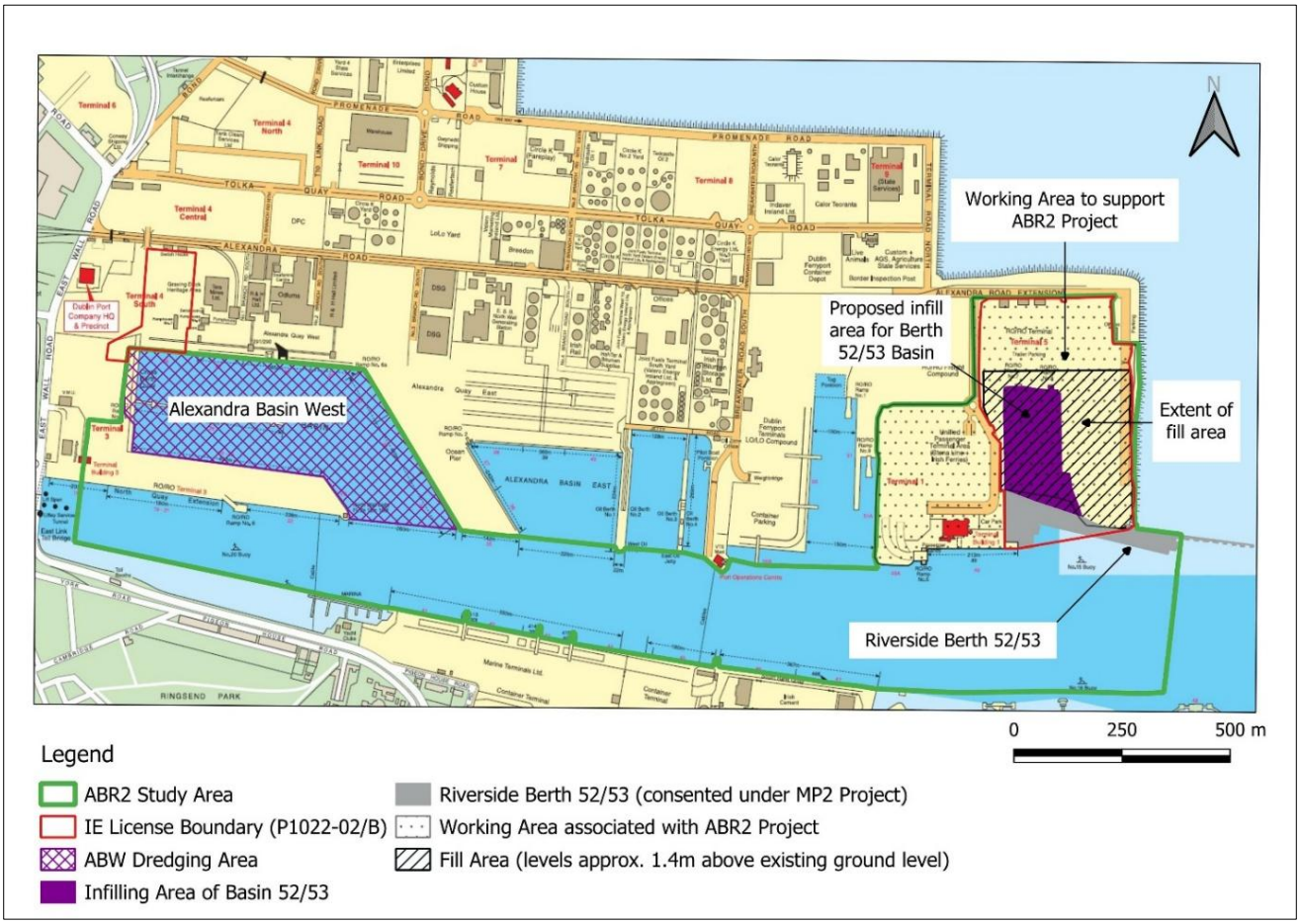


Figure 1-3: Proposed Development Areas

A General Arrangement Drawing illustrating the main elements of the ABR2 Project is presented in **Figure 1-4**, this also indicates the proposed redline boundary of the ABR2 Project for the planning application. It should be noted that the red line application boundary and the study area boundary of the ABR2 Project encompass slightly different areas, with the study area boundary reflecting the movement of barges of dredged/treated sediment material along the navigation channel.

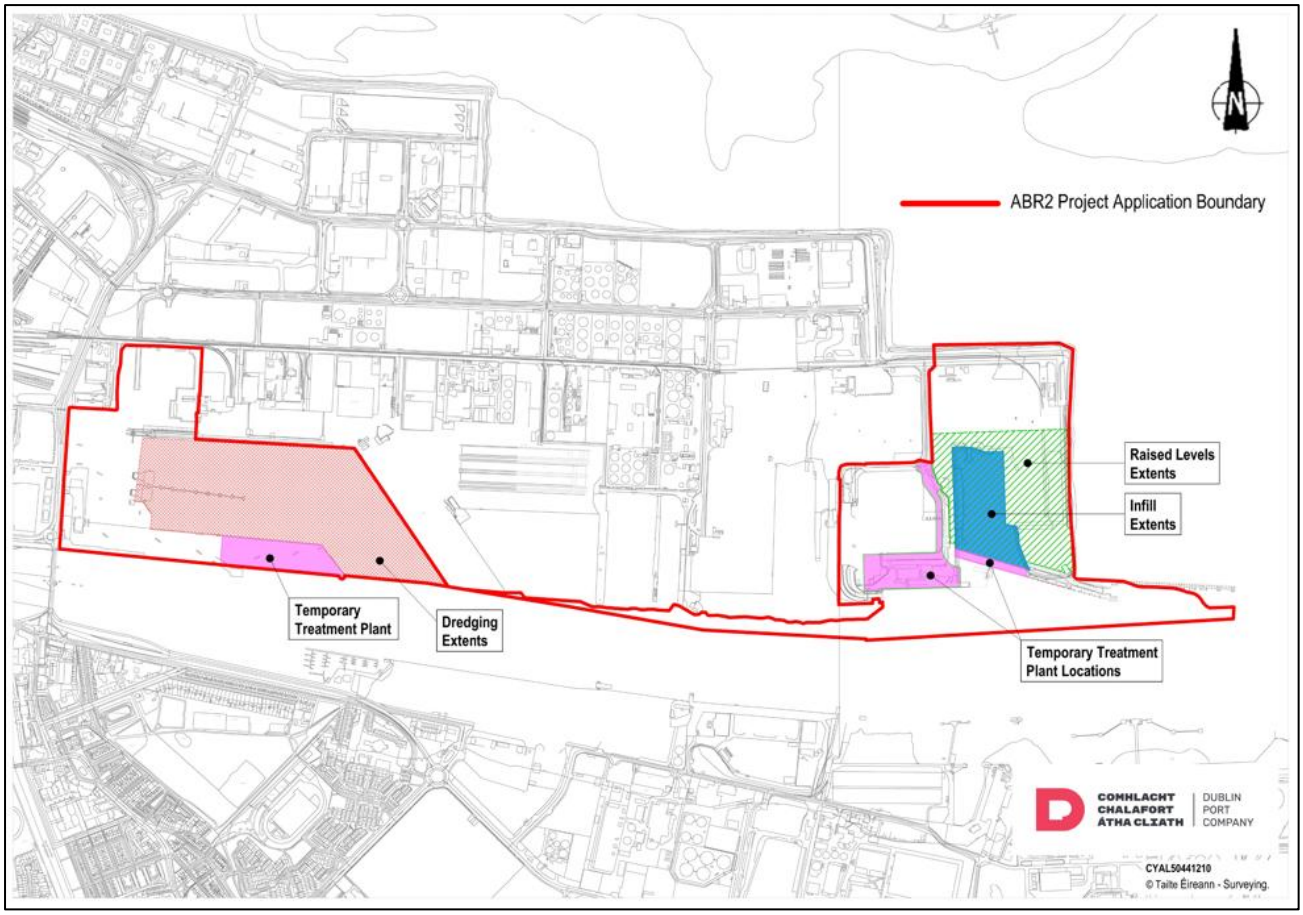


Figure 1-4: General Arrangement Drawing of the ABR2 Project and proposed red line boundary of the planning application

2.0 Summary of Mitigation Measures

2.1 Mitigation Measures arising from the EIAR and NIS

The EIAR and NIS assesses the likely significant impacts arising from the ABR2 Project. Integration of the engineering design team with the planning and environmental team from an early stage in the Project has enabled mitigation by design to be used, causing many likely significant impacts to be eliminated or reduced to an acceptable level during the preliminary design stage.

This CEMP is informed by environmental assessments for the ABR Project and MP2 Project, and experience in implementing associated mitigation and monitoring programmes. **Table 2-1** summarises the potential impacts arising from the ABR2 Project and the mitigation measures and monitoring required, brought forward from the EIAR and NIS.

Table 2-1: Construction Phase Mitigation Measures and Monitoring

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
Natura Impact Statement (NIS) Mitigation	
Environmental Facilities Manager (Environmental Clerk of Works)	An Environmental Facilities Manager will oversee the environmental management of the ABR2 Project. It is proposed that the construction works for the ABR2 Project will fall within the remit of the Environmental Facilities Manager. They have the authority to: • Review method statements; • Oversee work; • Provide instruction to the contractor(s); and • Request the temporary cessation of works, where necessary, from the client.
Pollution prevention	In addition to those mitigation measures defined with Chapter 9 Water Quality of the EIAR and inserted into this table below, the following mitigation measures will be implemented to prevent pollutants entering the Irish sea and reaching South Dublin Bay & River Tolka Estuary SPA, North-west Irish Sea SPA, North Bull Island SPA, South Dublin Bay SAC, Rockabill to Dalkey Island SAC, Lambay Island SAC and Codling Fault Zone SAC's qualifying interests downstream of the application site: • No pollutants will be allowed to enter the watercourses during construction operations; this will be prevented by civil engineering methods (i.e. formation of drainage channels) and installation of silt fencing; • Any wet concrete required for the development works will be pre-mixed off site and transported in dedicated lorries; and • Washout of concrete trucks shall be strictly confined to a designated and controlled wash-out area, remote from watercourses, drainage channels and other surface water features.
Chapter 6 Risk of Major Accidents and Disasters	
Risk of Major Accident during Construction Phase	The individual berths that will be unavailable during phases of the construction works will be identified in advance and DPC will identify alternative berths to be used for the duration of the works. Changes to the availability of berths will be communicated to vessels operating at the Port in advance via Notices to Mariners. A project specific vessel traffic / movement plan will be developed to manage the interaction between work vessels carrying out the dredging in Alexandra

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	Basin West, work vessels carrying out the infilling in the basin of Berths 52/53 and supporting vessels. The plan will take into account the need for commercial vessels to cross the route between Alexandra Basin West and the basin of Berths 52/53, and the potential conflicts between oil tankers and LPG vessels accessing the oil berths. The Dublin Port Pilots will be advised of the vessel traffic management plan in advance and on an ongoing basis over the course of the ABR2 Project. A traffic plan for the movement of ABR2 Project vehicles on the land side of the Port will be developed in advance to minimise where practicable, and manage the interaction between project vehicles and commercial and other traffic in the Port. Where practicable, the ABR2 Project traffic will be kept separate from vehicles transporting dangerous goods by road, either in bulk (road tankers conveying petroleum products or LPG road tankers) or in packages / containers.
Chapter 7 Biodiversity, Flora and Fauna	
Terrestrial Biodiversity and Ornithology	
Black Guillemot Nests	Black Guillemot nests may be lost as part of the infilling process at Berth 52/53. To compensate for the loss of these two nests the following mitigation is proposed: The Dublin Port Companies Black Guillemot Management Plan 2023-2030 (DPC, 2023, RPS, 2024) sets out that six new nest boxes are proposed within the new Berth 53 open pile structure at the eastern end of the Port. This will increase the amount of available nesting habitat available for Back Guillemot and offset the loss of two nests during the infilling of the Berth 52/53 basin. These nest box locations are proposed under the MP2 project as part of MP2 Project Foreshore consent, Condition 2(b) and the ports wider biodiversity strategy.
Diminution of Water Quality and Habitats Deterioration	**<u>Dredging</u>** • As noted in Chapter 9 (Water Quality and Flood risk Assessment), the following key relevant mitigation measures will apply to each dredging campaign in the ABR2 Project: • Loading will be carried out by a backhoe dredger. • The backhoe will have a clamshell bucket adapted for environmental dredging when working in Alexandra Basin West. • A silt curtain is to be utilised around the dredger whilst the dredging of contaminated material is ongoing. • Material dredged in Alexandra Basin West is to be treated and reused for reclamation within the Port as far as practicable, specifically as infill for Berths 52/53. • A contingency bubble curtain installed across the entrance to Alexandra Basin West will be utilised in the event of a breach of the silt curtain around the dredger. • Dredged material will be transported to the proposed treatment facility by barge and treated under the terms of the existing IE licence P1002-02, or as may otherwise be agreed with the EPA during a licence review to account for amendments to the licence which may be required to accommodate the works as outlined in the ABR2 Project. • No overtopping of barges is permitted, and spill plates are to be utilised to prevent spillage during offloading operations.

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	• Full-time monitoring of Marine Mammals within 500m of loading operations will be undertaken in accordance with the measures contained in the Guidance to Manage the Risk to Marine Mammals from Man-Made Sound Sources in Irish Waters (NPWS, 2014). • A documented Accident Prevention Procedure will be put in place prior to commencement. • A documented Emergency Response Procedure will be put in place prior to commencement. • A full record of loading locations and a record of the material being treated will be maintained for each trip. • When any dredging is scheduled to take place within a 500m radius of power station intakes, the relevant stakeholders will be notified so that precautionary measures can be taken if deemed necessary. **Release of contaminated surface water drainage** Sediments arising from Alexandra Basin West will be subjected to storage in stockpiles and potentially soil washing techniques appropriate to the concentrations of contaminants. All contaminated water will be managed and directed through the wastewater treatment system prior to discharge under the requirements of the IE licence. Dredged sediments will be stored in bunded areas, stockpiles will not exceed the heights applicable to the material being stored at North Wall Quay Extension to ensure that the loading of materials onto the structure do not exceed service loading, or at Berth 49 and Riverside Berth 52 West will not exceed the height of a stockpile placed at the natural angle of repose of the sediments within the footprints of the storage areas (nominally 4.5m in height). Precipitation falling on the stockpiled dredge material within the three treatment areas will be collected within a bund surrounding the contaminated material and then subsequently pumped to the wastewater treatment works for treatment. Therefore, the surface water generated in the stockpiled contaminated dredge areas will be contained within the bund and then treated in the wastewater treatment plant. Clean surface water generated in the treatment areas will drain to the existing drainage network. The treatment of soil and sediment washing allows the recovery of the inert fraction with coarser particle size (sands and gravels) for reuse on site. It is expected that this form of treatment will be applied to c. 120,000m^3 of dredge sediment arising from Alexandra Basin West. The mitigation and control measures to address the impact from suspended sediments associated with these activities will follow sound design principles and good working practices as listed in the NetRegs Guidance for Pollution Prevention series. In addition to the requirements of best practice and relevant guidelines, the following mitigation measures will be implemented by the contractor during the construction phase: • Sampling points will be included within the pipe work system of the wastewater treatment system for contaminated water to allow for the collection of water samples from the emission point as per the IE licence. The sampling and testing schedule will be in accordance with Schedule C of the IE licence; • A controlled outlet from Berths 52/53 will be constructed to control water level/flow. A written record of the types and quantities of material recovered at the infill sites will be maintained. Ongoing monitoring of the soil washing and S/S process will also take place during construction and will consist of the following: i) Geotechnical tests, e.g. the permeability (hydraulic conductivity) and the compression strength of the stabilised materials after different strength development periods;

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	ii) Environmental testing, e.g. batch leaching tests and diffusion testing to measure the leaching of contaminants from the treated dredge material as per the IE licence requirements; iii) An ongoing monitoring programme will be undertaken prior to, during, and post the recovery operation (surface water quality in harbour, monitoring of pore water in the construction, sediment samples from the harbour, water levels and groundwater quality) as per the IE licence requirements; and iv) A Quality Assurance/Quality Control (QA/QC) programme will be established. • Where preferential surface flow paths occur, silt fencing or other suitable barriers will be used to ensure silt-laden or contaminated surface runoff from the site does not discharge directly to a water body or surface water drain. • In the event that dewatering of foundations or drainage trenches is required during construction and/or discharge of surface water from sumps, a treatment system prior to the discharge will be used; silt traps, settlement skips, etc. This measure will allow additional settlement of any suspended solids within stormwater arising from the construction areas.
Potential Impacts on Otters	**Pre-Commencement Terrestrial Otter Search** Prior to the commencement of any construction works (including the moving and storage of materials), an Environmental Facilities Manager will undertake a detailed search for resting otters along all potentially suitable land along the water's edge, out to more than 30m from proposed construction works. If otters are encountered, all works in that vicinity will cease until they have moved on. **Timing of Works** Otter are most active during and after sunset, emerging from their holts to hunt, forage, and commute. The current IE Licence facilitates operation of the treatment infrastructure between the hours of: • 08:00 and 18:00 on Monday to Friday • 08:00 and 13:00 on Saturday Alexandra Basin West dredging and treatment of dredged material may occur during a daytime window of 07:00-19:00 and an evening window of 19:00-23:00. Activity will be lower during the night, with the only permitted activities during a 23:00-07:00 window being dredging of Alexandra Basin West area 1 and area 4, along with associated barge transport of dredged material. **Excavations & Pipes** Open excavations and / or trenches will either be covered to avoid access by otters, or a means of escape installed to facilitate egress, at the end of each working day. All pipes will be capped overnight to prevent access by otters.
Benthic Biodiversity and Fisheries	
Dredging Methodology and Sediment Disturbance Control	Dredging activities represent the primary source of potential disturbance to benthic habitats and sediment stability during the construction phase. The following mitigation measures are designed to minimise sediment resuspension, reduce the extent of seabed disturbance, and control the release of fine material into the water column during excavation and handling operations.

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation

	• Capital dredging will be undertaken using a closed environmental bucket dredger, which will be specified and operated by the appointed Marine contractor, to minimise sediment loss during excavation and lifting.
	• The Marine contractor will ensure that dredging operations are carried out in a controlled manner, including:
	  ○ minimising overfilling of the bucket
	  ○ avoiding rapid lifting through the water column
	  ○ maintaining vertical alignment during excavation
	• Barge loading procedures will be implemented by the Marine contractor to prevent overtopping and spillage, including maintaining freeboard and controlled loading rates.
	• Where dredging occurs in areas of finer or more contaminated sediments, silt curtains or equivalent containment measures will be deployed where practicable by the contractor, subject to navigation and safety constraints, to reduce lateral dispersion of suspended sediments.

Sediment Handling, Treatment and Storage	Sediment handling and treatment activities have the potential to generate localised sediment disturbance and runoff if not appropriately controlled. The following mitigation measures are designed to ensure that dredged material is managed in a contained and controlled manner throughout processing, storage and transfer, thereby minimising the risk of sediment release and protecting water quality within the receiving environment.
	• All sediment handling, including screening, soil washing, separation and dewatering, will be undertaken within designated treatment areas at North Wall Quay Extension, Berth 49 and/or Berth 52 West.
	• Sediment processing areas shall be bunded and graded to contain runoff;
	• All process water is directed to the wastewater treatment system
	• Temporary stockpiling of dredged material will be managed to minimise exposure to rainfall and runoff, including:
	  ○ use of contained storage areas
	  ○ minimisation of stockpile duration
	• Transfer of sediment between dredging, treatment and infill areas (via barge, pipeline or haulage) will be managed to prevent spillage or leakage, including:
	  ○ use of sealed pipelines where applicable
	  ○ controlled transfer points
	  ○ immediate clean-up procedures in the event of accidental release

Water Quality Protection	Construction activities, particularly dredging, sediment treatment and basin dewatering, have the potential to affect water quality through increased suspended sediments and associated contaminants. The following mitigation measures are designed to ensure that all water arising from construction processes is appropriately contained, treated and discharged in a controlled manner, thereby preventing deterioration of water quality within the River Liffey and Dublin Bay. • All water generated during dredging, sediment treatment and basin dewatering will be collected and treated prior to discharge via an on-site water treatment system prior to discharge.

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation

	• The WWTP will be designed and operated to ensure compliance with EPA IE licence emission limit values (ELVs) at all times.
	• The following measures shall be implemented:
	  ○ controlled discharge points
	  ○ flow regulation to prevent surcharging of the treatment system
	• No untreated process water will be discharged directly to the River Liffey or Dublin Bay.
	• Stop/start sequences will be programmed to minimise emissions. A stop procedure will also be developed to minimise emissions to the environment during malfunctions, breakdowns and momentary stoppages.

Protection of Fish and Migratory Species	Construction activities within Dublin Port have the potential to cause temporary disturbance to estuarine fish and diadromous migratory species through underwater noise, increased turbidity and vessel movements. The following mitigation measures are designed to minimise disturbance to fish, maintain access to established migratory pathways, and reduce the risk of behavioural disruption during the construction phase. • Dredging and marine construction activities will be undertaken using non-percussive methods, thereby avoiding high-intensity impulsive noise that could cause injury to fish. • No physical barriers will be introduced within the main Liffey navigation channel • Vessel movements will be managed to maintain navigational access at all times. • Where practicable, the construction programme will be managed by DPC and the contractor to avoid peak migration periods for key diadromous species, informed by available fisheries data and regulatory guidance. • Vessel movements associated with construction will be controlled by the contractor to minimise unnecessary manoeuvring and reduce disturbance to fish within and adjacent to the basin.

Dewatering and Infill Management	Dewatering of the Berth 52/53 basin and the placement of infill material have the potential to influence water quality and sediment stability if not appropriately controlled. The following mitigation measures are designed to ensure that dewatering and infilling activities are undertaken in a controlled and contained manner, minimising the release of suspended sediments and preventing indirect effects on the surrounding aquatic environment.
	• Partial dewatering of the Berth 52/53 basin will be undertaken in a controlled and staged manner by the contractor to prevent uncontrolled release of suspended sediments.
	• All water removed from the basin will be directed to the on-site treatment system for treatment prior to discharge, in accordance with the IE licence.
	• Placement of treated and recovered sediments within the infill area will be managed to:
	  ○ minimise disturbance to surrounding waters and
	  ○ prevent overflow or uncontrolled discharge.
	• The infill area will be include drainage infrastructure, installed by the contractor in accordance with design specifications.

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
Marine Mammals	
Marine Mammal Management Plan	Mitigation will be implemented through implementation of a Marine Mammal Management Plan (MMMP). The MMMP sets out specific mitigation procedures, including pre-start monitoring, implementation of mitigation zones and communication protocols between MMOs and site personnel. The measures are designed to avoid or minimise potential disturbance to marine mammals during the construction phase. Given that predicted impacts are temporary, localised and are limited to short-term behavioural disturbance, with no significant risk of injury anticipated, mitigation follows a precautionary approach consistent with established best practice in Irish waters. **MMO Programme** A suitably qualified MMO will be appointed to implement the MMMP for dredging activities. The MMO will: • Undertake pre-start monitoring prior to the commencement of dredging after any pause in activity of more than 30 minutes • Conduct visual monitoring of the works area and surrounding waters during active dredging activities • Record dredging activity, MMO monitoring effort, environmental conditions and all marine mammal observations • Complete the relevant NPWS (2014) marine mammal monitoring data sheets for each day of monitoring • Record any mitigation actions implemented, including delays to works or other precautionary measures • Advise the contractor in the event marine mammals are observed within the defined monitoring zone for dredging and recommend appropriate mitigation measures where required • Maintain a detailed log of all monitoring effort and mitigation actions throughout the works • Maintain regular communication with the contractor (e.g. via site communication systems / WhatsApp group) to ensure real-time implementation of mitigation where required. Upon completion of the works, a final MMO Report will be prepared. This report will summarise the monitoring effort, contractor activity, marine mammal observations, mitigation actions implemented and confirm compliance with NPWS (2014) guidance. The report will be submitted to NPWS and MARA, as required via the Project's Point of Contact. **Pre-Start Monitoring and Delay Procedure** Although dredging activities are non-impulsive and low risk in terms of injury, a statutory pre-start monitoring period will be implemented, in accordance with NPWS (2014) guidance. Prior to the commencement of dredging: • The MMO will conduct a 30-minute visual pre-start monitoring period at the works area • The monitored zone will extend to a 500m radial distance from the works • If marine mammals are observed within the monitored zone, the commencement of dredging will be delayed. Dredging may only commence once the animal(s) have left the monitoring zone, and at least 30 minutes have elapsed with no marine mammals detected within the monitored zone

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	The procedure is as required by the standard Irish marine mammal mitigation guidance (NPWS, 2014), which specifies that sound-producing activities should not commence until at least 30 minutes of continuous monitoring confirms the absence of marine mammals within the defined zone. **Good Practice Vessel Management** All project vessels will adhere to established maritime safety procedures within Dublin Port. In addition: • Vessel speeds will be reduced where safe and practicable • Vessel masters will remain vigilant for marine mammals • Sudden changes in direction or speed will be avoided where possible Given the already high level of vessel traffic within the port, and the implementation of the above measures, the Project will not result in a significant increase in risk to marine mammals. **Sediment Control Measures** To minimise effects associated with suspended sediments, standard sediment control measures will be implemented: • Silt curtains will be utilised around the dredger during dredging operations to minimise the dispersion of suspended sediments • A contingency bubble curtain will be available and may be deployed across the entrance to Alexandra Basin West in the event of silt curtain breach • Environmental buckets will be used for dredging to reduce sediment disturbance and release at source These measures will minimise the spatial extent and duration of sediment plumes and reduce the potential for impact on marine mammals.
Chapter 8 Land, Soils, Geology and Hydrogeology	
Dredging of Alexandra Basin West	The dredging methodology will be the same as that undertaken for the ABR Project dredging, which will comprise the use of a floating pontoon with an excavator mounted environmental bucket adapted for environmental dredging. This will minimise the disturbance and escape of material at the seabed and during removal through the water column. A silt curtain will be used around the dredger whilst the dredging of contaminated material is ongoing. A contingency bubble curtain will be available and may be deployed across the entrance to Alexandra Basin West. This bubble curtain will only be utilised in the event of a breach of the silt curtain around the dredger. No overtopping of barges will be permitted when transporting the dredged sediment to the treatment area and spill plates will be utilised to prevent spillage during offloading operations.
Treatment of contaminated dredged sediment material	Best practice industry techniques (utilising Best Available Technology (BAT)) will be used to treat the contaminated material arising from the dredging of Alexandra Basin West.
Industrial Emissions Licence	The operation of the treatment works will be undertaken in accordance with the EPA issued IE Licence P1022-02. Following the completion of the treatment and infilling works, the treatment infrastructure will be decommissioned in accordance with the IE Licence.

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
Chapter 9 Water Quality and Flood Risk Assessment	
Water Quality	

Construction Phase Best Practice Measures	Mitigation measures will be implemented by the contractor and will include the requirements for best practice and adherence to the following relevant Irish guidelines and recognised international guidelines:
	• Good practice guidelines on the control of water pollution from construction sites developed by the Construction Industry Research and Information Association (CIRIA, 2001);
	• NetRegs Guidance for Pollution Prevention series (GPP) series in relation to a variety of activities developed by the Scottish Environmental Protection Agency (SEPA), Natural Resources Wales (NRW) and the Northern Ireland Environment Agency (NIEA);
	  ○ GPP2: Above-ground oil storage tanks
	  ○ GPP3: Use and design of oil separators in surface water drainage
	  ○ GPP5: Works and maintenance in or near water
	  ○ GPP6: Working at construction and demolition sites
	  ○ GPP8: Safe Storage and disposal of used oils
	  ○ GPP13: Vehicle washing and cleaning
	  ○ GPP20: Dewatering underground ducts and chambers
	  ○ GPP21: Pollution incident response planning
	  ○ GPP22: Dealing with spills
	• Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (Inland Fisheries Ireland, 2016);
	• International Convention for the Prevention of Pollution From Ships, 1973, as modified by the Protocol of 1978 (MARPOL) for domestic waste discharges to the environment;
	• International Marine Organisation guidelines; and
	• Control of Substances Hazardous to Health (COSHH) Handling of Hazardous Materials.

Mobilisation of contaminated sediment containing heavy metals / Accidental spillages of dredge spoil	A Dredging Management Plan was developed for the MP2 Project and is set out in the *MP2 Project Construction Environmental Management Plan (CEMP) Rev B, April 2025*. The mitigation for dredging operations in the ABR2 Project has been informed by the MP2 Project and the ABR Project monitoring and experience working in the same locations. The following key relevant mitigation measures will apply to each dredging campaign in the ABR2 Project (and will minimise accidental spillages of dredge spoil): • Loading will be carried out by a backhoe dredger. • The backhoe will have a clamshell bucket adapted for environmental dredging when working in Alexandra Basin West. • A silt curtain is to be utilised around the dredger whilst the dredging of contaminated material is ongoing. • Material dredged in Alexandra Basin West is to be treated and reused for reclamation within the Port as far as practicable, specifically as infill for Berths 52/53.

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	• A contingency bubble curtain will be available and may be installed across the entrance to Alexandra Basin West which will be utilised in the event of a breach of the silt curtain around the dredger. • Dredged material will be transported to the proposed treatment facility by barge and treated under the terms of the existing IE licence P1022-02, or as may otherwise be agreed with the EPA during a licence review to account for amendments to the licence which may be required to accommodate the works as outlined in the ABR2 Project. • No overtopping of barges is permitted, and spill plates are to be utilised to prevent spillage during offloading operations. • Full-time monitoring of Marine Mammals within 500m of dredging operations will be undertaken in accordance with the measures contained in the Guidance to Manage the Risk to Marine Mammals from Man-Made Sound Sources in Irish Waters (NPWS, 2014). • A documented Accident Prevention Procedure will be put in place prior to commencement. • A documented Emergency Response Procedure will be put in place prior to commencement. • A full record of loading locations and a record of the material being treated will be maintained for each trip. • When any dredging is scheduled to take place within a 500m radius of power station intakes, the relevant stakeholders will be notified so that precautionary measures can be taken if deemed necessary.
Release of contaminated surface water drainage	Sediments arising from Alexandra Basin West will be subjected to temporary storage in stockpiles and potentially soil washing techniques appropriate to the concentrations of contaminants. All contaminated water will be managed and directed through the wastewater treatment system prior to discharge under the requirements of the IE licence. Dredged sediments will be stored in bunded areas, stockpiles will not exceed the heights applicable to the material being stored at North Wall Quay Extension to ensure that the loading of materials onto the structure do not exceed service loading, or at Berth 49 and Riverside Berth 52 West will not exceed the height of a stockpile placed at the natural angle of repose of the sediments within the footprints of the storage areas. Precipitation falling on the stockpiled dredge material within the three treatment areas will be collected within a bund surrounding the contaminated material and then subsequently pumped to the wastewater treatment works for treatment. Therefore, the surface water generated in the stockpiled contaminated dredge areas will be contained within the bund and then treated in the wastewater treatment plant. Clean surface water generated in the treatment areas will drain to the existing drainage network. The treatment of soil and sediment washing allows the recovery of the inert fraction with coarser particle size (sands and gravels) for reuse on site. It is expected that this form of treatment will be applied to c. 120,000m^3 of dredge sediment arising from Alexandra Basin West. The mitigation and control measures to address the impact from suspended sediments associated with these activities will follow sound design principles and good working practices as listed in the NetRegs Guidance for Pollution Prevention series. In addition to the requirements of best practice and relevant guidelines, the following mitigation measures will be implemented by the contractor during the construction phase: • Sampling points will be included within the pipe work system of the wastewater treatment system for contaminated water to allow for the

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	collection of water samples from the emission point as per the IE licence. The sampling and testing schedule will be in accordance with Schedule C of the IE licence; • A controlled outlet from Berths 52/53 will be constructed to control water level/flow. A written record of the types and quantities of material recovered at the infill sites will be maintained. Ongoing monitoring of the soil washing and S/S process will also take place during construction and will consist of the following: o Geotechnical tests, e.g. the permeability (hydraulic conductivity) and the compression strength of the stabilised materials after different strength development periods; o Environmental testing, e.g. batch leaching tests and diffusion testing to measure the leaching of contaminants from the treated dredge material as per the IE licence requirements; o An ongoing monitoring programme will be undertaken prior to, during, and post the recovery operation (surface water quality in harbour, monitoring of pore water in the construction, sediment samples from the harbour, water levels and groundwater quality) as per the IE licence requirements; and o A Quality Assurance/Quality Control (QA/QC) programme will be established. • Where preferential surface flow paths occur, silt fencing or other suitable barriers will be used to ensure silt-laden or contaminated surface runoff from the site does not discharge directly to a water body or surface water drain. • In the event that dewatering of foundations or drainage trenches is required during construction and/or discharge of surface water from sumps, a treatment system prior to the discharge will be used; silt traps, settlement skips, etc. This measure will allow additional settlement of any suspended solids within stormwater arising from the construction areas.
General construction works	The risk of water quality impacts associated with works machinery, infrastructure and on-land operations (for example, leakages/spillages of fuels, oils, other chemicals and wastewater) will be controlled through good site management and the adherence to codes and practices which limit the risk to within acceptable levels. The following measures will be implemented during construction: A detailed works-specific CEMP will be prepared, which will meet the minimum requirements of this draft CEMP and will include details in respect of every aspect of the works in order to minimise potential impacts and maximise potential benefits associated with the works; • Management and auditing procedures, including toolbox talks to personnel, will be put in place to ensure that any works which have the potential to impact on the aquatic environment are being carried out in accordance with required permits, licences, certificates and planning permissions; • Existing and proposed surface water drainage and discharge points will be mapped on the Drainage layout. These will be noted on construction site plans and protected accordingly to ensure water bodies are not impacted by sediment and other pollutants using measures to intercept the pathway for such pollutants; • The use of oils and chemicals on-site requires significant care and attention. The following procedures will be followed to reduce the potential risk from oils and chemicals;

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	• Fuel, oil and chemical storage will be sited on an impervious base within a bund and secured. The base and bund walls must be impermeable to the material stored and of adequate capacity. The control measures in GPP2: Above Ground Oil Storage Tanks and GPP 26 “Safe storage – drums and intermediate bulk containers” will be implemented to ensure safe storage of oils and chemicals; • The safe operation of refuelling activities shall be in accordance with GPP 7 “Safe Storage – The safe operation of refuelling facilities”; • Breaking of concrete (associated with structure demolition) has the potential to emit alkaline dust into the receiving environment. A barrier between the dust source and the sensitive receptor (the water body in this case) will be erected to limit the possibility of dust and falling debris from contacting the receptor; • Concrete use and production shall adhere to control measures outlined in Guidance for Pollution Prevention (GPP5): Works and maintenance in or near water. Any on-site concrete production will have the following mitigation measures: a bunded designated concrete washout area; closed-circuit wheel wash and initial siting of any concrete mixing facilities such that there is no production within a minimum of 10m from the aquatic zone; • The use of concrete in close proximity to water bodies requires a great deal of care. Fresh concrete and cement are very alkaline and corrosive and can cause serious pollution in water bodies. It is essential to ensure that the use of wet concrete and cement in or close to any water body is carefully controlled so as to minimise the risk of any material entering the water, from the shuttered structures and cofferdams that will be used to contain the concrete; • Where concrete is to be placed under water or in tidal conditions, a specific fast-setting mix is required to limit segregation and washout of fine material/cement. This will normally be achieved by having either a higher-than-normal fines content, a higher cement content or the use of chemical admixtures; and • Contingency Planning: A project-specific Pollution Incident Response Plan will be prepared consistent with DPC's Environmental Emergency Plan (Appendix A) and will be in accordance with GPP 21 Pollution Incident Response Planning. Whilst a major incident is highly unlikely to occur in circumstances where the mitigation measures are implemented, the finalisation of this draft CEMP is considered to be best practice. The contractor's Environmental Manager and DPC will be notified in a timely manner of all incidents where there has been a breach in agreed environmental management procedures. Suitable training will be provided by the contractor to relevant personnel detailed within the Pollution Incident Response Plan to ensure that appropriate and timely actions are taken.
Flood Risk Assessment	
Flood protection during construction phase	Temporary works may be required to prevent coastal waters interacting with works activities throughout the duration of the construction period, particularly the materials handling infrastructure at Berth 52. The temporary works design to ensure flood protection will be the responsibility of the appointed contractor. Tidal early warning systems will be used by the contractor during the construction phase. Triton and Tidewatch are two tidal flood forecasting and warning systems developed by Dublin City Council that make use of weather and/ or surge forecasts in the Irish Sea to provide future predictions of tide levels, with Tidewatch providing forecasts up to five days in advance and Triton two

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	days in advance. The latest tidal flood warnings and forecasts are available on Dublin City Council's (DCC's) flood forecasting and warning page. The contractor can subscribe to DCC Alerts is which is a free notification service from DCC.
Chapter 10 Air Quality	
Potential for dust generation	The 2024 IAQM Dust Guidance mitigation measures for the Project are detailed below: **Communications** • Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. • Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager. • Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust deposition, dust flux, real-time PM_{10} continuous monitoring and/or visual inspections. **Site Management** • Record all dust and air quality complaints, identify cause(s), respond appropriately to reduce emissions in a timely manner, and record the measures taken. • Make the complaints log available to the local authority when asked. • Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the logbook. **Preparing and maintaining the site** • Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. • Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site. • Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period. • Avoid site runoff of water or mud. • Keep site fencing, barriers and scaffolding clean using wet methods. • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below. • Cover, seed or fence stockpiles to prevent wind whipping. **Operating vehicle/machinery and sustainable travel** • Ensure all vehicles switch off engines when stationary - no idling vehicles.

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	• Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable. **Operations** • Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g., suitable local exhaust ventilation systems. • Ensure an adequate water supply on the site for effective dust/particulate matter suppression/ mitigation, using non-potable water where possible and appropriate. • Use enclosed chutes and conveyors and covered skips. • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. • Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. **Waste management** • Avoid bonfires and burning of waste materials. **Demolition** • Ensure effective water suppression is used during demolition operations. Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground. • Avoid explosive blasting, using appropriate manual or mechanical alternatives. • Bag and remove any biological debris or damp down such material before demolition. **Earthworks** • Only remove the cover in small areas during work and not all at once. **Construction** • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place. • Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. • For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust. **Trackout** • Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. • Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	Overall, the key considerations are: • Site roads/site entrances with the potential to give rise to dust will be regularly watered, as appropriate, during dry and/or windy conditions. • Material handling systems and material storage areas will be designed and laid out to minimise exposure to wind. • Water misting will be utilised on-site as required to mitigate dust in dry weather conditions. • The transport of road stone or other material, which has significant potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary. • Inspection of construction sites to examine dust measures and their effectiveness.
Chapter 11 Climate	
Direct Greenhouse Gas Emissions	The requirement to mitigate against projected emissions from the construction phase of the Project is clearly signalled in national policy such as CAP25 (3.5.1 Specify low carbon construction methods and low carbon cement material as far as practicable for directly procured or supported construction projects from 2023). The Project will investigate and use low carbon solutions if suitable. This commitment will be tracked through a Project Carbon Management Plan (PCMP) which has been developed in accordance with PAS 2080 (Carbon Management in Infrastructure) (refer to Appendix B). The PCMP is used to monitor and report on the above committed carbon management measures and all other measures adopted during the design, procurement and construction phases. In addition to the above mitigation regarding material choices, there are a series of additional construction mitigation measures that will also be adopted as follows: • All aggregates required imported shall be secondary aggregates. Virgin aggregates shall only be employed where it is demonstrated that secondary aggregates are unsuitable for structural reasons and/or they are unavailable. • Wherever available, the contractor shall secure construction materials from local/regional sources or sources within the State to minimise material transport emissions and reduce life cycle carbon emissions associated with the construction materials. • For electricity generation at the construction compounds, hydrogen generators or electrified plant shall be utilised over traditional diesel generators. This shall also apply to lower powered mobile plant, as appropriate. • A regular maintenance schedule for all construction plant machinery shall be undertaken to maintain optimum machinery efficiency. • Engines will be turned off when machinery is not in use. • The use of private vehicles by construction staff to access the site will be minimised through the encouragement of use of public transport, encouragement of car sharing, and maximising use of local labour to reduce transport emissions. To implement this, a draft Mobility Management Plan has been prepared (refer to Appendix C) for site staff.
Chapter 12 Terrestrial Noise and Vibration	

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
Noise impacts from construction on nearest noise sensitive properties	British Standard BS5228:2009+A1:2014 – Noise and vibration control on construction and open sites: Part 1 - Noise outlines a range of measures that can be used to reduce the impact of construction phase noise on the nearest noise sensitive receptors. These measures should be applied by the contractor where appropriate during the construction phase of the ABR2 Project. Examples of some of the best practice measures included in BS5228:2009+A1:2014 are listed below: • Ensuring that mechanical plant and equipment used for the purpose of the works are fitted with effective exhaust silencers and are maintained in good working order; • Careful selection of quiet plant and machinery to undertake the required work where available; • All major compressors should be 'sound reduced' models fitted with properly lined and sealed acoustic covers which should be kept closed whenever the machines are in use; • Any ancillary pneumatic percussive tools should be fitted with mufflers or silencers of the type recommended by the manufacturers; • Machines in intermittent use should be shut down in the intervening periods between work; • Ancillary plant such as generators, compressors and pumps should be placed behind existing physical barriers, and the direction of noise emissions from plant including exhausts or engines should be placed away from sensitive locations, in order to cause minimum noise disturbance. • Handling of all materials should take place in a manner which minimises noise emissions; and • Audible warning systems should be switched to the minimum setting required by the Health & Safety Authority. The finalised CEMP will be prepared in advance of the construction and will detail all aspects of controlling noise emissions at the nearest noise sensitive properties to the ABR2 Project. The finalised CEMP will include various sub-plans which will address specific environmental disciplines, including a Noise Management Plan (NMP). A draft NMP has been included as Appendix D. The NMP will be an iterative document, which will be updated on an ongoing basis in consultation with DCC. The document will detail the requirements for compliance noise monitoring to be completed during each stage of the construction process. A complaints procedure should continue to be operated by the Contractor throughout the construction phase, and all efforts should be made to address any noise issues at the nearest noise sensitive properties.
General Noise Considerations	• All site staff shall be briefed on noise mitigation measures and the application of best practicable means to be employed to control noise. • Good Quality site hoarding should be erected to maximise the reduction in noise levels. • The contact details of the contractor and site manager shall be displayed to the public, together with the permitted operating hours, including any special permissions given for out of hours work. • The site entrance shall be located to minimise disturbance to noise sensitive receptors. • Internal haul routes shall be maintained and steep gradients shall be avoided. • Material and plant loading and unloading shall only take place during normal working hours unless the requirement for extended hours is for traffic management (i.e. road closure) or health and reasons (application must be made to DCC a minimum of 4 days prior to proposed works).

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	• Use rubber linings in chutes, dumpers and hoppers to reduce impact noise. • Minimise opening and shutting of gates through good coordination of deliveries and vehicle movements.
Mitigation for noise generated by plant	• Ensure that each item of plant and equipment complies with the noise limits quoted in the relevant European Commission Directive 2000/14/EC. • Fit all plant and equipment with appropriate mufflers or silencers of the type recommended by the manufacturer. • Use all plant and equipment only for the tasks for which it has been designed. • Shut down all plant and equipment in intermittent use in the intervening periods between work or throttle down to a minimum. • Power all plant by mains electricity where possible rather than generators. • Maximise screening from existing features or structures and employ the use of partial or full enclosures for plant. • Locate movable plant away from noise sensitive receptors.
Mitigation for noise from vehicle activity	• Ensure all vehicle movements (on site) occur within normal working hours. (Other than where extension of work requiring such movements has been granted in cases of required road closures or for health and safety reasons). • Plan deliveries and vehicle movements so that vehicles are not waiting or queuing on the public roads. If unavoidable engines should be turned off. • Minimise the opening and closing of the site access through good coordination of deliveries and vehicle movements. • Plan the site layout to ensure that reversing is kept to a minimum. • Where reversing is required, use broadband reverse sirens or where it is safe to do so disengage all sirens and use banksmen. • Rubber/neoprene or similar non-metal lining material matting to line the inside of material transportation vehicles to avoid first drop high noise levels.
Mitigation for noise from demolition activities	• Employ the use of acoustic screening; this can include planning the demolition sequence to utilise screening afforded by buildings to be demolished. • If working out of hours for Health and Safety reasons (following approval by DCC) limit demolition activities to low level noise activity unless absolutely unavoidable. • Use low impact demolition methods such as non-percussive plant where practicable. • Use rotary drills and ‘bursters’ activated by hydraulic or electrical power or chemically based expansion compounds to facilitate fragmentation and excavation of hard material. • Avoid the transfer of noise and vibration from demolition activities to adjoining occupied buildings through cutting any vibration transmission path or by structural separation of buildings. • Consider the removal of larger sections by lifting them out and breaking them down either in an area away from sensitive receptors or off site.

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation

Monitoring recommendations for noise generation incorporating mitigation	• Establish pre-existing levels of ambient noise by baseline monitoring or use of the noise maps.
	• Carry out regular on-site observation monitoring and checks/audits to ensure that BPM is being used at all times. Such checks shall include;
	  ○ Hours of work
	  ○ Presence of mitigation measures
	  ○ Number and type of plant
	  ○ Construction methods
	• Site reviews must be recorded and made available for inspection.
	• Monitor noise and vibration continuously during demolition, piling, excavation and sub and superstructure works at agreed locations and report to DCC at agreed intervals and in an agreed format. To comply with this, the following must take place.
	  ○ The monitoring locations for existing sites as agreed with officers of DCC must remain in situ. If additional monitoring is required this will be provided and the new locations will be agreed with DCC. For all new sites the monitoring locations must be agreed with DCC.
	  ○ The results of the monitoring must be forwarded to officers of the Air Quality Monitoring and Noise Control Unit every two weeks in the following format:
	  ○ Provide the construction noise level as defined in British Standard 5228 and the peak particle velocity readings for the hours of operation of the site. This will include the construction noise level for any overtime period worked outside of normal working hours. Provide a report detailing and discussing the noise and vibration levels over the reporting period. If a breach is recorded the follow up action that took place to prevent any further breaches must be included in the report.
	  ○ This information must be provided in electronic format. If results are required owing to complaints the results will be provided as soon as possible by the contractor to DCC.
	• Appraise and review working methods, processes and procedures on a regular basis to ensure continuous development of BPM.
	• The 'ABC' Method detailed in Paragraph E.3.2 of BS 5228-1:2009 shall be used to determine acceptable noise levels for day, evening and night time work.
	• Vibration levels must be kept below 1.0 mm/sec (PPV) where possible. Where levels are expected to exceed this value, residents must be warned and an explanation given.
	• Contact details for the site manager and liaison officer should be displayed prominently on the site hoarding.
	• All staff should be briefed on the complaint procedure and the mitigation requirement and their responsibilities to register and escalate complaints received.
	• Send regular updates at appropriate intervals to all identified affected neighbours/businesses via a newsletter and post relevant information on the site hoarding. Also make the information available via email/website including weekly noise monitoring reports.
	• Arrange regular community liaison meetings at appropriate intervals including prior to commencement of the project.

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	• Meet regularly with neighbouring construction sites to ensure activities are coordinated to minimise any potential cumulative issues.
Chapter 13 Underwater Noise and Vibration	
	No specific mitigation measures are suggested for the construction phase in respect of underwater noise and vibration, as non percussive equipment will be used. Furthermore, there are generally negligible impact ranges for AUD INJ (<10m) and the fact that noise similar to noise from the Project is common in the port and vessels with demolition equipment are not sudden onset sound sources, giving animals time to react and evade.
Chapter 14 Coastal Processes	
Dredging Mitigation Measures	• Dredging mitigation measures will include the use of an environmental bucket to minimise sediment losses, no overtopping of barges is permitted with the use of spill plates to minimise losses. • A silt curtain will be deployed during dredge operations to further limit the dispersion of sediment. • To underpin the effectiveness of the silt curtain, a dredge management protocol will also be implemented. This will entail agreeing appropriately scheduled dredging paths, areas and windows in conjunction with Port operations through close liaison with the harbour master. This will minimize silt curtain redeployment and movement, improving the efficiency and efficacy of this mitigating measure. • A bubble curtain will be available and will be deployed in the event of a sediment breach.
Chapter 15 Material Assets – Traffic and Transportation	
Construction Traffic	A Mobility Management Plan (MMP) has been drafted (refer to Appendix C). In addition to the MMP, a Construction Traffic Management Plan (CTMP) will be developed prior to commencement of the Project.
Chapter 16 Material Assets – Services	
Water Network	Regarding the existing water network, the following mitigation measures will be taken: • Early engagement with water asset owners: Obtain statements of capacity and any written requirements from the water utility authority prior to construction works commencing. This can include confirmation of allowable abstraction rates and pressure thresholds for the temporary requirements for site offices and welfare facilities. • Supply Strategy: Preparation of a water supply plan for both temporary requirements for site offices and welfare facilities and during the construction process. This will prioritise the use of on-site water sources where feasible such as the reuse of effluent water from the waste treatment and recovery processes following suitable settlement/treatment or the use of harvested rainwater for dust suppression. • Provision of a back-up supply: Consideration should be given to ensure that water requirements for both potable water and non-potable water include a back-up supply, either through the use of suitable storage tanks

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	on site for several days' worth of supply or through provisions available for the importation of water on-site using bowsers. • Implement a Phased Demand Management: Schedule any high-demand activities to avoid coinciding with known peak local demands, this may involve the implementation of demand-management controls and daily water use monitoring. • Protection of existing buried assets: Carry out utility surveys to mark and protect existing mains/sewerage networks. Provision of an Emergency Response Plan should pipe strikes occur such as provision of isolation valves and standby repair crews. • Water quality controls: Installation of silt traps, settlement tanks and appropriate discharge controls for processing of dewatered dredged waters and infilled waters to prevent pollution of nearby surface waters. Contractors must comply with abstraction licensing and water quality consent conditions. • With regard to the treatment of dredged material, the existing IE licence includes Condition 9 whereby should local wells indicate that the construction works are having a significant adverse impact on the quantity or quality of water supply, that this shall be considered as an emergency with a requirement for the licensee to provide an alternative source of water for those affected, this will ensure that no adverse effects arise as a result of the construction process on other users. The wastewater generated during the treatment of dredge material is also subject to further conditions under the existing IE licence whereby sampling points will be included within the pipe work system to allow for the collection of water samples from emission point as per the IE licence. The sampling and testing schedule will be in accordance with Schedule C of the IE licence, and this will ensure that no adverse effects arise regarding the water discharges from the wastewater process to the River Liffey, should this indicate issues, steps to address this must be made with a cessation of discharge until it is rectified.
Electricity Network	Regarding the existing electricity network, the following mitigation measures will be taken: • Early engagement with electricity network owners: Obtain connection requirements and approval from electricity network operators (ESB networks) and agree routing, protection and metering for temporary requirements for site offices and welfare facilities. For treatment process requirements, a submission should be made for temporary works application and connection to the network. • Design of temporary connection: The temporary supply should be designed with the appropriate capacity margin and use of suitable protective devices. Use of back-up generators should be available to avoid electrical failures should an outage occur. Ensure that the design of any electrical supply meets national safety standards such as earthing. • Implement a Phased Demand Management: Schedule any high-demand activities to avoid coinciding with known peak local demands, this may involve the implementation of demand-management controls and advance notice of other users. During the connection process for the site construction facilities and for the wastewater treatment plants, further mitigation measures may be implemented to prevent disruption to other users, this may include the use of back-up generators to ensure that power supply continues, ensure advance notice is giving should shut off be required of the main network or the possibility of implementing the temporary connection process during the night-time to minimise effects upon other users.

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	There is potential for the cable upgrading work on the Poolbeg to North Wall section to coincide with construction activities taking place under the ABR2 Project, this can be avoided through the careful co-ordination between contractors during construction activities. Dredging within Alexandra Basin West has been considered in respect of the cooling water intakes used by the Ringsend and Poolbeg Blocks (and Encyclis) should dredging activities compromise water quality or flow conditions within these intakes. Turbidity, suspended sediments and contaminants must be suitably mitigated and monitored to prevent operational impacts upon the power stations, however as the dredging is confined within Alexandra Basin West and the basin is located c.1km away from the cooling water intake, there is no potential pathway for effects. As noted in Chapter 5 Project Description, a series of mitigation measures are in place regarding dredging including the following; Usage of a backhoe dredger with an environmental bucket to minimise sediment losses, installation of a silt curtain around the dredger, no overtopping of barges is permitted, and spill plates must be implemented for the transportation of dredged materials and deployment of a bubble curtain (stored on-site) across Alexandra Basin West should a sediment contamination event occur to contain sediment within the basin. The above mitigation measures aim to minimise the potential for sediment contamination occurring downstream of the dredging area. Should a contamination event occur, shutdown of dredging operations is recommended.
Telecommunications	Access shall be maintained to facilitate the operation of the infrastructure, and consideration should be given to any guidance published by the operators regarding working in the vicinity of such infrastructure.
Services consented under the MP2 Project	To mitigate against the potential for future excavation works required within the infilled area of Berth 52/53 to deliver the services and utilities infrastructure consented under the MP2 Project, during construction the use of mitigation by avoidance through the use of detailed design information on the dredge amounts and void infilling calculations has been undertaken to ensure that the void infilling considers the space required in respect to the finished surface levels of the MP2 project to accommodate the required services and utilities. Furthermore, as noted in Chapter 16 Section 16.3.7 of the EIAR (under separate cover), areas where the installation of services and utilities is proposed to occur for delivery of the UFT, these areas will only include either clean imported material or material which has been subject to a treatment process whereby the efficacy of this is unaffected by future excavation works to prevent the release of contaminants. Should the volume of treated dredge material exceed the void space at the Berth 52/53 basin, export to an external facility for reuse or disposal may be required to ensure that available space below the finished surface levels of Terminal 5 can accommodate the services and utilities consented under the MP2 Project.
Chapter 17 Cultural Heritage	
Pre-construction phase mitigation	Cultural Heritage inputs prior to construction will comprise an archaeological assessment and survey of the eastern end of the North Wall Quay Extension, including the North Wall Quay Lighthouse, should this location be utilised for the processing and treatment facility to enable the Capital Dredging of Alexandra Basin West. The survey will comply with Policy 5 (Policies relating to intervention and development affecting significant cultural heritage) of the *Dublin Port Heritage Conservation Strategy*. Such an archaeological survey will include metrically-accurate laser-scan survey, and will ensure a detailed record of the treatment facility footprint and adjacent features prior to works commencing.

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	In compliance with the National Monuments Acts, a Section 12 Notification Form will be completed in advance of works commencing should the NQWE be selected for the location of the processing and treatment facility. The cultural heritage team will advise DPC on the measures required to ensure that interventions are reversible and will avoid impacts on the historic fabric during construction. The cultural heritage team will also advise on inputs to the design of the treatment plant separation barriers and compound fencing.
Minimising potential impacts on cultural heritage	The following archaeological monitoring and management measures will be undertaken: • Retaining a project archaeologist/s: An archaeologist experienced in maritime archaeology will be retained by DPC for the duration of the relevant works. • Retaining a Grade 1 Conservation architect: A RIAI Grade 1 (or equivalent), Conservation architect experienced in industrial and maritime architectural heritage will be retained by DPC for the duration of the relevant works, to advise specifically in relation to works associated with the use of NWQE for the treatment and processing plant. • Retaining a conservation engineer: A conservation engineer experienced in industrial and maritime architectural heritage will be retained by DPC for the duration of the relevant works, to advise specifically in relation to works associated with the use of NWQE for the treatment and processing plant. • Archaeological licences: will be required to conduct the on-site archaeological works. Licence applications require the inclusion of detailed method statements that outline the rationale for the works and the means by which the works will be resolved. Licence applications take a minimum of four weeks to process through the DHLGH, and advance planning is required to ensure that the necessary permits are in place before site works commence. It is anticipated that the following licence types will be required: Excavation, to cover monitoring and investigation works; Detection, to cover the use of metal-detectors; and Dive Survey, to cover the possibility of having to conduct underwater inspections. Since 2017, excavation licence applications must be accompanied by a letter from the client on their letterhead that follows a prescribed format to confirm that sufficient funds and other facilities are available to the archaeologist to complete the archaeological excavation, post-excavation, and preliminary and final reports (including specialist reports). It is confirmed that DPC has confirmed that sufficient funds and other facilities as required will be made available to the project archaeologist to complete all reports required. • An Archaeology Management Plan reflecting current guidelines will be prepared by the archaeologist to prepare the protocols that ensure proper management and response to archaeological monitoring, recording and resolution that will be required in the course of the project. • Archaeological monitoring will be carried out by suitably qualified and experienced maritime archaeological personnel licensed by the DHLGH. Archaeological monitoring is conducted during all terrestrial, inter-tidal/foreshore and seabed disturbances associated with the development. The monitoring will be undertaken in a safe working environment that will facilitate archaeological observation and the retrieval of objects that may be observed and that require consideration during the course of the works. The monitoring will include a finds retrieval strategy that is in compliance with the requirements of the National Museum of Ireland. • The time scale for the construction phase will be made available to the archaeologist, with information on where and when ground disturbances will take place.

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	• Discovery of archaeological material: In the event of archaeologically significant features or material being uncovered during the construction phase, machine work will cease in the immediate area to allow the archaeologist/s to inspect any such material. • Archaeological material: Once the presence of archaeologically significant material is established, full archaeological recording of such material will be recommended. If it is not possible for the construction works to avoid the material, full excavation will be recommended. The extent and duration of excavation will be a matter for discussion between the client and the licensing authorities. • Archaeological team: It is recommended that the core of a suitable archaeological team be on standby to deal with any such rescue excavation. This would be complemented in the event of a full excavation. • Archaeological dive team: It is recommended that an archaeological dive team be retained on standby for the duration of any in-water disturbance works on the basis of a 24 or 48-hour call-out response schedule, to deal with any archaeologically significant/potential material that is identified in the course of the seabed disturbance activities. The dive team and all in-water work will conform to the Port's safety protocols for Diving at Work. • A site office and facilities will be provided by the DPC on site for use by archaeologists. • Secure wet storage facilities will be provided on site by the DPC to facilitate the temporary storage of artefacts that may be recorded during the course of the site work. • Buoying/fencing of any such areas of discovery will be necessary if discovered and during excavation. • Machinery traffic during construction will be restricted to avoid any identified archaeological site/s and their environs. • Spoil will not be dumped on any of the selected sites or their environs. • All site work will be conducted in strict compliance and accord with DPC's Health and Safety requirements. • Post-construction project report and archive. It is a condition of archaeological licensing that a detailed project report is lodged with the DHLGH within 12 months of completion of site works. The reports will be specific to each licence granted. The reports should be to publication standard and should include a full account, suitably illustrated, of all archaeological features, finds and stratigraphy, along with a discussion and specialist reports. Artefacts recovered during the works need to meet the requirements of the National Museum of Ireland in terms of recording, conservation and storage. These measures are subject to the approval of the National Monuments Service at the DHLGH and the offices of the Dublin City Archaeologist and Built Heritage. DPC has and will continue to engage with the DHLGH and the offices of the Dublin City Archaeologist and Built Heritage.
Protection of North Wall Quay Extension	The North Wall Quay Extension will be subject to the following measures should this location be chosen for the treatment of dredged material, allowing it to be returned to its original condition: • The working area will be removed from the quay edge and from the lighthouse, which reduces the possibility of direct impacts on the historic fabric.

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	• The use of spill plates at the quayside handling locations will avoid spillage onto the exposed granite capstones during unloading activities to transfer the sediments from barges to the treatment and handling infrastructure. • The design proposal for sediment handling and processing to be undertaken in designated, bunded areas constructed on a separation liner (geotextile) laid over the existing surface will ensure separation and prevent overspill onto the deck. • The stockpile heights will not exceed the heights applicable to the materials being stored to ensure loading from materials onto the structure of North Wall Quay Extension remains below service loading. This will reduce the potential for loading impact on the quay structure.
Chapter 18 Landscape and Visual	
Landscape and Visual impact	In built mitigation, as specified in Chapter 5 Project Description of the EIAR (under separate cover) associated with the construction phase of the Project includes; • Height restrictions for material storage adjacent to the North Quay Wall Extension to ensure loading from materials onto the structure of the North Wall Quay Extension remain below service loading. • At Berth 49 and Berth 52 West, heights will not exceed the natural angle of repose of the sediments within the footprints of the storage areas.
Chapter 19 Population and Human Health	
Public Health	Public health is by definition preventative in nature. Therefore, mitigation measures adopted as part of the construction and operation of the Project focus on precursors to health and wellbeing outcomes, thereby providing an opportunity for intervention to prevent any adverse impacts. For example, during construction, a Dust Management Plan and a Noise Management Plan will be implemented to manage air quality impacts and control construction noise. Air quality mitigation measures will focus on the effective management of construction activities to minimise dust and emissions at source and will be proportionate to the scale and nature of the works. Noise mitigation will be implemented in accordance with established best practice and relevant guidance to minimise disturbance associated with construction activities. Measures will focus on the appropriate management of plant, equipment and working practices to control noise levels and protect nearby sensitive receptors. Construction traffic will be managed in accordance with the CTMP which will control routing and scheduling of vehicles to minimise disturbance and maintain safety on the surrounding road network. The only monitoring proposed relates to construction noise, which will be carried out as a compliance measure to confirm that noise levels remain within limit values and that mitigation measures are effective. Monitoring locations and procedures will be agreed with Dublin City Council and set out in the Noise Management Plan. On the basis that no significant adverse human health effects are anticipated and embedded mitigation and monitoring measures are designed to be protective of health and wellbeing by targeting precursors to health outcomes, no further health-specific mitigation or monitoring is considered necessary.
Chapter 20 Resource and Waste	

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
Waste materials will be generated during the construction phase of the works	The mitigation for resource and waste is the development and implementation of the Resource and Waste Management Plan (RWMP). This will be updated post-consent to cover the Pre-Construction Phase and will include current practices in line with EPA best practice and DCC policy requirements. The RWMP will include detail that will reduce the risk to human health of pollution or contamination and exposure from the storage, handling or disposal of all waste materials and ensure there is full traceability to the end point of treatment or disposal of all waste streams. Details of all waste types that will be produced from the Construction Phase of the Project will be documented in the RWMP. All construction waste will be managed as part of the RWMP, which will be implemented by the Principal Contractor for the duration of the construction works. The detailed RWMP will contain procedures for the management of waste and related pollution control measures and will be a live document subject to revision throughout the course of the construction works. Specific waste management requirements will include the following: • Strict adherence to waste regulatory requirements for the storage and handling on-site, as detailed in the IE Licence. • No wastes shall be deposited outside the areas permitted under the IE Licence or Project red line boundary, unless it is at a facility that holds a valid environmental permit / licence. • Allocation of space in the temporary construction compound for the storage of waste materials and ensure that storage areas and containers are clearly labelled (appropriate signage) so site workers know which wastes should be put there. • Hazardous waste must be stored separately from non-hazardous wastes to avoid contamination. • Segregation of wastes into specific categories and provide separate containers for dry recyclables, such as paper and cardboard, plastic, glass, wood, and metal at welfare facilities within temporary works areas. • All waste materials will be stored in skips or other suitable receptacles in designated areas of the site. The waste storage area(s) will be assigned and all construction staff provided with training regarding the waste management procedures on commencement of the Project. • Confirmation of waste treatment and disposal methods for each of the waste streams and robust application of the waste hierarchy to reuse and recycle specific percentages of the overall quantity generated to minimise wastes disposed of to landfill. • Ensure that all Waste Contractors that remove waste from the site have the appropriate authorisation. • Monitor the actual quantities of wastes produced during construction and management location(s) and update the RWMP to allow comparison with waste arisings estimated prior to construction. • All wastes that are deposited within the Project (as infill) or removed off-site must follow tracking procedures that trace the movement of the waste to the approved management location. • The Principal Contractor will designate staff who are responsible for waste management and ensure that all contractor staff are aware of the appropriate reuse, recovery, or disposal routes for each waste. The implementation of the detailed RWMP will promote sustainable waste management practices by maximising waste prevention, re-use, recycling, and

Potential Impact/Mitigation Measure	Summary of Proposed Mitigation
	recovery opportunities and will ensure all regulatory requirements are in compliance and DCC policy requirements are implemented.
Monitoring Requirements	Records will be kept of all waste materials that are produced, utilised and leave the Project site during construction, whether for reuse on another site, recovery, recycling or disposal. Further details of the tracking of wastes will be detailed in the RWMP. Details of the sampling of processed sediments to confirm hazardous properties and leachability will be agreed with the EPA and included within the RWMP.

Mitigation by avoidance has also been used where possible. Mitigation by avoidance includes restricting capital dredging to the winter seasons (October to March) to avoid disturbance of nesting terns. In addition, to mitigate against the potential for future excavation works within the infilled area (to deliver the services and utilities infrastructure consented under the MP2 Project) the use of mitigation by avoidance through the use of detailed design information on the dredge amounts and void infilling calculations has been undertaken to ensure that the void infilling considers the space required in respect to the finished surface levels of the MP2 Project to accommodate the required services and utilities.

2.2 Conditions on Planning as Specified by An Coimisiún Pleanála

Planning Permission conditions set by An Coimisiún Pleanála (the Commission) will be inserted here should the Commission decide to grant planning consent for the ABR2 Project, and will form an integral part of the finalised CEMP.

3.0 Management of Environmental Impact

3.1 Roles and Responsibilities

DPC intends to appoint a Contractor to undertake each phase of the works. Mitigation measures set out in the CEMP will form part of the Contract Documents for the construction stage to ensure that the Contractor undertakes the works required to implement the mitigation measures.

DPC has an established liaison group which includes representatives of DPC, the Contractor and Dublin City Council (DCC). A representative of the Maritime Area Regulatory Authority (MARA) will be invited to sit on the group. The group meets at quarterly intervals each year with an agenda and minutes taken of the meetings. It is proposed that this liaison group will also provide environmental oversight of the construction phase of the ABR2 Project.

DPC will appoint a suitably qualified person to the role of Environmental Facilities Manager to monitor the ABR2 Project construction works. The Environmental Facilities Manager will provide monthly reports to the members of the liaison group. The Environmental Facilities Manager will work closely with the Contractor's site supervisors to monitor activities and ensure that all relevant environmental legislation is complied with and that the requirements of the CEMP are implemented. The Environmental Facilities Manager will have the authority to review method statements, oversee works and instruct action, as appropriate, including the authority to require the temporary cessation of works, where necessary, from the client.

3.2 Hours of Working

The current IE licence facilitates operation of the treatment infrastructure between the hours of:

- 08:00 and 18:00 on Monday to Friday.
- 08:00 and 13:00 on Saturday

Alexandra Basin West dredging and treatment of dredged material may occur during a daytime window of 07:00-19:00 and an evening window of 19:00-23:00.

Activity will be lower during the night, with the only permitted activities during a 23:00-07:00 window being dredging of Alexandra Basin West area 1 and area 4, along with associated barge transport of dredged material.

Where additional or alternative working hours are required, a request for derogations to work outside the permitted working hours will be submitted to Dublin City Council at least five working days in advance. The request will be supported by a detailed case including an Engineering report explaining the requirement to work outside the permitted working hours and listing proposed dates with commencement and finishing times.

All affected residents and stakeholders shall be notified on receipt of any approved derogations including the rationale for the extended working hours.

3.3 Environmental Management System

3.3.1 Background

To safeguard local amenities and protect the environment, the ABR2 Project will be operated and managed in accordance with a comprehensive Environmental Management System (EMS).

The delivery of Masterplan 2040, including the ABR2 Project, is underpinned by DPC's commitment to understanding, appreciating and managing environmental sensitivities associated with the ongoing developments. Rigorous and detailed studies are undertaken in advance of projects to allow appropriate determination of how best to manage and mitigate any potential environmental impacts as a result of the

developments. It is a key requirement of the Dublin Port Masterplan 2040, reviewed 2018, that all future DPC activities (including capital projects) are undertaken in accordance with the requirements of the company's certified EMS.

3.3.2 Existing EMS Certification

DPC has been a member of the EcoPorts network since 2008, the main environmental initiative of the European port sector. It was initiated by a number of proactive ports in 1997 and has been fully integrated into the European Sea Ports Organisation (ESPO) since 2011. The overarching principle of EcoPorts is to raise awareness on environmental protection through cooperation and sharing of knowledge between ports and improve environmental management.

Membership of EcoPorts requires identification of the port's environmental risks using a diagnostic checklist and facilitates certification under the Port Environmental Review System (PERS).

PERS is the only port specific environmental management standard. It incorporates the main general requirements of recognised environmental management standards (e.g. ISO 14001) but also takes into account the specificities of ports. PERS builds upon the policy recommendations of ESPO and gives ports clear objectives to aim for. Its implementation is independently reviewed by LRQA, a leading global assurance provider. An EMS Manager oversees the implementation of the PERS system.

The EMS is comprised of the following elements:

- DPC Environmental Policy: a statement of intent to improve and sustain environmental performance;
- Planning: identification of environmental risks, aspects, legal requirements, objectives, targets and establishment of management programmes;
- Implementation and operation: training of appropriate personnel, record keeping and establishment of emergency planning;
- Checking and Corrective Action: auditing EMS, and implementing corrective actions; and
- Management Review: assessment of EMS (i.e. objectives and targets) relevant to operations and defined policy, conformity review of environmental performance and legal requirements.

3.3.3 EMS Purpose

The EcoPorts PERS certified EMS operated by DPC provides a comprehensive framework within which DPC carries out its operations and activities to the highest environmental standards and in a sustainable manner. It is a systematic framework to manage the immediate and long-term environmental impacts of DPC's activities, products, services and processes. Its ongoing implementation ensures that DPC's environmental footprint is minimised, the risk of pollution incidents is diminished, and ensures compliance with relevant environmental legislation.

EMS Documentation describes in detail how the EMS identifies and manages significant environmental issues associated with DPC's activities, and will include the ABR2 Project, and consequently how it applies environmental awareness and responsible decision making in all its procedures. The documentation is intended to facilitate effective and efficient management of the environmental aspects and any potential impacts of the Dublin Port operations. DPC is committed to maintaining and implementing EcoPorts PERS certification in relation to all its activities so as to prevent any significant adverse environmental effects.

3.3.4 Environmental Facilities Manager

An Environmental Facilities Manager (environmental clerk of works) will monitor and assess the environmental implications of all construction works associated with the ABR2 Project. The Environmental Facilities Manager will work closely with the Contractors' site supervisors to monitor activities and ensure that all relevant environmental legislation and EMS protocols are complied with, and that the requirements of the CEMP are

implemented. The Environmental Facilities Manager will review method statements, oversee works and instruct action, as appropriate, and has the authority to require the temporary cessation of works, where necessary, from the client.

3.3.5 ABR2 Project – EMS Implementation

The DPC EMS Manager will provide EMS induction to the Environmental Facilities Manager once appointed. Relevant EMS documentation will be provided and will be reviewed by the Environmental Facilities Manager in the context of the ABR2 Project. This review will identify any further new environmental considerations to be considered arising from the ABR2 Project. The objective is to identify additional aspects and controls for inclusion in the Environmental Aspects register, and to ensure comprehensive coverage of the ABR2 Project scope of work. The environmental legal register will be reviewed and any additional legislative instruments germane to the ABR2 Project identified.

As part of the ongoing implementation of the EMS in relation to the ABR2 Project, the Environmental Facilities Manager will participate in DPC's audit programme and will fully implement the EMS and engage in all EMS procedures and protocols as required.

3.3.6 EMS Scope

The EMS specifically includes management, maintenance and development of port infrastructure: including roads, ramps, drainage system, selected utilities under the roads alignment (mains water supply), buildings, piles, hydrographical surveys and dredging.

Key relevant provisions of the Environmental Management System include:

- The requirement for all Contractors to be assessed/audited at procurement stage and throughout the construction phase of the ABR2 Project with respect to environmental performance;
- Awareness raising in relation to ABR2 Project specific environmental issues to be provided to Contractors during the construction phase of the ABR2 Project with respect to environmental performance;
- Ongoing auditing and monitoring as required in the EMS and CEMP;
- Identification and documentation of environmental non-conformances and corrective actions/preventative actions; and
- Data storage and reporting as required by the EMS and CEMP.

3.3.7 EMS Implementation and Operation

EMS documentation sets out the overall structure for implementation and defines the roles and responsibilities of personnel in relation to the EMS.

The ABR2 Project will be supported by its own dedicated Environmental Management Team. Additional expertise will be available as required when phased project elements come on-stream over the lifetime of the project.

The Environmental Facilities Manager will be the designated point of contact with the EMS Management Team throughout all stages in the process of environmental planning, assessment and reporting for ABR2 Project construction activities. This includes the process of environmental management plan development and approval, the audit and inspection schedule roles, and reporting mechanisms. All Contractors will be made aware of DPC's environmental policy, the EMS and DPC environmental point of contacts. This information will be made available within tender documentation. The Environmental Facilities Manager will provide reports to the competent authorities, and to specified stakeholders at the agreed frequency.

3.3.8 EMS Documentation

EMS specific documentation is maintained by the EMS Manager. This documentation is subject to periodic review and amendments to reflect new operations or activities carried out by DPC, changes in legal requirements and development of the system. Such a review process will be undertaken at the beginning of the ABR2 Project and will be ongoing throughout the life of the project.

DPC uses a document control system to manage the preparation, revision and issue of documents related to the EMS. It is a key requirement of the Dublin Port Masterplan 2040, reviewed 2018, that all future DPC activities (including the ABR2 Project) are undertaken in accordance with the requirements of the company's certified EMS.

3.3.9 Environmental Data Exchange Network

DPC are registered on the Environmental Data Exchange Network (EDEN) portal. Where applicable, all correspondence and reporting in relation to the requirements of the IE licence will be made to the EPA via the EDEN System. DPC are aware that all information submitted via the EDEN system can be viewed by members of the public on request at any EPA office. Some information such as environmental reporting is made available on the EPA licensing web page.

3.4 Approach to Community Engagement

This section sets out DPC's approach to community engagement with respect to the ABR2 Project.

3.4.1 Arrangements to Engage with Neighbouring Communities

The Docklands Oversight and Consultative Forum (DOCF) is an advisory body appointed by the Minister for Housing, Local Government and Heritage. It is responsible for advising DCC on strategic and operational matters regarding the development, regeneration, and local integration of the Dublin Docklands area. The DOCF serves as a platform to bring together representatives from DPC, state bodies, local community groups, and business interests to ensure that major port-side developments consider the environmental, social, and economic impact on local neighbourhoods.

DPC will also give regular updates to local Residents Association and appointed councillors. This will be coordinated by DPC's Community Engagement Manager.

3.4.2 ABR2 Project Liaison Group

DPC has an established liaison group which will be extended to also cover the ABR2 Project. It comprises the following representatives:

- DPC;
- Dublin City Council;
- Foreshore Unit, DHLGH / MARA;
- Main Contractor;
- Environmental Facilities Manager; and
- DPC Environment, Health & Safety Manager.

The objective of the liaison group is to provide a forum to discuss the progress of the construction works, programme and any issues arising.

The group meets quarterly with an agenda and minutes taken of the meetings.

Port users are kept informed of the outcome of the meetings through established lines of communication within the port.

3.4.3 Dublin Port Website

The existing Dublin Port Website will be used to keep local communities informed of construction progress and programme, highlighting the extent of the works scheduled over a three-month rolling period.

3.5 Environmental Management Plans

A number of Environmental Management Plans (EMPs) will be prepared for the construction phase of the ABR2 Project. A suite of EMPs will be prepared in accordance with the mitigation measures outlined in the documentation submitted. These should include, but may not be limited to:

- Construction Traffic Management Plan
- Resource and Waste Management Plan
- Dust Management Plan
- Marine Mammals Management Plan
- Archaeology Management Plan
- Water Quality Management Plan
- Dredging Management Plan
- Pollution Incident Response Plan

The EMPs will be developed as required prior to the commencement of development and will incorporate the mitigation measures outlined in the documentation submitted with the application for permission and will include any additional requirements pursuant to conditions attached to statutory consents.

A number of EMPs have been drafted for the construction phase of the ABR2 Project:

- A Project Carbon Management Plan (Appendix B)
- A Mobility Management Plan (Appendix C)
- A Noise Management Plan (Appendix D)

This draft CEMP is a ‘live’ document and therefore the above draft EMPs will be updated where appropriate prior to construction.

In addition, regular audits of the EMPs will be undertaken during the construction phase of the works by the Environmental Facilities Manager.

4.0 Site Safety

DPC operates and maintains quality management systems in compliance with the internationally recognised standards OHSAS 18001 & ISO9001. OHSAS 18001 has been withdrawn and replaced by the new international Standard ISO 45001 in 2018. Successful maintenance of international standards enables the organisation to maintain a level of control over, and knowledge of, relevant hazards resulting from normal operations and abnormal situations with an overall objective to improving performance and preventing accidents and/or incidents in the workplace.

DPC operates to the International Ship and Port Facility Security Code (ISPS Code), which provides a comprehensive set of measures to enhance the security of ships and port facilities. Strict security procedures are already in place on site to deal with all access on a 24-hour basis. These procedures require all vehicles and personnel visiting the site to be logged and will continue in place once construction commences and has been completed.

Safety will be of prime importance during the construction works. The works will be subject to the Safety, Health and Welfare at Work Act 2005 and the Safety, Health and Welfare at Work (Construction) Regulations, 2013. All aspects of design construction will be reviewed with regard to health and safety and a risk assessment will be carried out.

A Project Supervisor (Design Process) will be appointed by DPC to produce a pre-tender Health and Safety Plan for the project. The Principal Contractor will be responsible for the control and co-ordination of health and safety during the works and will be appointed as the Project Supervisor (Construction Stage).

All individuals working on the Project will be required to undertake induction procedures. Such will be designed to make individuals aware of all the issues associated with the Project and will include, but not be limited to;

(i) The terms of the CEMP;
(ii) Marine Safety;
(iii) Working Hours;
(iv) Access arrangements;
(v) Health, Safety and environmental policy and procedures;
(vi) Code of Conduct within the site and surrounding environs;
(vii) Statutory obligations of individuals on site;
(viii) Traffic Management;
(ix) Site parking;
(x) Public Access;
(xi) Lighting requirements;
(xii) Complaints and disciplinary procedures;
(xiii) Protection of the water environment;
(xiv) Protection of wildlife and habitats;
(xv) Dust and air quality;
(xvi) Noise and vibration; and
(xvii) Emergency procedures.

Visitors will not be allowed onto the site unless in possession of a current Safe Pass (or equivalent) demonstrating they have undertaken appropriate construction site Health & safety training and have received formal induction or are accompanied by an authorised person who has completed the induction. All visitors will be required to sign a visitor's book.

5.0 Summary of Environmental Management Plans

Table 5-1: Summary of Environmental Management Plans

Type of Environmental Management Plan	Ongoing Mitigation Required	Ongoing Mitigation Specific Requirements	Ongoing Monitoring/ Auditing Required	Timing of Ongoing Monitoring	Reporting Requirements	Reporting Procedures	Ongoing Liaison Required	Other Specific Requirements
Construction Traffic Management Plan	Yes	Compliance with DCC's HGV Management Strategy	Yes	During Construction	Annual Reports	Report submitted to Planning Authority	Yes	Complaints Procedure
Invasive Alien Species Management Plan	Yes	Precautionary measures to prevent importation and spread	Yes	During Construction	Annual Reports	Report submitted to Planning Authority	Yes	Containment / Treatment required if any Invasive Alien Species are found on the site
Construction Waste Management Plan	Yes	Compliance with the Waste Framework directive (2008/98/EC)	Yes	During Construction	Annual Environmental Report	Report submitted to Planning Authority and EPA	Yes	Complaints Procedure
Resource & Waste Management Plan	Yes	Prepared in line with Best Practice guidelines for the preparation of Resource & Waste Management Plans for construction & demolition projects, EPA 2021.	Yes	During Construction	Annual Environmental Report	Report submitted to Planning Authority and EPA	Yes	Complaints Procedure
Noise Management Plan	Yes	Compliance with NRA Guidelines and BS5228:2009+A1:2014	Yes	Preconstruction and during construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and EPA	Yes	Specific noise limits to be met at nearest noise sensitive receptors, Complaints Procedure

Type of Environmental Management Plan	Ongoing Mitigation Required	Ongoing Mitigation Specific Requirements	Ongoing Monitoring/ Auditing Required	Timing of Ongoing Monitoring	Reporting Requirements	Reporting Procedures	Ongoing Liaison Required	Other Specific Requirements
Dust Management Plan	Yes	Compliance with EPA and BRE Guidelines Construction of Noise Barriers	Yes	Preconstruction and during construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and EPA	Yes	Complaints Procedure
Marine Mammals Management Plan	Yes	Compliance with NPWS Guidelines	Use of MMOs	Preconstruction, during construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and NPWS	Yes	Close liaison required with NPWS
Archaeology and Cultural Heritage Management Plan	Yes	Compliance with DHLGH Guidelines	Monitoring to be undertaken by conservation engineer, Grade 1 Conservation Architect and project archaeologist.	During Construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and DHLGH	Yes	Appropriate Licences required from DHLGH
Water Quality Management Plan	Yes	Compliance with EPA Guidelines etc	Installation of real-time water quality monitoring system	Preconstruction and during construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and EPA	Yes	Complaints Procedure
Dredging and Sediment Management Plan	Yes	Adherence to dredging mitigation measures	Yes	During Construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and EPA	Yes	Complaints Procedure

Type of Environmental Management Plan	Ongoing Mitigation Required	Ongoing Mitigation Specific Requirements	Ongoing Monitoring/ Auditing Required	Timing of Ongoing Monitoring	Reporting Requirements	Reporting Procedures	Ongoing Liaison Required	Other Specific Requirements
Pollution Incident Response Plan	Yes	Adherence to guidelines for rapid and efficient response to minimize environmental impact	Monitoring of pollution events required and records of pollution prevention equipment.	During construction	Detailed record of all pollution events and responses, costs involved and environmental impacts.	Report submitted to Planning Authority and EPA	Yes	Specific training, and debriefing post pollution events to establish causes of events, lessons learned and preventive or corrective action required.
Project Carbon Management Plan	Yes	Aligned with the principles of PAS2080:2023	Yes	During construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority	Yes	Close liaison required with Contractor
Mobility Management Plan	Yes	be in accordance the NTA guidance for Workplace Travel Planning.	Annual travel survey/audit	During construction	Annual Review	Reported internally	Yes	Promotion of sustainable travel opportunities

6.0 Summary of Environmental Monitoring Programmes

Table 6-1: Summary of Environmental Monitoring Programmes

Monitoring Programme	Monitoring Element	Frequency of Monitoring	Location	Parameters Measured	Surveyors / Support	Sampling Constraints	Action Threshold	Monitoring and Reporting	Report / Frequency
BIRD MONITORING	**Census of Black Guillemot Population nesting in Dublin Port**[1]	Annually in period 26 March to 15 May. Two surveys to be carried out on two separate dates.	Quaysides within Dublin Port	Number Black Guillemots on land or sea within 300m of the shore Number of occupied nest sites and associated adults Number of nest boxes occupied	2 / Boat Support	0500 - 0900 BST. Beaufort 4 or less. Calm Sea Conditions	N/A	Bird Specialist	Annually (year ending March) by 31st July each year.
BENTHIC BIODIVERSITY AND FISHERIES	**Fisheries and Environmental Incident Monitoring**	Daily checks for fish mortality within the works areas	Alexandra Basin West and basin of Berths 52/53	Record of fish mortality	As designated by the contractor	Suitable vantage point / on dredging vessels	Fish mortality	Contractor	Any fish mortality will be recorded, reported to the Environmental Facilities Manager and investigate with corrective action taken
MARINE MAMMALS	**Marine Mammal Observation in exclusion zones**	For dredging and demolition operations	Within 500m of dredging / demolition operations.	Presence of marine mammals	1 to 3 as required	Suitable vantage point / on dredging vessels.	Presence of marine mammal in exclusion zone, during pre-	Marine Mammal Observer	NPWS MMO Location and Effort Forms. Completion of MMO report

[1] Wider ongoing long-term monitoring of birds within Dublin Port is occurring through the MP2 Project e.g. surveys of winter wetland birds, sand martins and the census of Common and Arctic Terns nesting within the Port.

Monitoring Programme	Monitoring Element	Frequency of Monitoring	Location	Parameters Measured	Surveyors / Support	Sampling Constraints	Action Threshold	Monitoring and Reporting	Report / Frequency
		within the foreshore					watch.Following a completion of the pre-watch, 500m exclusion zone monitoring, once normal dredging operations commence, there is no requirement to halt or discontinue the activity		following completion of works.
WATER QUALITY	**Water quality in lower Liffey in Dublin Port**	High frequency (15min) real time at four stations	4 locations Inner Liffey channel	Dissolved Oxygen (DO), Turbidity, Temperature, Salinity, pH	Regular servicing and calibration of sondes	N/A	DO & Turbidity thresholds to be agreed with EPA in advance of dredging	Environmental Facilities Manager	Monthly Synoptic and Annually (year ending March) by 31st July each year.
WASTEWATER DISCHARGE	**Monitoring of treated water discharged from the site**	Daily or weekly sampling in accordance with IE licence and parameter	Location of wastewater treatment plants	As a minimum: Suspended solids, turbidity, and relevant contaminants	As designated by Contractor	N/A	Exceedance of emission values will halt discharge and corrective actions implemented	Contractor	All results reviewed by Environmental Facilities Manager and reported to EPA in accordance with IE licence.
ATMOSPHERIC NOISE AND DUST	**Dust Deposition**	Continuous over	2 locations: • Poolbeg Marina;	Dust deposition using Bergerhoff Dust	Deposition jars to be	N/A	350mg/m^2/d	Environmental Facilities Manager	Monthly Synoptic and Annually (year

Monitoring Programme	Monitoring Element	Frequency of Monitoring	Location	Parameters Measured	Surveyors / Support	Sampling Constraints	Action Threshold	Monitoring and Reporting	Report / Frequency
		project duration	• Terminal 4 towards East Wall Road	Deposition Gauges	replaced monthly				ending March) by 31st July each year.
	Noise Levels	Continuous for duration of Project	3 locations: • Poolbeg Marina; • Clontarf; • Terminal 4 towards East Wall Road	Equivalent Continuous Sound Pressure Level (Laeq)	Yearly calibration of noise meters	N/A	65 dBA 70 dBA 75 dBA	Environmental Facilities Manager	Weekly to Contractor/DPC Annual AER
ARCHAEOLOGY	**Interaction with protected structures. Restoration works. Monitoring for potential new finds**	Continuous for duration of Project	Capital Dredging	Ground Disturbance Demolition of Structures Capital Dredging	Boat support during capital dredging	N/A	Notification to National Monument Service of significant finds	Archaeology Specialists	Monthly Reporting during Dredging

Appendix A: DPC Emergency Management Plan

EMERGENCY MANAGEMENT PLAN

The aim of the Dublin Port Company Emergency Management Plan is to outline the structures and arrangements that will be used in response to an emergency to mitigate:

- Loss of life or injury to employees, contractors, visitors and residents
- Damage to the environment
- Damage to the facilities, plant and equipment of DPC, its commercial partners, tenant companies and neighbours

The plan also aims to ensure that DPC emergency management structures and arrangements are compatible with the requirements of the 2006 Framework for Major Emergency Management."

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1. INTRODUCTION

Dublin Port covers an area more than 650 acres, within which many activities of a marine, commercial and industrial nature take place. This Emergency Management Plan (EMP) is designed to provide guidelines to the Dublin Port Company (DPC) for responding to an emergency within their area of jurisdiction.

The maritime jurisdiction of Dublin Port is defined under the Harbours Act 1996 (as amended). Operations at Dublin Port include the following:

a. Vessel arrivals, departures and shifts.
b. Pilotage, towage & vessel traffic services (VTS)
c. Lo-Lo terminals operated in common user area and in designated terminals.
d. Ro-Ro terminals facilitating both freight and passenger traffic.
e. Facilities for handling petroleum products, LPG and molasses.
f. Common oil pipeline linking the oil berths with the storage facilities.
g. Dry bulk handling facilities for handling concentrate, peat, oil, grain, animal feedstuff, fertilizer, sand, coal, petroleum coke, slags, scrap metals and cement.
h. Warehouse space
i. Vehicle storage facilities.
j. Cruise liner operations.
k. Leisure craft mooring and movements at Poolbeg and Dublin City Marinas.

In addition to the activities listed, the Dublin Port Road network caters for the movement of up to 15,000 vehicle movements through the port per day.

Tenant companies operate several industrial/commercial sites within the DPC estate, including sites subject to the Control of Major Accident Hazards regulations, also known as 'SEVESO', sites. The operators of these sites are the risk owners for the hazards associated with their operations and have ultimate responsibility for emergency planning within those facilities.

There are multiple upper and lower tier SEVESO sites within the DPC estate and the Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) (the "COMAH Regulations"), implement the Seveso III Directive (2012/18/EU). The directive is applied to all qualifying tenant sites by the operators and overseen by the HSA. The SEVESO III Directive 2012/18/EU was adopted on 4th July 2012 and entered into force on 13th August 2012 and Member States implemented the Directive on 1st June 2015.

It should be noted that the DPC Emergency Plan (Public) is an unrestricted document; therefore, annexes to the plan are not included in this document for general safety and security, ISPS and confidentiality reasons. For further information please contact the Dublin Port Company: Head of Land Operations on 01 8876000.

2. OBJECTIVES

The objectives of this plan are to

a. Provide an emergency management organisation structure and arrangements which will enable DPC to respond rapidly and efficiently to any emergency to prevent (insofar as is possible) injury to personnel, damage to property or the environment, as well as minimizing or eliminating the impact to neighbouring communities.

b. Ensure all appropriate and relevant resources are identified in advance and made available as quickly as possible during an emergency within Dublin Port.

c. Ensure an appropriate level of preparedness within DPC for responding to emergencies through training and exercising.

3. SCOPE AND ASSUMPTIONS

The Dublin Port EMP outlines the DPC structures and arrangements for responding to emergencies that may occur within Dublin port.

The plan is intended for guidance purposes only and may be adapted depending on the circumstances of a particular emergency. The actions to be taken in any given emergency will be decided by the Emergency Management Team (EMT).

This plan may be activated by the CEO of DPC, the Emergency Management Marine Coordinator (EMMC) OR the Emergency Management Land Coordinator (EMLC), or their alternates, depending on the circumstances and severity of the incident.

The plan is designed to cater for both marine and land-based emergencies.

Marine Emergency Scenarios include:

- Major incident on-board a vessel such as fire, flooding or cargo related.
- Collision between vessels or between a vessel and a fixed object.
- Grounding of a vessel.
- Major oil spillage from a vessel or jetty.
- Major oil spill at sea or oil entering the port from a source upriver.
- A security incident, involving a ship, which has the potential to escalate into an emergency.

Land Emergency Scenarios include:

- Major fire within the general port area.
- Major oil spill.
- Major spill of hazardous material.
- A vehicle accident involving hazardous material.
- Chemical incidents (e.g. toxic cloud).
- Major incident in an oil, gas or hazardous material storage facility.

Marine & Land Emergency Scenarios include:

- Infectious Disease (Human or Animal) on Ship due to enter Dublin Port.
- Incident involving transportation or storage of dangerous goods
- Severe weather event
- Cyber Security Incident

The scenario specific sub-plans for the above events have been developed as part of the plan. These focus on the immediate actions to be taken by internal sections, functions or departments of the port authority and are therefore restricted and not included in the public document. However, it should be noted that the scenarios are for operational and emergency planning purposes as well for use in training and exercises. DPC adheres to an 'all hazards approach' to Emergency Management, in that the same structures, resources and personnel will be used to respond to all emergencies occurring in or affecting the port.

This plan makes the following assumptions:

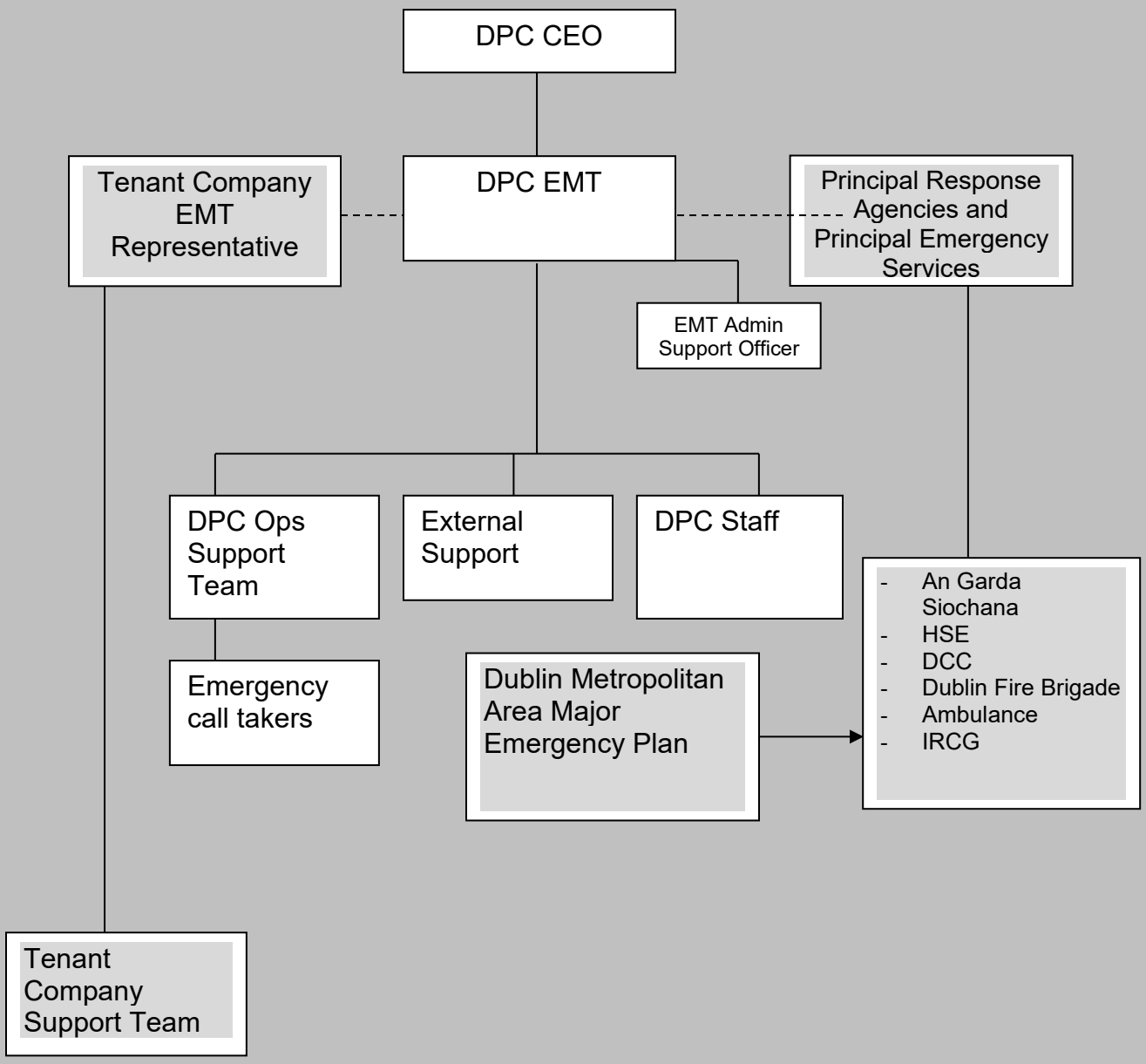
- All personnel with specific roles and responsibilities are familiar with their role in the plan and have been exercised in the implementation of the plan.
- All contact details for key stakeholders are up to date at the date of the last plan revision.
- That the resources outlined in the plan are available and maintained.

4. ABBREVIATIONS USED THROUGHOUT THIS PLAN

AAR	After Action Review (formal debrief).
AGS	An Garda Siochana
CA	Competent Authority
COP	Common Oil Pipeline
CEO	Chief Executive Officer
CSIRP	Cyber Security Incident Response Plan
CSIRT	Cyber Security Incident Response Team
DPComm	Data Protection Commissioner
DCC	Dublin City Council
DFB	Dublin Fire Brigade
DG	Dangerous Goods
DoH	Department of Health
DoT	Department of Transport
DPC	Dublin Port Company
EMA	Emergency Management Administrator
EMLC	Emergency Management Land Coordinator
EMMC	Emergency Management Marine Coordinator
EMP	Emergency Management Plan
EMT	Emergency Management Team
EOC	Emergency Operations Centre
EPA	Environmental Protection Agency
ESRVP	Emergency Services Rendezvous Point
FAR	First Aid Responders
HM	Harbour Master
HP/PS	Harbour Police/Port Security
HSA	Health & Safety Authority
HSE	Health Service Executive
IHR	International Health Regulations (2005)
IMDGC	International Maritime Dangerous Goods Code
IRCG	Irish Coast Guard
ISPS	International Ship and Port Facility Security (code)
MCIB	Marine Casualty Investigation Board
ME	Met Eireann
MSDS	Material Safety Data Sheet
NOG	National Operations Group (oil spill)
NOK	Next of Kin
NCSC	National Cyber Security Centre
PES	Principal Emergency Services

PRA	Principal Response Agencies
PFSP	Port Facility Security Plan
POC	Port Operations Centre
SIC	Site Incident Controller
SSP	Ship's Security Plan
SWEAT	Severe Weather Event Assessment Team
SWEP	Severe Weather Event Plan
VTS	Vessel Traffic Services

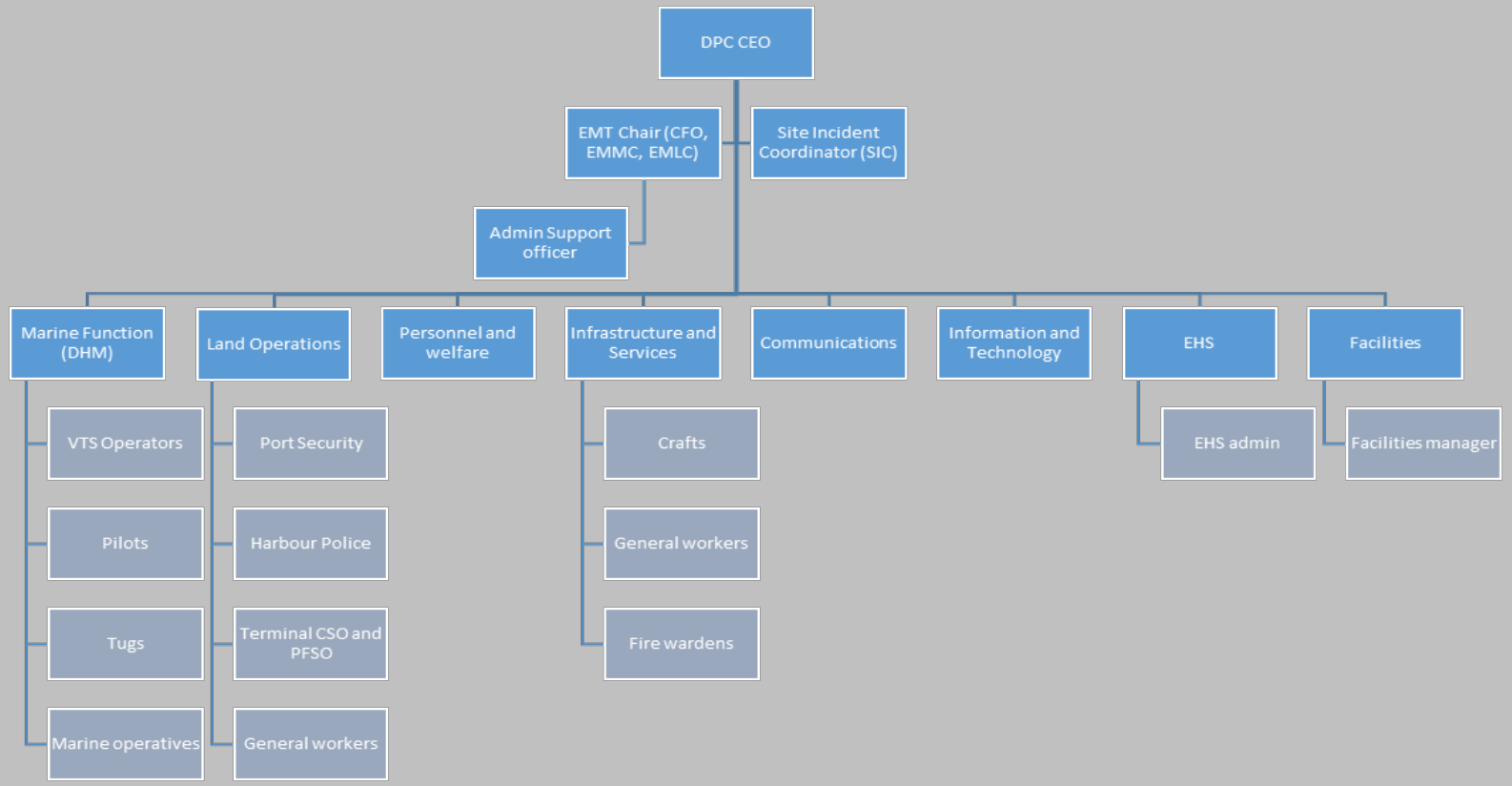
5. DPC EMERGENCY RESPONSE ORGANISATION AND ROLES



DPC Emergency Management Team Structure

EMT Role	Appointment holder
Chief Executive Officer	CEO
Emergency Management Marine Coordinator (EMMC)	Harbour Master
Alternate	Deputy Harbour Master
Emergency Management Land Coordinator (EMLC)	Head of Land Operations
Alternate	Operations Manager
Infrastructure and Services Coordinator	Head of Engineering & Sustainability
Alternate	Eng. Services Supervisors
Personnel and Welfare Coordinator	Chief People Officer
Alternate	Human Resource Officer
Communications Coordinator	Head of External Affairs
Alternate	Port Heritage Director
Information and Technology Coordinator	Chief Technology Officer
Alternate	IT Officer
Facilities Coordinator	Head of Commercial
Alternate	Facilities Manager
EHS Coordinator	EHS Specialists
Alternate	EH&S Specialist/Admin
EMT Administration Support Officer	Clerical/ Admin Officer
Emergency Management Administrator	Head of Land Operations

EMT Organisation Chart



EMT - Overview and role

The EMT is made up of senior DPC managers drawn from the key functional areas of the company. The specific roles and responsibilities of team members largely reflect their day-to-day responsibilities. It should be noted that EMT members must be prepared to act outside of their prescribed role during the response phase, and that this is practised in training exercises.

The DPC CEO has overall responsibility for all operations in the port (excepting within tenant sites, where the tenant is responsible), both marine and land. Many of the day-to-day tasks are delegated to the EMMC and the EMLC, as well as to other management functions. Each EMT member has a designated alternate or deputy, capable of standing in for the primary EMT member should they be unavailable for any reason. Alternates receive the same training for EMT operations as primary team members. Others not listed on the core team may be drafted to the team if their expertise is required.

The Chair of the EMT reports to the DPC CEO, who may in certain situations decide to chair the EMT or may decide to participate in EMT operations without taking over the role of chair; this is their prerogative.

In general terms the overall role of the EMT is to coordinate and control the DPC response to an emergency within the port area of responsibility, to liaise with the external emergency services and provide all reasonable support to them, and to manage DPC's interaction with external stakeholders throughout the response to an incident.

Emergency Management Administrator (EMA)

The EMP will be maintained by the Emergency Management Administrator (EMA) who will ensure the plan is kept up to date and is responsible for arranging training and exercises for EMT members and support staff. The EMA will also ensure the Emergency Operations Centre (EOC) is fit for purpose. The EMA is not an EMT operational role as all tasks associated with the role are undertaken outside of EMT operations. The EMA will ensure the plan is reviewed internally each year and externally once every 5 years.

Site Incident Coordinator (SIC)

In the event of an emergency occurring within the port area of operations, on the marine or the land side, DPC will appoint a 'Site Incident Coordinator'. This will usually be the EMMC or EMLC, their alternate or a person appointed by them. The SIC's role is to manage the DPC resources at the site, to liaise with external agencies responding to the emergency and to keep the EMT up to date with the situation at the emergency site. The SIC will be in direct contact with the Port Operations Centre (POC) by radio and will be equipped with a mobile phone.

Emergency Call Takers

A panel of emergency call takers has been identified and trained in assisting the receptionist with responding to calls to DPC in the event of an emergency. The call takers take all emergency related calls and ensure the calls are logged and/or passed to the appropriate EMT or DPC person.

Vessel Traffic Services (VTS) Operator

The VTS operator is the primary point of contact in the event of any marine related incident. In the event of an incident the VTS operator will immediately contact the duty Harbour Master (HM) who will decide what action should be taken, including mobilisation of the EMT. The duty HM will ensure the VTS operator has contacted emergency services and mobilised the tugs, as appropriate to the circumstances.

VTS & HP/PS will liaise closely during all emergencies.

Marine Operatives

Marine Operatives of the port will support the VTS staff and the tugs and will act on all instructions issued by the Harbour Master during an emergency.

Harbour Police/Port Security (Contact details at Annex B)

The HP/PS has a critical role in the security of port facilities, roads, and infrastructure, which include the control and coordination of emergencies including initiating the immediate response to an emergency incident. They also play a key role in alarm monitoring, receipt of calls, gathering of information, notification of emergency services, meeting the emergency services at the ESRVP, guiding them to the site of an emergency within the port, and controlling traffic within the port.

DPC Fire Wardens

DPC Fire Wardens staff the oil jetties on a 24/7/365 basis. They are responsible for the safety and security of all shipping operations on the Oil Jetty, the Common Oil Pipeline (COP), and can communicate directly with the POC and COP users via specific radio telephone channels.

DPC Fire Marshals

DPC has identified and trained several Fire Marshals who have a key role in accounting for personnel in their designated area during an emergency. Fire Marshals have been

appointed in all DPC buildings, and they have a key role in accounting for personnel in their facility during evacuations, and in keeping the EOC informed of events in their area.

DPC First Aid Responders

DPC has several qualified First Aid Responders (FAR) staff suitable for deployment in the event of an emergency. FAR's report to the Incident Site Coordinator on instruction of EMMC/EMLC once they have been accounted for by their Fire Marshal and are prepared to administer first aid and to assist the emergency services on request.

The Emergency Operations Centre (EOC)

The primary EOC is located on the 1st floor of the POC located at the southern end of Breakwater Road. The EMT will normally meet here in the event of an emergency being declared. Should the emergency affect the POC then the alternate EOC will be used and is based in the IT training room located on the lower ground floor of the Port Centre on Alexandra Road. Should both locations be unavailable then the EMT Chair will decide on an appropriate location and inform other EMT members.

Emergency Services

In the event of an emergency in Dublin Port, Emergency Services should go immediately to the Emergency Services Rendezvous Point (ESRVP), located at the junction of East Wall Road & Tolka Quay Road West (indicated on the map at **Annex B**). HP/PS will meet with and guide the emergency services to the area of the emergency, if safe to do so. The primary unit of the initial lead agency will attend the scene and relay information to emergency services gathered at or near the ESRVP. In a multi-agency response, the lead agency will generally appoint a senior officer as the 'On Site Coordinator' at a safe forward point and senior operational staff from each emergency service and the DPC appointed SIC will collectively manage the emergency from this location.

Information Management Officer (IMO).

The IMO is responsible for maintaining the information display boards in the EOC. This role should be filled by an EMT member who has been trained in the role but can be filled by any EMT member if a trained IMO is not available. The panel of EMT IMO's should receive refresher training every three (3) years and should be practiced in the role when the EMT is exercised.

6. PORT WIDE ALARM ACTIVATION

The DPC fire alarm panel system is in the HP/PS Control Room, situated on the ground floor of the POC, Breakwater Road, Dublin Port. The fire alarm system monitors approximately 21 sites, and break glass units located throughout the port estate.

The fire alarm system can be activated manually or automatically from various points around the port directly linked to the system. When activated, the HP/PS are alerted and have 2.5 minutes to investigate the cause of the alarm before the Port wide alarm sounds, or in cases where a fire is confirmed the port wide siren can be activated immediately.

The fire alarm telemetry system indicates the location of the alarm activation and keeps an electronic record of all incidents. In the event of a false alarm or technical fault the system can be manually overridden in the POC to prevent the port-wide alarm activating.

The port wide sirens are located at the ESB North Wall Power Station, the Oil Jetties and Odlum's building (not operational) and are generally tested between 11.00am and 12.00 p.m. (midday) on the first Monday of every month, excluding Bank Holidays. Except for alarm tests, all pumping stops immediately on sounding of the port wide siren. Fire Wardens on the oil Jetties will communicate with all COP users by VHF Radio.

For confirmed alarm activations, the affected site and HP/PS must call 999/112 and request emergency services attendance, whilst clearly stating the nature of the emergency, name and location of the site affected.

In passing information to the Emergency Services, the E.T.H.A.N.E. pneumonic should be used: -

- **E**xact location of the emergency
- **T**ype of emergency – e.g. Fire; hazardous material spill; Road Traffic Accident.
- **H**azards, present and potential
- **A**ccess route to the emergency
- **N**umber and type of casualties (if known)
- **E**mergency Services – those present and those required

Once confirmed HP/PS will immediately open the emergency gates located at the western end junction of Tolka Quay Road and East Wall Road and this immediate area operates as the ESRVP.

DFB will be dispatched to the Port to deal with the incident, whilst HP/PS will implement a traffic control plan, with the support of Gardaí, as required.

The port wide alarm system is a continuous wailing alarm sound, like an air-raid siren. On hearing this alarm port users should:

- Be aware that an incident is on-going.
- Account for staff, visitors and contractors.
- Continue to operate as normal unless instructed otherwise or individual company SOPs indicate otherwise.
- Wait for further instructions from the HP/PS or the PES.

Port users, and members of the wider community, are asked to bear in mind that calling DPC by telephone during sounding of the port wide siren may block telephone lines at a vital time. Port users should await further information from the HP/PS, whilst members of the public should tune in to a national radio station for updates.

A new port-wide fire-main was installed in 2015 and replaced the former Saltwater mains system that covers most bulk fuel storage facilities in Dublin Port. The system is fully automated and is controlled from the Port Operations Centre Control Room that is manned 24/7 by HP/PS.

Port Evacuation

During an emergency it may be necessary to evacuate the port, or parts of the port, for safety reasons.

The HP/PS will control traffic flow throughout the port in the event of an evacuation of one or more areas.

The details of port evacuation routes are included at **Annex B** to this plan.

7. COMMUNICATIONS

In the event of an emergency in Dublin Port, the media and social media will be critical in informing the public of the incident. The general public's understanding of what has happened, and any actions they need to take, will depend on what they see and hear.

The importance accurate, timely and appropriate information cannot be overstated especially concerning material that may circulate on informal channels such as social media.

DPC will endeavour to ensure all relevant stakeholders are directly informed via appropriate communication channels. Members of the public should refer to our social media platforms (Facebook, Twitter, Instagram) and our website and may also refer to reputable media outlets.

Concerned members of the public can contact DPC by phone, email or social media; however, DPC's priority will be to assist Emergency Services in the protection of life, property and the environment and that patience will be required when trying to contact them during an emergency.

The primary point of contact for incidents should be the company itself or for general port incidents 01 8876000 or by emailing info@dublinport.ie

The response to callers by staff at DPC will be determined by the information they may have at the time, and the specific instructions of the EMT as issued through the EMT Communications Coordinator.

DPC Spokesperson

The DPC CEO in conjunction with the EMT Communications Coordinator will appoint a spokesperson to speak directly to the media and/or issue media releases.

8. TRAINING, EXERCISE AND MAINTENANCE PLAN

General

DPC's Emergency Management competency is continuously enhanced through participation in training and exercises at different levels. DPC management regularly participate in Emergency Management exercises on tenant sites, as well as exercising as the DPC EMT in a stand-alone capacity, at least twice annually. Whilst there are several scenario specific sub-plans associated with the overall EMP, DPC adheres to an 'all hazard approach' to Emergency Management.

It will be the responsibility of the EMA to ensure all aspects of the Training, Exercise & Maintenance Plan are implemented. Training and exercising within the context of DPC's EMP is generally concerned with achieving the following objectives:

- Continuously developing the competence of the EMT organisation in implementing the plan.
- Continuously improving the plan by identifying potential gaps in the plans during training exercising and taking action to ensure these are addressed.
- Continuously familiarising the EMT members and supporting staff with the plan and with their roles during plan implementation.

Objective

The objective of this 'Training, Exercise and Maintenance Plan' is to provide a structured framework for training and exercising the members of the EMT in their roles as well as providing a sound basis for maintaining the integrity of the information contained within the plan.

Annual Training Requirement

Training will be conducted annually as follows:

- EMT members and their alternates will receive (induction or refresher) training in relation to the nature of emergencies and their role in the Emergency Management System.

- The EMT will exercise formally in the implementation of the EMP.

- Administrative staff and potential support group members (e.g. emergency call takers) will receive Emergency Management familiarisation training.

- Security, reception and other staff will receive training on the EMP sub-plans and their role in implementing the plans, as appropriate.

The EMA will ensure training records are maintained for all EMT training activities.

EMT exercises will consist of two exercises per year, one land and one marine based to ensure all possible emergency situations are regularly covered.

In addition to DPC specific EMT training, management and staff of DPC regularly participate in or observe at tenant site emergency exercises, many of which are attended by the PES.

Annex A: Contact Details

For Operations Managers, Harbour Police & Port Security, Emergency Operations Centre and Fire Wardens

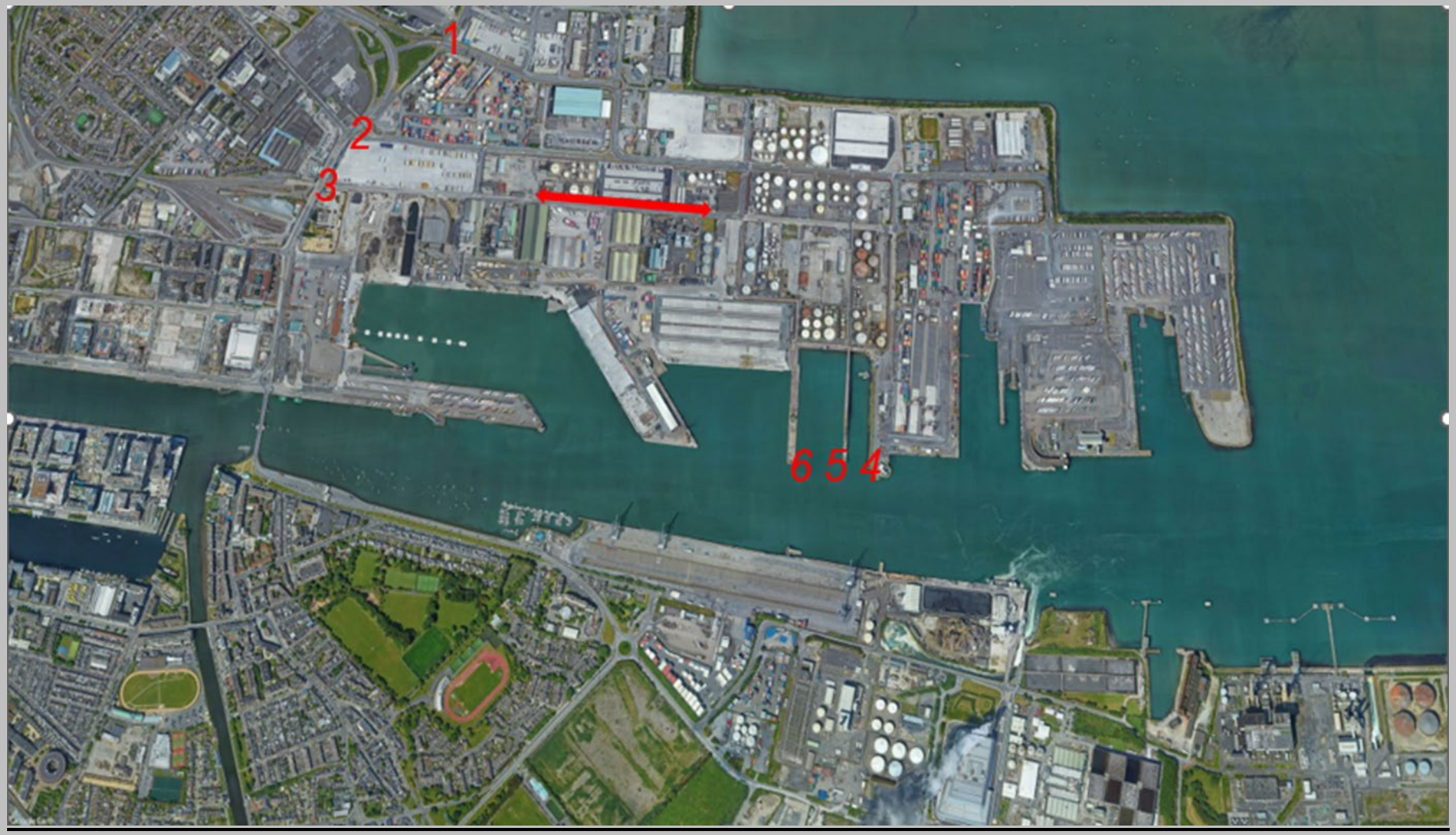
OPERATION MANAGERS, FIRE WARDENS, HARBOUR POLICE & PORT SECURITY

Name	Phone	E-mail
Operations Managers	**01 8876000**	
Fire Wardens	**01 8559010**	
Harbour Police & Port Security Control Room	**01 8876858 & 01 8876859**	**controlroom@dublinport.ie**

EMERGENCY OPERATIONS CENTRE

EOC Line	Number
1	**01 8876833 or 01 7040833**
2	**01 8876834 or 01 7040834**
Fax Number	**01 8876057**

Annex B – Port Map & Evacuation Plan



Dublin Port Company Evacuation Plan

DPC has circa 155 employees located at the following locations.

- Block 7, Eastpoint Business Park, Alfie Byrne Road, Dublin 3, D03Y6A2
- Maintenance & Services Building, Bond Drive Extension
- Oil Jetty Control Room, Jetty Road
- Port Operations Centre, Breakwater Road
- Terminal 1 Building, Terminal Road South

All locations have individual emergency evacuation Standard Operating Procedures including assembly points. Due to the nature of business carried out within the port via the common oil pipeline and the bulk storage of petroleum products, LPG and molasses there is always the potential for a serious event to occur, which could require a full or partial evacuation. *Also refer to Port Wide Alarm Activation, paragraph 6 of main plan.*

Six evacuation and or alternative routes to exit/enter the port environs have been designated for all port users, including emergency services in attendance.

1. Promenade Road
2. Tolka Quay Road (locked gates, keys held by HP/PS)
3. Alexandra Road
4. Port Operations Centre (facilitated by HM via Marine Operatives)
5. East Oil Jetty (lifeboat capsule)
6. West Oil Jetty (lifeboat capsule)

In addition to the above, Alexandra Road (DFT terminal between Breakwater Road & Terminal Road) is a designated evacuation route. Keys to the locked ISPS security gates are held in POC HP/PS control room and approval to open the gates must be given by DFT management. In addition to the above, DPC acknowledge there are other alternative evacuation routes available to be utilised, however the nature or extent of the event, along with the directions of emergency services would dictate the actions of all parties involved.

Annex C – Dublin Port SEVESO sites



Upper Tier		District
Establishment Name	***Establishment Address***	
Calor Teoranta	Tolka Quay Road, Dublin Port, Dublin 1	Delta
Circle K Ireland Holding Limited (consisting of 5 sites in the Port)	Promenade Road, Dublin Port, Dublin 3	Delta
Indaver Ireland Ltd.	Tolka Quay Road, Dublin Port, Dublin 1	Delta
Tedcastles Oil Products (consisting of site 1 and 2)	Yard 1, Promenade Road, Dublin Port, Dublin 1	Delta
The National Oil Reserves Agency Ltd.	Shellybanks Road (Off Pigeon House Road), Ringsend, Dublin 4	Alpha
The National Oil Reserves Agency Ltd.	National Oil Reserves Agency Poolbeg TankFarm, Pigeon House Road,Dublin 4	Alpha
Valero Energy Ireland Ltd	Alexandra Road, Dublin Port, Dublin 1	Delta
Lower Tier		District
Establishment Name	***Establishment Address***	
Electricity Supply Board	North Wall Generating Station, Alexandra Road, Dublin Port, Dublin 1	Delta
ESB Dublin Bay Power (Trading as synergen)	Pigeon House Road, Ringsend, Dublin 4	Alpha
Iarnrod Eireann	Iarnrod Eireann Dublin Port, Alexandra Road, Dublin Port, Dublin 1	Delta

Notes

Appendix B: Project Carbon Management Plan

TETRA TECH

PROJECT CARBON MANAGEMENT PLAN (PCMP)

ABR2 PROJECT



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1 INTRODUCTION AND OBJECTIVES

1.1 Overview

Tetra tech was commissioned by Dublin Port Company (DPC) to produce a **Project Carbon Management Plan (PCMP**), for the proposed Alexandra Basin Redevelopment2 (ABR2) Project. The development of a **PCMP**, aligned with the principles of PAS 2080: 2023 – a global standard for managing whole-life (embodied and operational) carbon in the built environment and infrastructure. A PCMP expands on a carbon life-cycle assessment (LCA), by anticipating embodied and operational carbon emissions over the whole life of the asset, including design, construction and use; and incorporating the TII's 'Avoid, Shift, Improve' carbon reduction hierarchy (see Figure 1 below), in order to achieve net zero operational carbon.

This report comprises the PCMP, developed in conjunction with Dublin Port for the ABR2 Project.

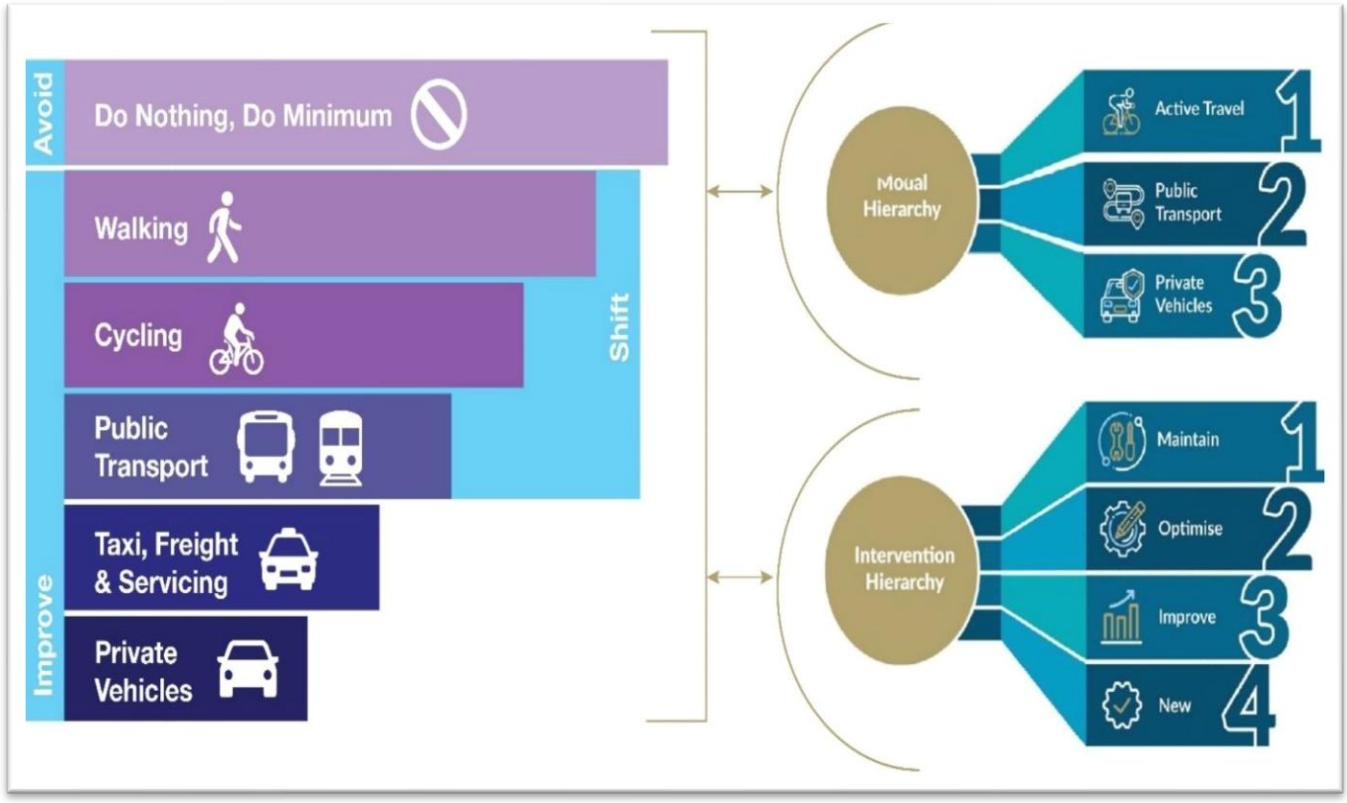


Figure 1: TII's 'Avoid, Shift, Improve' model.

1.2 Project Description

Dublin Port is the largest port in Ireland, situated on Ireland's eastern coastline. The South Estate of Dublin Port comprises 58ha. The North Estate of Dublin Port comprises 207ha. Together, they make up the 265ha Dublin Port Estate, which is within the ownership of DPC. DPC also has 44ha of land at Dublin

Inland Port near Dublin Airport, therefore the entire Port Estate comprises 309ha. The entirety of the works proposed in the ABR2 Project is located on the North Estate of Dublin Port .

The Dublin Port Heritage Conservation Strategy (2024) and Masterplan 2040 reinforce DPC's commitment to ensuring that development is socially and culturally sustainable, and in line with the Sustainable Development Goals (SDG). DPC also actively participates with AIVP, a worldwide network that supports joint city-port sustainable development strategies and is committed to achieving the goals of the AIVP 2030 Agenda. This commitment has resulted in a Historic Urban Landscape (HUL) approach that recognises distinct heritage assets, and the landscape setting and context of these assets. HUL is a UNESCO concept established through a framework approach. The main road transportation route between Dublin Port Estate and the national road network is via the Dublin Port Tunnel. The Dublin Port Estate is also connected to the national freight rail network. Dublin Port receives over 7,000 vessel arrivals annually.

In line with the objectives of the Dublin Port Masterplan 2040, development pursuant to a number of permitted projects has already been completed (ABR Project), are ongoing (MP2 Project) or are planned (3FM Project) for Dublin Port. The first of these projects in time was the ABR Project, for which permission has now expired. The works already completed under the permission granted in respect of the ABR Project (under ref. PA29N.PA0034) and the proposed works under the current ABR2 Project will:

- Redevelop Alexandra Basin West to include new quays and jetties (completed under the parent ABR Project);
- Deepen Alexandra Basin West to achieve standard depths of -10m CD and remediation of contaminated sediments (subject to planning permission for the ABR2 Project); and
- Provide infilling of the basin at Berths 52/53 with treated sediment arising from Alexandra Basin West (subject to planning permission for the ABR2 Project).

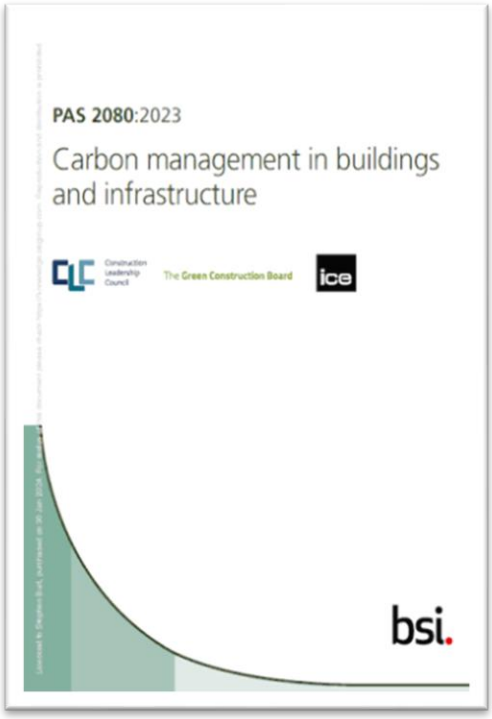
In particular, the development works proposed to be completed under the ABR2 Project are necessary for the completion of the Unified Ferry Terminal and new Riverside Berth 52/53, which have been separately authorised as part of the MP2 Project (ref. no. PA29N.304888), and works in respect of which are ongoing.

The ABR2 Project will comprise redevelopment works in two areas of Dublin Port :

- Alexandra Basin West; and
- Berths 52/53.

2 METHODOLOGY

2.1 Overview of PAS 2080:2023



The PCMP was developed in line with the PAS 2080: 2023 *Carbon Management in Buildings and Infrastructure* specification. PAS 2080: 2023 is a specification for whole life carbon (WLC) management when delivering projects and programmes in the built environment (infrastructure and buildings); in the provision, operation, use and end of life of new projects and/or programmes of work, as well as the management or retrofit of existing assets and networks.

WLC is the cumulative total carbon emissions that arise from all stages in the life cycle of an asset or infrastructure. This includes carbon emissions associated with:

- The creation of materials, products and components (often referred to as embodied carbon);
- Construction transportation and site activities e.g. transport of materials, plant and equipment operations, transport of plant and equipment, site-based utilities consumption, and removal / treatment of wastes;
- Fuel, electricity and water consumption throughout the operating life of the asset;
- Maintenance, repair, replacement and refurbishment activities to sustain the operational condition of the asset;
- Servicing the asset with operational consumables and removal / treatment of waste; and
- End of life decommissioning, deconstruction and treatment.

PAS 2080: 2023 is aimed at all value-chain members, to encourage collaboration towards the common goal of a net zero carbon transition in the built environment by 2050. Value chain members (see Figure 2 below) comprise asset owners/managers, design engineers, constructors, and product/material suppliers. This represents the leaders and practitioner-level individuals involved in the establishment of effective governance systems for reducing whole life carbon through the management process.

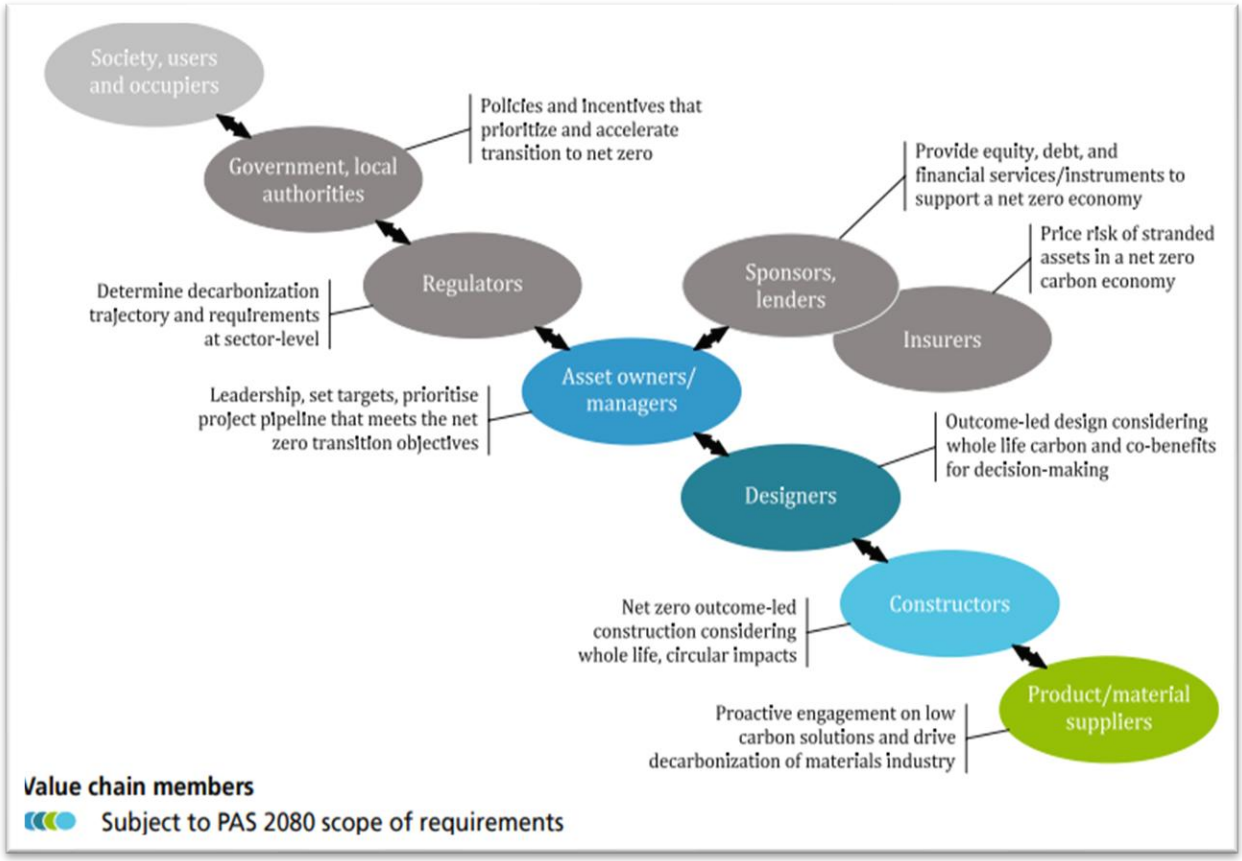


Figure 2: Value chain members subject to the PAS 2080:2023 scope of requirements.

In order to align with PAS 2080: 2023, a Carbon Management Process following a Plan-Check-Act-Do management approach (see Figure 3 below), should be followed. Implementation of this Carbon Management Process varies dependent upon the value chain member and the work delivery stage.

In our role on this project as design engineers, alignment with PAS 2080: 2023 requires us to:

- Assess WLC emissions early in the delivery process, focusing on the significant emissions ('hotspots'), in order to identify and maximise carbon reduction opportunities;
- Use existing standards and methodologies for assessing whole life carbon (in terms of data quality, sources, quantification approaches etc.) instead of providing bespoke assessment methodologies; and
- Look beyond the project boundary for associated emissions increases and reductions when assessing whole-life carbon at the early stages.

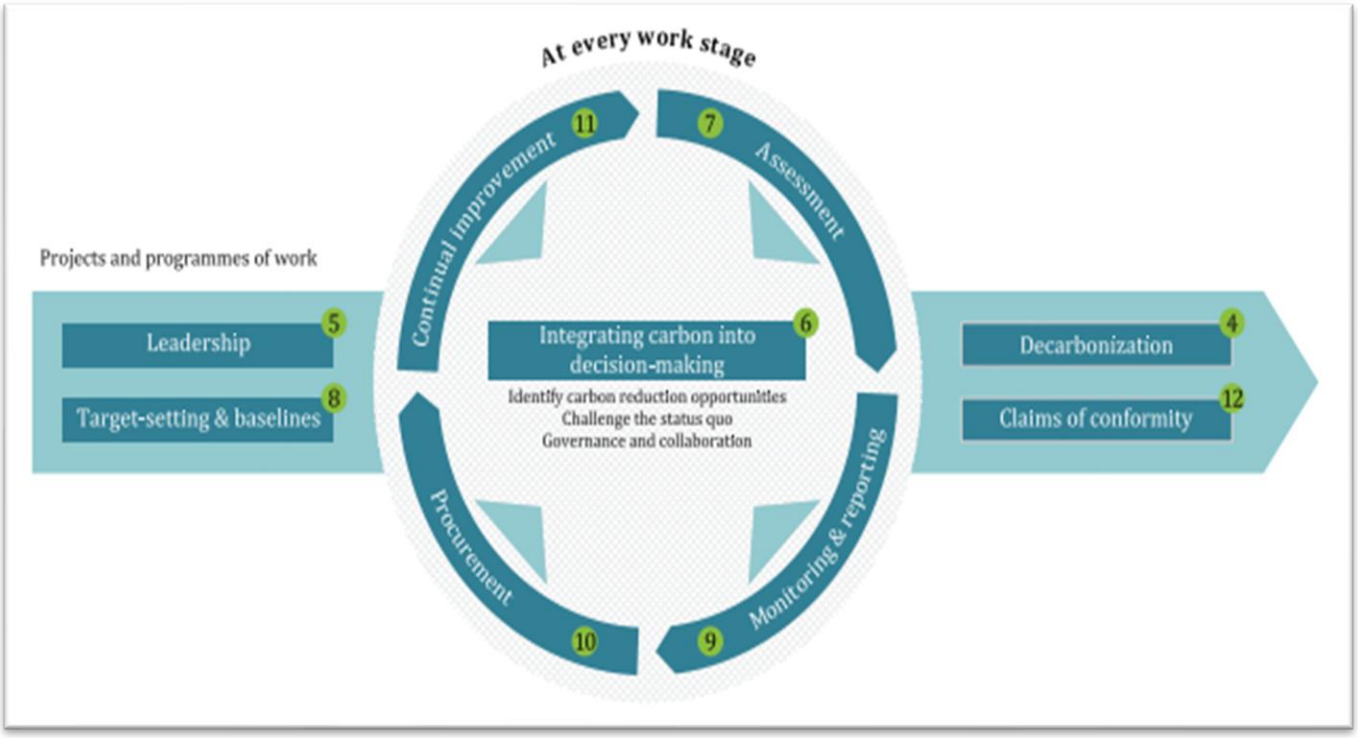


Figure 3: PAS 2080:2023 Carbon Management Process

In addition, development of the Carbon Management Process should be underpinned by the following decarbonisation principles:

- Managing WLC by applying the PAS 2080: 2023 carbon reduction hierarchy under our control and influence;
- Aligning to a net zero carbon transition; and
- Implementing appropriate governance.

The PAS 2080: 2023 carbon reduction hierarchy follows an Avoid>Switch>Improve approach (as set out below in Figure 4), which prioritises designing approaches that avoid carbon; followed by switching to lower-carbon technologies; followed by improving resource use where possible.

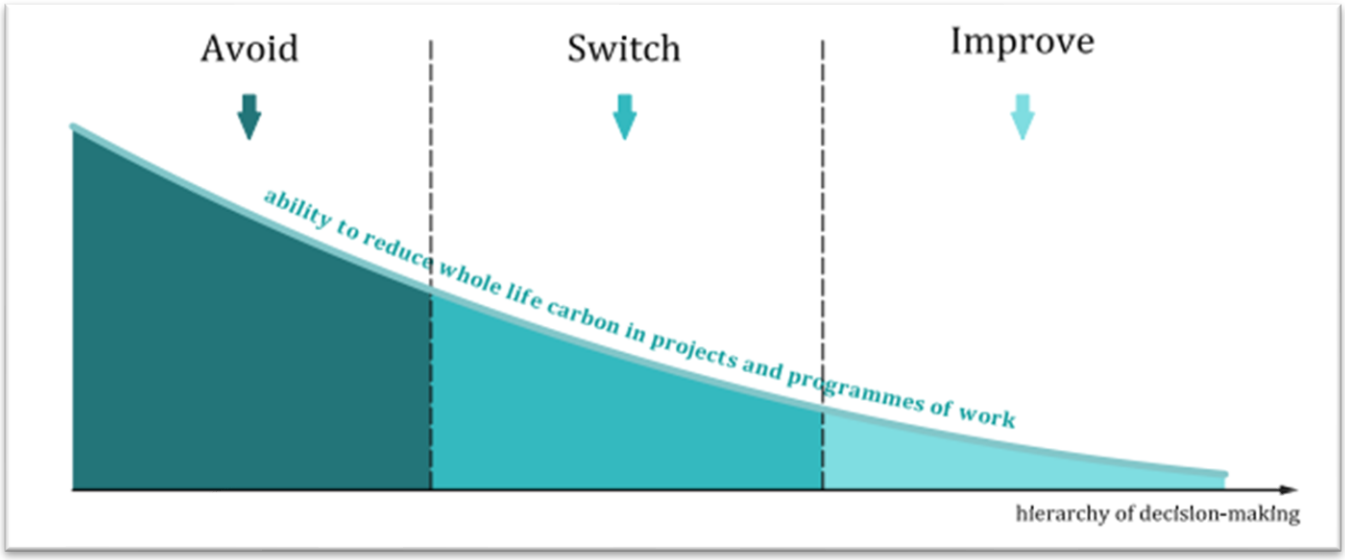


Figure 4: PAS 2080:2023 Carbon Reduction Hierarchy

In summary, the following key actions should be undertaken when developing a PCMP aligned with PAS 2080: 2023 and TII's Avoid>Shift>Improve model:

- Put governance structures in place to identify, promote and implement WLC reduction opportunities following the carbon reduction hierarchies when delivering this project;
- When integrating WLC reduction in the design development, challenge design requirements where additional whole-life carbon is incurred and provide lower-carbon solutions;
- Assess low-carbon solutions and understand the impacts of specific design decisions around materials and process suggested. Challenge existing asset standards and scope to enable low-carbon performance and/or instigate collaborations that enhance innovative design for carbon reduction, as well as identify and promote opportunities to support the shift to more sustainable mobility solutions;
- Ensure carbon assessment of existing assets, promoting design interventions in accordance with the carbon reduction hierarchy, avoiding carbon through extending the design life, switching to more efficient technologies or improving material/performance specification for the replacement components, where applicable; and
- Set requirements in specifications that support low-carbon solutions for the constructors and asset operators to follow.

2.2 WLC Assessment Process

2.2.1 WLC Data Collection

WLC data collection was collected in line with BS EN 17472:2022 *Sustainability of Construction Works – Sustainability Assessment of Civil Engineering Works – Calculation Methods*, which describes the specific methods, scenarios and criteria for the assessment of WLC emissions in infrastructure and civil

engineering works, including considerations regarding data quality, cut-off rules, functional units, boundary setting and selection of data. It differs from ISO 21930:2017 *Sustainability in Buildings and Civil Engineering Works* (an international LCA standard) as it has been developed to reflect the specificities and complexities of civil engineering works, such as additional functions, uses, lifespan and scale. Furthermore, BS EN 17472:2022 requires the collection of data in a modular approach, consistent with the PAS 2080:2023 whole life cycle stages (see Figure 5 below).

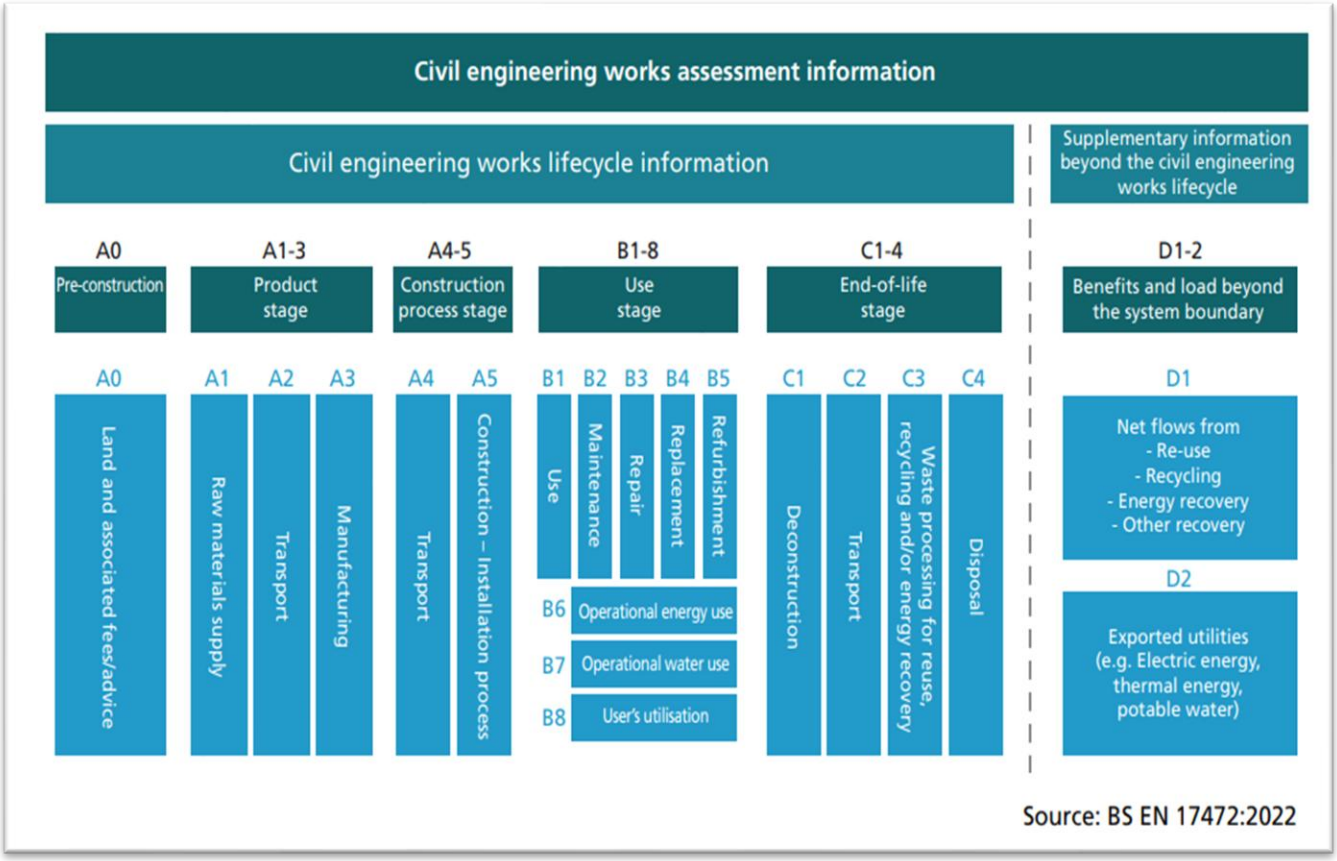


Figure 5: Lifecycle stages of civil engineering works assessment.

2.2.2 Data Analysis & Conversion

Following data collection, we use a range of tools to undertake data analysis and conversion of raw data to tonnes (T) Carbon Dioxide equivalent ($CO_{2(eq)}$), as often the required emission factors are not available on just one platform.

2.2.3 Assumptions

The following assumptions are made in the data analysis and conversion process where specific data is unavailable:

- The assumed design life of the scheme is 120 years, this is used as standard across all LCAs on infrastructure projects;
- Construction site activities have been calculated using a factor based on the site area in metres squared (m^2). Average construction site impacts, scenario for temperate and southern climate, EU;
- The quantitative data used to model the construction site processes in this study is obtained from research conducted on construction site operations in temperate and tropical (southern) climatic regions. The calculated electricity and fuels use are respectively: 23.58 kilowatt hours (kWh); 1.12 litre (l) diesel and 0.05l petrol all per $1m^2$ geometric free area (GFA).
- The used upstream database in the calculation of the impacts is Ecoinvent 3.6 and includes machine operation, spent hydraulic and machine oils, and diesel used in construction machinery. The construction site activities within the procedural model encompass the following: energy usage, particularly for heating and cooling as required; curing processes; dehumidification procedures; illumination; transportation of equipment to and from the construction site.

3 PROJECT CARBON MANAGEMENT PLAN (PCMP)

3.1 Direct GHG Emissions from Construction

The results of the carbon analyses have considered the emissions associated with the following aspects of the construction phase:

- Capital dredging of material from Alexandra Basin West to achieve a standard depth of -10m CD using environmental dredging and support vessels as employed in previous capital/maintenance dredging within Dublin Port ;
- Treatment of the dredged sediment through stabilisation/solidification and the infilling of Berth 52/53 with treated sediment and raising of existing levels by 1.4m to facilitate the construction of the Unified Ferry Terminal (UFT);
- Export of contaminated materials which cannot be utilised on site to potential licensed waste management facilities located <60km of the site via road for recovery using HGVs (further analysis is also included for the export of waste to several other waste management facilities); and
- Import of clean material via road using HGVs for use as surcharge.

The emissions associated with the proposed ABR2 Project were calculated using the One Click Life Cycle Assessment (LCA) software tool. Low carbon solutions will be investigated and used if suitable.

The analysis shows the emissions associated with the construction stage were calculated to be **20,475 tCO_2e**.

Given the assessment criteria the following criteria apply:

- The construction phase GHG impacts are mitigated through ‘good practice’ measures such as the use of Ground Granulated Blast-furnace Slag (GGBS) blends as per the requirements for clinker replacement in CAP25 action to *specify low carbon construction methods and low carbon cement material*;
- The project has complied with existing and emerging policy requirements as per CAP25 requirements as noted above; and
- Fully in line to achieve Ireland’s trajectory towards net zero through the selection of modern low carbon construction materials reducing the embodied carbon of this phase.

As such, this climate impact is considered to be **minor adverse and short term** which is not significant in EIA terms.

Table 1 : Construction Phase GHG Emissions

Source	Description	Total GHG (tonnes CO_2e)
Pre-construction	Dredging of the Alexandra Basin	362
Product Stage (A1-A3)	Use of the binder for treatment of contaminated sediment and other materials	19,845
Construction Process Stage (A4-A5)	Construction activities associated with the treatment, all movement and infilling of sediment and other materials to Berth 52/53	268
Total		**20,475**

3.1.1 Comparative Analysis of exporting contaminated sediment

A further comparative analysis was undertaken to look at the climate impact of exporting contaminated sediment offside. The maximum volume of material which is being allowed for export from the ABR2 site for alternative recovery, in the event that material cannot be accommodated within the proposed works (should all risks arise) is **60,085 m^3.** For transport of materials in Ireland, this is expected to be completely done by HGV. For transport of materials outside of Ireland, this is expected to be done by boat, with the vessel being of approximately 5,500t capacity.

Input Data

- Material volume 60,085 m^3
- Export method outside Ireland 5,500 t
- Vessel trips 21 trip
- Belgium distance 630 NM/trip
- Netherlands (Westdorpe) distance 607 NM/trip
- Netherlands (Schiedam) distance 637 NM/trip
- Total weight 115,500

Location Options:

- Ireland (Kildare W91 CF30) 60 HGV
- Ireland (Dublin A41 YE92) 100 HGV
- Belgium 2334 Ship
- Netherlands (Westdorpe) 2248 Ship
- Netherlands (Schiedam) 2359 Ship

For the recovery locations the following was assumed:

Within Ireland:

Identified materials which cannot be utilised within the site and require export will be transported to one of two potential licensed waste management facilities located **<60km** of the site by road for recovery.

- One site is located c. 50km away, with travel via c. 24km via Motorway (M50), c. 15km National Road network (N7) with the remainder of the journey via local roads of c. 11km (Notionally Enva, Blackhall Walshestown Naas, Co. Kildare W91 CF30).
- The other site is located c. 30km away with travel via c. 25km Motorway (M50/M1) and c. 5km local roads (Notionally IMS Hollywood, Great Nag's Head, Naul, Co. Dublin A41 YE92).

Outside Ireland – Belgium by boat:

A number of alternative facilities are available, one of which (outlined below) has direct access for unloading from a vessel directly to the treatment/recovery facility.

RC Antwerpen, Scheldedijk 30-Haven 1025 (port 4), 9120 Beveren-Kruibeke-Zwijndrecht, Belgium

- Can receive vessels of up to 5m draft and overall length up to 120m. Tide dependent unloading, which potentially results in idling time waiting for access to the site. It would be prudent to assume up to 12 hours for tide changes.
- Assuming transport vessel has Cargo capacity of approx. 5,500t up to 21 round trips will be required to be undertaken. With each trip being approximately **630 nautical miles** and taking **2.6 days.**

Outside Ireland – Netherlands by boat

The Netherlands has a wide range of suitable facilities with shipping accessibility and material recovery capacity, although a number are inland and would require material transfer to a number of smaller barges on arrival in the Netherlands. Such facilities have been discounted as suitable treatment facilities on this basis.

Of the four identified reasonably accessible facilities (i.e. could receive material directly from vessels arriving in the Netherlands from Dublin Port) there are a number which with variable shipping vessel/draft constraints on inland waterways affecting the size of vessel which access the facilities (smaller than the assumed 5,500t vessel). On the basis of assuming that the dredge transport vessel has capacity of approx. 5,500t the following two alternative facilities within the Netherlands are proposed to be assessed.

Innovarec B.V. (Westdorpe) Autrichehavenweg 1, 4554 MB Westdorpe, Netherlands

- Max Length, draft and beam receivable: 135m x 7.5m x 22m.
- Assuming transport vessel has Cargo capacity of approx. 5,500t up to 21 round trips will be required to be undertaken. With each trip being approximately **607 nautical miles** and taking **2.5 days.**

BMR Schiedam (Boskalis) Nieuwe Waterwegstraat 52, 3115 HE Schiedam, Netherlands

- Max Length, draft and beam receivable: 135m x 6.5m x 20m

- Assuming transport vessel has Cargo capacity of approx. 5,500t up to 21 round trips will be required to be undertaken. With each trip being approximately **637 nautical miles** and taking **2.7 days.**

For both Dutch facilities there is scope for larger vessels to be utilised / can dock at the reception facilities, but the limiting factor (storage and handling space at the Dublin Port side) would risk throughput of material.

It is assumed that a smaller vessel (with cargo capacity of c. 5,500t) will be employed, increasing the number of trips that will be required (as a conservative basis for calculations) and will therefore require up to 21 round trips to be undertaken.

Results are shown in **Table 2:** here we show a comparative analysis to look at the climate impact of exporting contaminated sediment offside.

Where:

$$A4_{CO2e,sea} = \sum_{i=1}^{n} mass_i \times distance_i \times c_{f,sea}$$

$$A4_{CO2e,road} = \sum_{i=1}^{n} mass_i \times distance_i \times [c_{f1,outward} + (empty\ running_f \times c_{f2,return})]$$

Table 2: Carbon Emissions for exporting contaminated sediment.

Options	Method	Two way trip	tCO_2e
Ireland (Kildare W91 CF30)	HGV	60	**1,377**
Ireland (Dublin A41 YE92)	HGV	100	**2,295**
Belgium	Ship	2,334	**4,312**
Netherlands (Westdorpe)	Ship	2,248	**4,155**
Netherlands (Schiedam)	Ship	2,359	**4,360**

In terms of carbon emissions transport to the closet Irish location in Kildare is associated with the smallest carbon emissions, with emissions estimated to be approximately **1,377 tCO_2e.**

Emissions associated with the transport of contaminated sediment outside of Ireland are significantly higher. Emissions to Netherlands is associated with the highest carbon emissions. With emissions to Netherlands (Schiedam) estimated to be approximately **4,360 tCO_2e.**

In terms of Climate mitigation and reducing carbon emissions, contaminated sediment should be disposed of inside Ireland and as close to Dublin Port as possible, this is discussed further in Section 3.3.

3.2 Indirect GHG Emissions from Operation Phase

3.2.1 Indirect GHG Emissions from the Operation Phase Road Traffic

As part of the wider Dublin Port Masterplan, the Project has potential for indirect impacts on road traffic emissions on the public roads serving the port with potential for changes in the numbers and types of passenger and freight vehicles accessing the port. These impacts have been fully assessed in the EIAR for the ABR and MP2 projects at Dublin Port and are referenced in this chapter for completeness.

The results of the assessment indicate that the total GHG emissions will increase with the Masterplan in operation. These impacts are considered as **permanent slight adverse impact** which is not significant in EIA terms.

3.2.2 Indirect GHG Emissions from the Operation Phase Marine Traffic

In addition to road transport, maritime transport is also a potential source of indirect GHG from the Project through changes in shipping patterns and vessel types and numbers associated with the Masterplan. These impacts have been fully assessed in the EIAR for the ABR and MP2 projects at Dublin Port and are referenced in this chapter for completeness.

It is acknowledged that as an island nation, the Irish economy is reliant on the movement of goods to Great Britain, mainland Europe or other jurisdictions through air or marine transport. Under the Dublin Port Masterplan 2040, shipping volumes at the port are predicted to increase annually at an average annual growth rate of 3.3% from 2010 to 2040.

The projected changes in shipping numbers associated with the overall Masterplan to 2040 indicate an increase in shipping emissions. This is considered to be a **permanent slight adverse impact** on climate which is transboundary in nature but not significant in EIA terms.

It is important to note that this assessment was highly conservative and did not include any reduced emissions associated with engine and fuel type as mandated through policy such as the International Maritime Organisation ambition to reach net zero emissions from international shipping for 2050. In addition, CAP25 requires the *promotion of Renewable Fuel Use in Maritime Transport.*

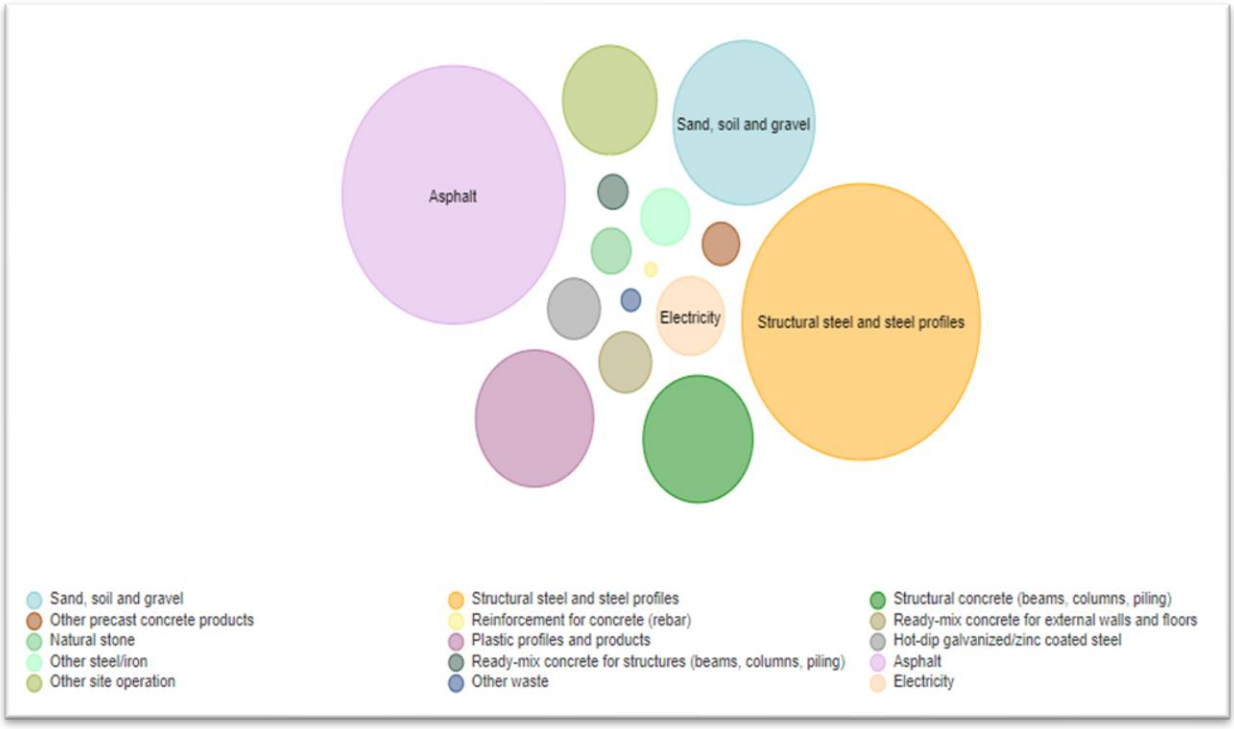


Figure 6: Total life-cycle impact by resource type

3.3 Feasible Carbon Reduction Initiatives and Target Setting

Reducing carbon across the design involves various strategies aimed at minimising the emissions associated with the design, materials, construction processes, and maintenance; with a particular focus on the hotspot areas as identified through the baseline analysis. The carbon reduction initiatives identified were developed broadly through three main aspects which aligned with the PAS 2080: 2023 and TII carbon reduction hierarchies.

These initiatives included:

- **Optimising Design**
    - Prioritising the design to minimise the use of materials and overall construction footprint; and
    - Designing the scheme in a way that reduces the maintenance required across the life of the asset.
- **Low-Carbon Material Selection**
    - Choosing low-carbon or recycled materials for road construction, and prioritising materials like recycled plastics, ground granulated blast furnace slag (GGBS), warm-mix asphalts and locally sourced materials for procurement.

  - Implementing efficient construction practices to minimise waste and energy use during installation. This includes proper planning, transportation logistics, and on-site management to reduce emissions associated with construction activities;

- **End-of-life activities**
  - Increase the percentage of materials recycled or reused during decommissioning and demolition activities.

3.3.1 Construction stage

The construction process primarily pertains to implementing best practice in terms of construction site operations and reducing the distance required for material transport. This is incorporated along with implementing sustainable building practices. Feasible carbon reduction initiatives for this stage were identified as follows:

- **Local Sourcing:** Reduce carbon on the scheme by minimising transportation distances for materials, prioritising localised suppliers located closer to the construction site or using locally sourced materials;
- **Optimised Construction Methods**: Implementation of construction methods that minimize material waste and energy consumption. Potential for employing prefabricated components or modular construction techniques to streamline the construction process and decrease onsite energy use;
- **Energy-Efficient Equipment and Machinery:** Using energy-efficient construction equipment and machinery powered by cleaner fuels or electricity helps reduce carbon emissions during construction activities. Regular maintenance and tuning of equipment also improve efficiency and lower emissions**;**
- **Construction Waste Management:** Proper handling and recycling of construction waste to reduce the carbon footprint associated with disposal. Implementing waste segregation, recycling, and reuse programs onsite ensures that materials are diverted from landfills, reducing overall emissions; and
- **Renewable Energy Use:** Incorporating renewable energy sources, these could be in the form of hydrogen powered generators on site, to hydrotreated vegetable oil (HVO) use in machinery.
- and mitigate the urban heat island effect, enhancing overall sustainability during the use stage; and**;**

3.4 Governance and Implementation

To ensure the achievement of the carbon management reduction targets, a framework for managing carbon across the lifecycle of the project should be established including leadership commitment, continuous monitoring.

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Appendix C: Mobility Management Plan

Dublin Port Company

Mobility Management Plan Framework

ABR2 Project

794-NI-WAE-02351

Final

22 September 2026

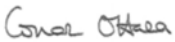
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1.0 Introduction

This Mobility Management Plan (MMP) has been prepared to assist with a planning application for the ABR2 Project.

The ABR2 Project will comprise redevelopment works in two areas of Dublin Port:

- Alexandra Basin West;
- Berth 52/53.

Alexandra Basin West

Capital dredging will be undertaken to achieve a standard depth of -10m CD at Alexandra Basin West to enable Alexandra Basin West to handle deeper draught ships. In addition, undertaking the works in Alexandra Basin West will allow a legacy contamination issue in the basin to be addressed and remediated, which restricts DPC's ability to carry out routine and essential maintenance dredging operations. The berths in Alexandra Basin West will become increasingly busy in the future, and it is important (including, operationally) that DPC is able to include these berths within routine maintenance dredging campaigns.

Environmental sampling of sediment within Alexandra Basin West (above a depth of -10m CD) has demonstrated that the bed of the basin is contaminated with a range of heavy metals and organotins (Dibutyltin (DBT) and Tributyltin (TBT)) as a result of past ship building, maintenance, and repair activities, handling of ores, and other shipping activities. The levels of contamination in the existing materials within Alexandra Basin West result in this material being unsuitable for disposal at sea. The extent of contamination has been confirmed following recent site investigation surveys of the less contaminated sediments at the entrance of Alexandra Basin West, with the analysis demonstrating that no material required to be dredged and removed from Alexandra Basin West may be disposed of at sea (above a depth of -10m CD).

Berth 52/53

The ABR Project was the first Strategic Infrastructure Development (SID) project to be brought forward for planning consent in July 2015. The second SID project, as set out in the Dublin Port Masterplan 2040, reviewed in 2018, is the MP2 Project, which was granted planning consent in July 2020 (ABP-304888-19). The MP2 Project, as permitted, amended elements of the ABR Project, with respect to the alignment of Riverside Berth 52, to allow for the insertion and alignment of a new Riverside Berth 53. The new Riverside Berth 53 is currently under construction, and once the new Riverside Berths 53 and 52 have been constructed, the basin will be closed off from the main navigational channel, and the operational basin berths can be decommissioned. Works can then commence to infill the basin, as proposed under the ABR2 Project, which will facilitate the construction of the Unified Ferry Terminal, consented under the MP2 Project. The area around Berth 49 (subject to extension works under the MP2 Project) and Riverside Berth 52 (as consented under the

MP2 Project) will be used for possible receipt of remediated dredged material and to facilitate working areas for the ABR2 Project.

2.0 Mobility Management Plan Framework

2.1 Mobility Management Plan (MMP)

An MMP is a package of measures and targets aimed at promoting sustainable travel within a development, with an emphasis on reducing reliance on single occupancy car travel. This MMP framework is tailored to the specific circumstances of the ABR2 Project.

This MMP framework summarises proposals for enhancing the attractiveness of sustainable travel opportunities for employees, as well as visitors of the site, and outlines the restrictions imposed to curtail the use of private cars, where necessary, taking cognisance of the nature of the development.

The purpose of an MMP is to seek to reduce reliance on the private car or single occupancy vehicle trips, improve road safety and personal security particularly for pedestrians, cyclists, and public transport users, and will evolve to meet the changing travel characteristics of the development over that time. It is imperative, therefore, that any travel planning approach should feature a mechanism to embrace changing travel patterns and needs. In addition, it is possible to introduce certain measures as part of good site design to encourage sustainable travel. The following sections describe both these initial measures and the likely future 'designed in' measures (to be introduced following an annual review of travel patterns), which will be delivered through the MMP for the ABR2 Project.

The development of an MMP for the ABR2 Project will encourage employees and (where possible) visitors to the site to use more sustainable alternatives than driving alone for at least some of their journey. For an MMP to be successful, it should comprise of a mixture of incentives and disincentives; for example, controlled parking, car sharing, promoting increased use of public transport, encouraging cycling & walking, and supporting alternative work practices which reduce the need to travel, particularly single occupancy car travel.

This MMP will demonstrate the development site is accessible by walking, cycling and public transport; it aims to discourage the use of single occupancy private cars, where necessary, and shows that the client is committed to the promotion of sustainable transport modes.

2.2 Roles & Responsibilities – Senior Management

Support from senior management is critical to the overall success of the MMP. It is important that this support is secured from the outset. The applicant is very supportive of the need to develop an MMP and reduce reliance on private car trips, while increasing sustainable modes of transport. The support of senior management is important to:

- Allow budget allocations for MMP activities; and
- Secure the release of staff time (e.g., MMP Coordinator) for work concerned with the MMP.

2.3 MMP Coordinator

An MMP Coordinator will be appointed by senior management to oversee the implementation and operation of the MMP and will be responsible for the promotion of walking, cycling and public transport amongst staff (and visitors where possible), taking cognisance of the sensitive healthcare nature of the development. This MMP has identified the following tasks that are anticipated to be carried out by the MMP Coordinator:

- Oversee the continuing development and implementation of the MMP
- Obtain and maintain the support of senior management and employees
- Implement sustainable travel marketing activities
- Operate and attend an MMP Steering Group
- Coordinate and undertake data collection and review (e.g., staff travel surveys)
- Undertake review and development of the MMP
- Act as contact point for the MMP
- Monitoring and updating travel patterns
- Providing public transport information
- Identifying and maintaining drop-off points for visitors and employees of the development
- Promoting benefits of cycling, walking and public transport use
- Amending procedures as necessary to promote sustainable transport; and
- Ensuring adequate facilities are provided to encourage alternative modes of travel.

2.4 Travel Survey / Audit

The MMP will be reviewed at the beginning of each year, this will ensure all travel patterns and requirements are considered within the MMP. The surveys will be updated every year, and comment on the existing modal shift targets made (if they have been achieved or not), the surveys will enable new modal shift targets to be set, or incentives changed to achieve existing targets.

The MMP Coordinator will undertake travel surveys of staff / visitors. This will enable a database of information to be constructed and will aid the implementation of the MMP. The survey may consist of the following:

- Personal and employment details (subject to compliance with Data Protection Act)
- Current modal split of employees / visitors
- Journey length, distance, and time (to help determine what alternative travel modes may suit a modal shift)
- Reasons for current mode of travel
- Working Hours
- Level of interest in car sharing

- Which sustainable travel options work / don't work for individuals
- Problems encountered in commuting; and
- Ideas for improvement of the MMP.

This information will enable the MMP Coordinator to:

- Provide personalised travel planning in identifying where staff / visitors are travelling to / from daily
- Identify the areas where the largest groups of staff / visitors are travelling from / to, allowing the MMP Coordinator to concentrate on areas where most impact can be made on changing travel habits; and
- Present the information to the public transport provider with information on staff / visitors so they can review against existing public transport provision from these areas, and so they can review existing services or provision of new services which would improve public transport provision for staff / visitors.

Once the MMP Coordinator has compiled the survey data, targets for the reduction in car-based travel can be determined. Once these targets have been set, the MMP Coordinator will monitor and review these targets at regular intervals and determine how successful the MMP is. The monitoring of staff travel could include the following:

- Additional car park surveys to establish car usage by staff / visitors
- Discussions with public transport service providers to establish demand for the existing bus/rail services
- Surveys of passengers boarding and alighting at bus/rail stops serving the development; and
- Monitoring of specific initiatives such as car sharing etc.

Promotion of sustainable transport modes is paramount to the MMP, and emphasis should be placed on the provision of information for staff / visitors identifying available services, timetables and pick-up / drop off point locations, which will be located within communal areas of the development.

2.5 Objectives & Targets

The overall objective of this MMP is to reduce the number and reliance on private car trips, while increasing the number of pedestrians, cycling and public transport trips. The application of the MMP will help further encourage the shift from car-based trips to more sustainable modes.

From the initial surveys undertaken by the MMP Coordinator, the proposals to implement further incentives / disincentives can be considered to increase the use of sustainable modes and reduce private car trips. Each year surveys will be undertaken and revised modal split targets set.

2.6 Sustainable Travel Measures

It is difficult to confirm specific measures until such time as the site becomes operational and final staff numbers / rota's, trip origins, mode share and travel options (at the time of opening) are made known.

2.7 Appointment of a MMP Coordinator

Within three months of the opening of the proposed development, the position of the MMP Coordinator will have to be filled to ensure that the requirements of the MMP can be implemented quickly and efficiently. After opening, several issues regarding the MMP must be addressed and implemented, these are discussed below.

2.7.1 Senior Management

It is important that senior management of the development provide a clear and concise statement indicating their backing and support of the MMP initiatives and outline the importance of adopting the MMP by staff.

2.7.2 Appointment of Individual Groups

The MMP Coordinator will set up the various groups and provide feedback on the outcome of group meetings. These working groups will be made up of employees and will discuss the incentives / disincentives in place within the MMP and other promotions which could increase the amount of sustainable travel.

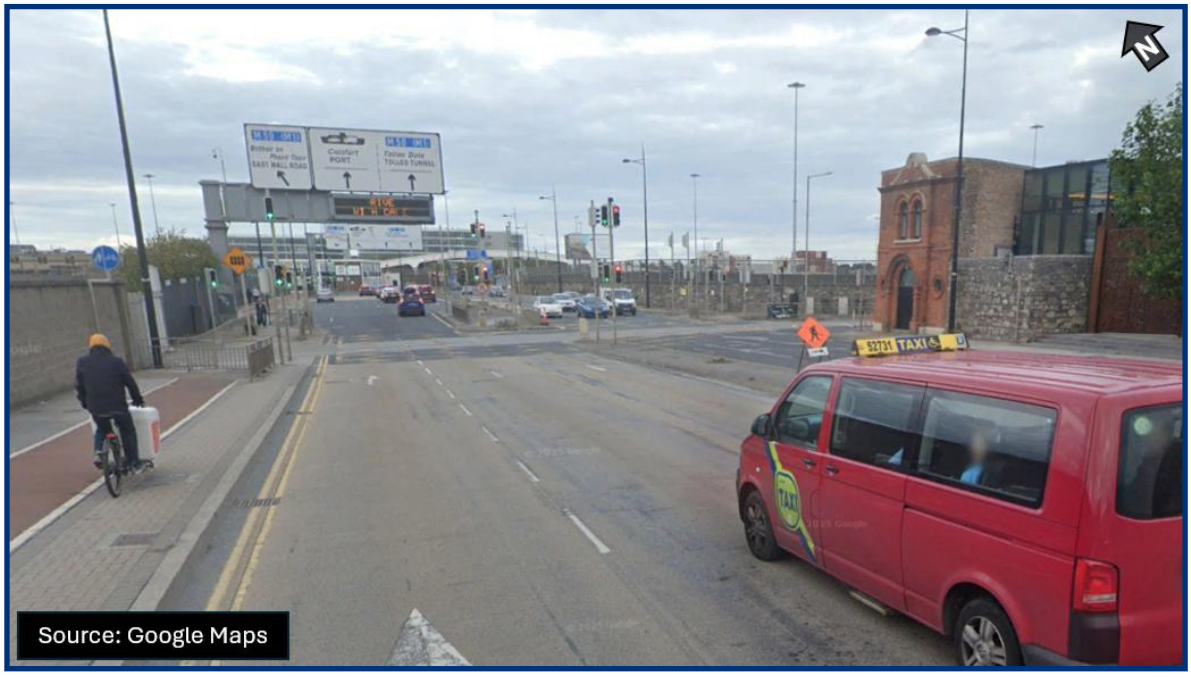
This will include ensuring any sustainable travel website page/content is operational and clearly sets out the MMP principles of the proposed development indicating any restricted private vehicle trips and the promotion of sustainable modes of transport.

2.8 Existing Active Travel & Public Transport Provision

2.8.1 Pedestrian Facilities

Dublin Port is well served by pedestrian facilities with internal pedestrian routes connecting to the external network providing pedestrian connectivity to existing cycle routes, bus stops (both Dublin Bus and Bus Éireann) and the Luas light rail system. Several controlled pedestrian crossing points are located on East Wall Road along the frontage of the site, ensuring safe crossing facilities for pedestrians. Existing pedestrian facilities are indicated in Figure 2-1.

Figure 2-1: Existing Pedestrian Facilities – East Wall Road / Alexandra Road



2.8.2 Cycling Facilities

There are existing cycle facilities on East Wall Road along the frontage of Dublin Port, these existing cycling facilities connect into the wider cycling network throughout Dublin as indicated in Figure 2 2. Dublinbikes has several stations located along North Wall Quay near Dublin Port as indicated in Figure 2 3.

Figure 2-2: Existing Cycling Facilities – Dublin (Dublin Port Area)

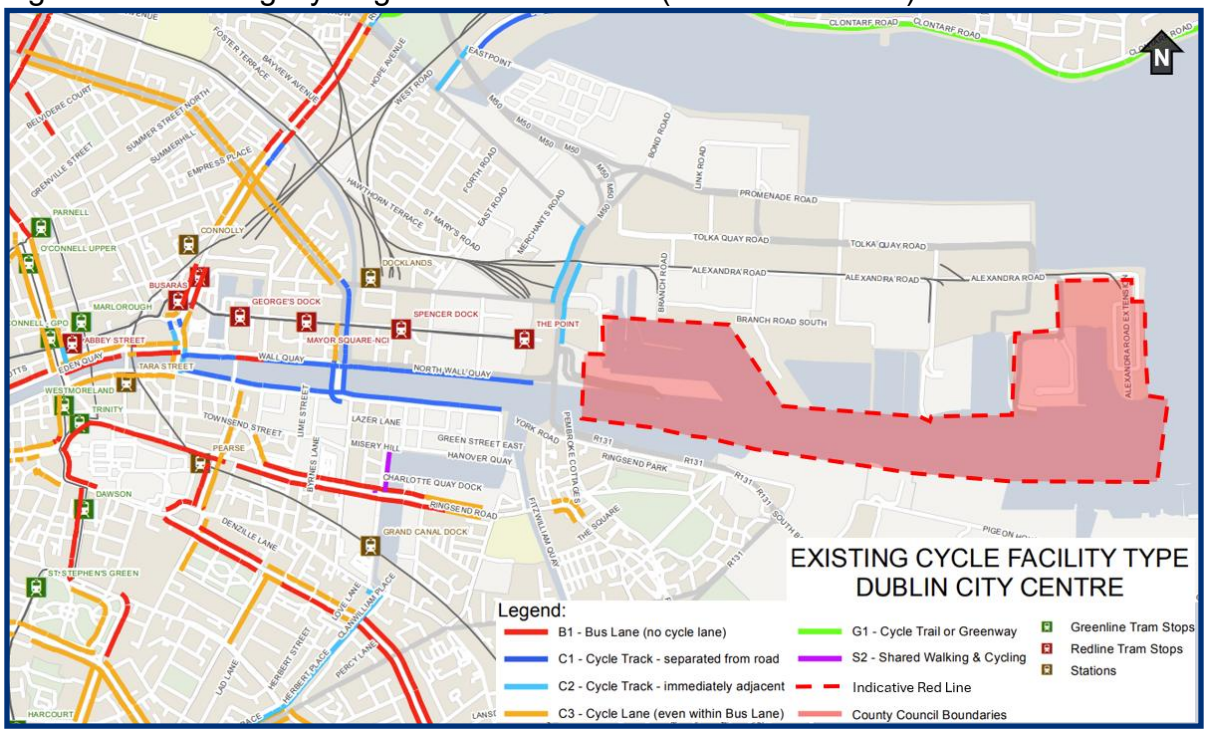
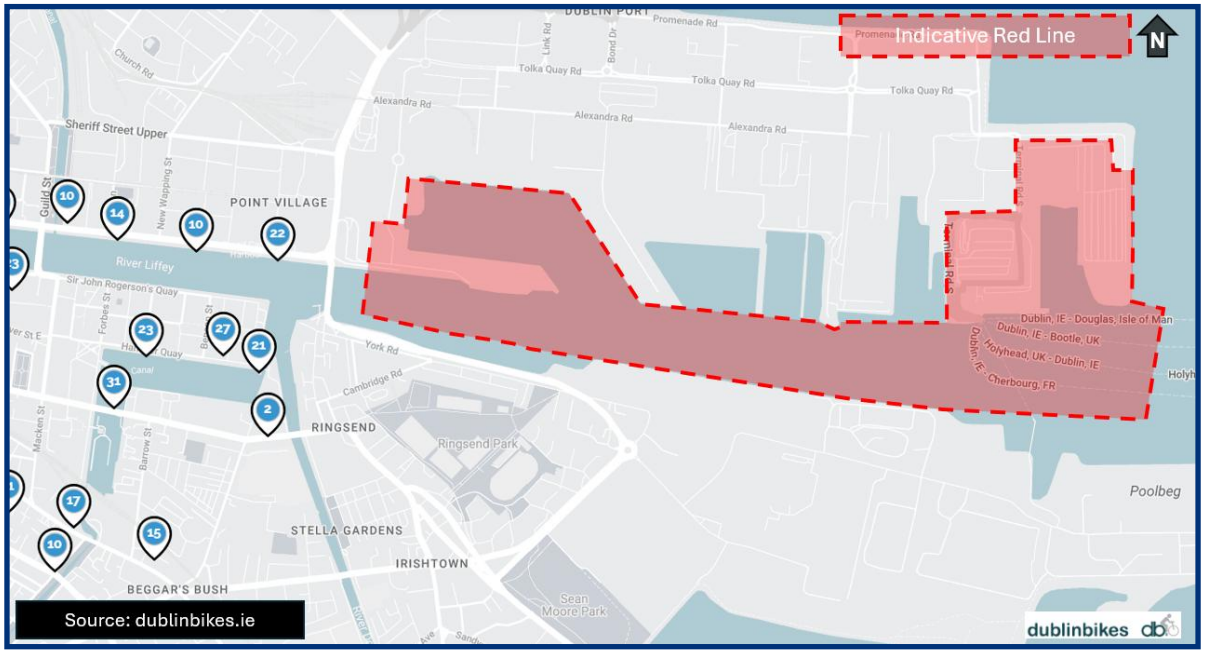


Figure 2-3: Dublin Bikes – Dublin (Dublin Port Area)



2.8.3 Public Transport Facilities

There are both Dublin Bus & Bus Eireann stops located within walking distance of Dublin Port (with the controlled pedestrian crossings ensure safety for pedestrians) as indicated in Figure 2-4. Dublin Port is also located near the Luas system (as indicated in Figure 2-5). The main source of public transport to / from Dublin Port and therefore the ABR2 Project is either Dublin Bus or the Luas and therefore workers associated with ABR2 Project could travel to / from the site via public transport as a mode of transport.

Figure 2-4: Public Transport Services – Dublin (Dublin Port Area)

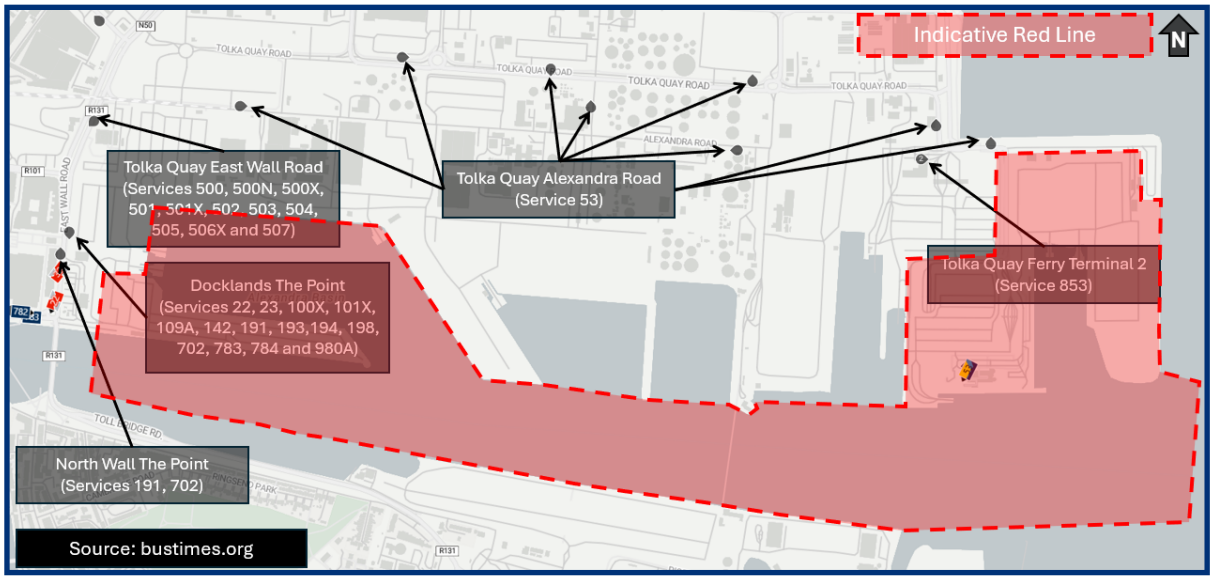
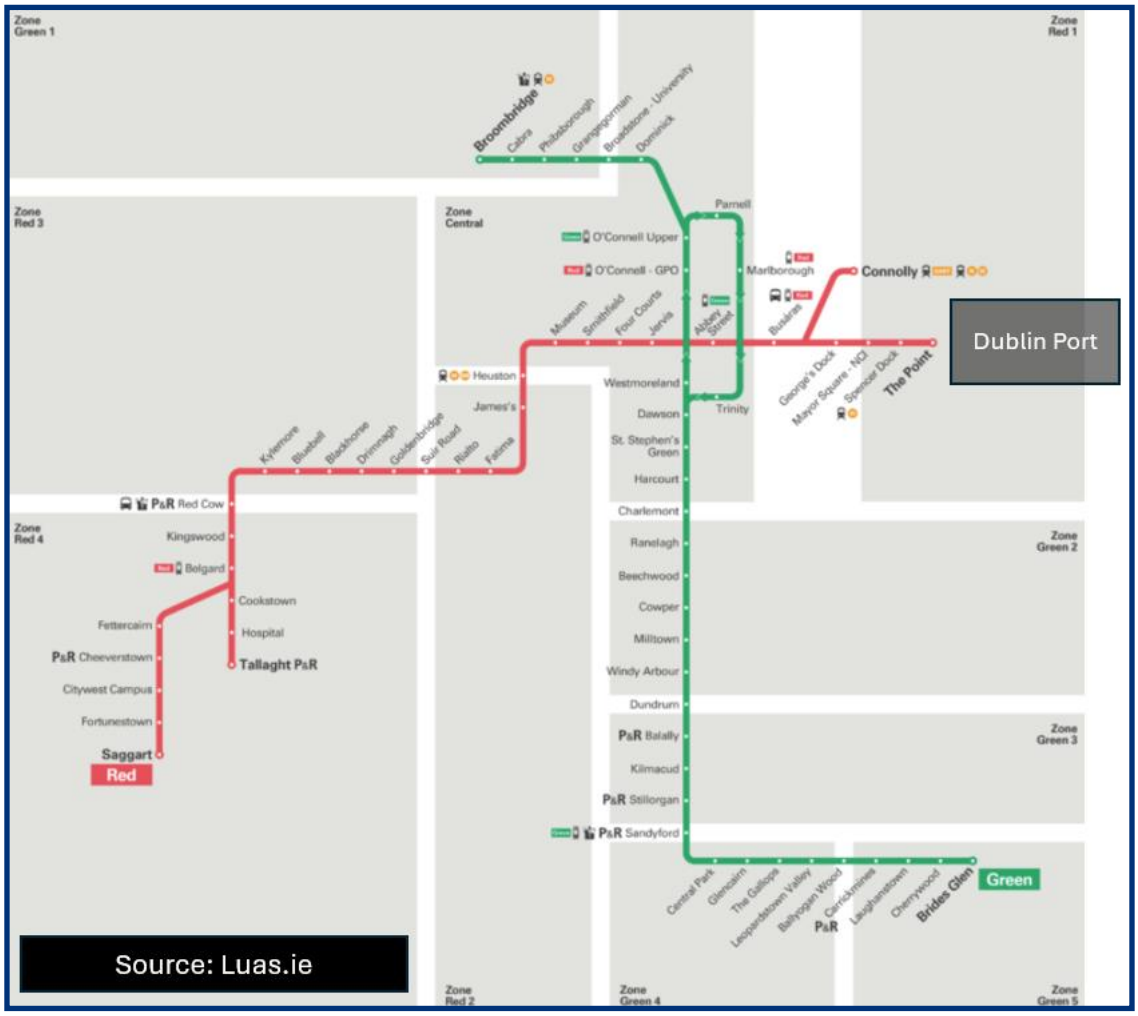


Figure 2-5: Public Transport Services – Luas – Dublin (Dublin Port Area)



2.8.4 Private Vehicle Facilities

There are currently three main approach roads serving Dublin Port and therefore the ABR2 Project including Promenade Road (which provides direct access to / from Dublin Port Tunnel), Alexandra Road and Terminal 3 Access (former P&O Access).

East Wall Road comprises three lanes from North Quay Wall, widening to four lanes at the approach to Sheriff Street Upper, six lanes from Sheriff Street Upper to Alexandra Road with an additional lane north of Alexandra Road.

Dublin Port Tunnel carries most of the traffic to and from the Port. Dublin Port Tunnel links Dublin Port to the M50 via the M1.

It is also noted that as part of the wider Masterplan for Dublin Port there are proposed changes to the existing access arrangements, however, these changes have not been implemented yet and are unlikely to impact upon the ABR2 Project.

2.9 Future Measures

The MMP will constantly change as the characteristics of staff / visitors evolve each year. Therefore, future measures will constantly have to be considered and promoted to try and further reduce the level of car trips associated with the site.

These future measures will be considered after each annual review, once the review is complete the MMP Coordinator will know which modes of transport are being highly used and which need further promotion and potentially further incentive. These future measures can only be accurately identified once the annual review has taken place.

2.10 Monitoring and Updating

The MMP will be reviewed at the beginning of each year on receipt of additional travel information, site assessment, resulting from the yearly travel surveys. From this, objectives will be reviewed, and new targets set. Once the new targets and objectives have been set, the MMP will be updated and launched.

3.0 Conclusions

Tetra Tech has been commissioned by Dublin Port Company to prepare an MMP framework. The MMP framework, which was prepared in line with relevant local and national guidelines, summarises proposals for enhancing the attractiveness of sustainable travel opportunities for employees and visitors of the site, and outlines the restrictions imposed to curtail the use of private cars.

Appendix D: Noise Management Plan

Noise Management Plan

1 Introduction

This Noise Management Plan (NMP) details the environmental monitoring and noise/vibration mitigation measures that will be implemented during the works to minimise the effects of the site operations on environmental receptors. The NMP will be finalised in the event that development consent is obtained, in order to incorporate additional requirements pursuant to conditions attached to statutory consents, and methods and plant in use by the appointed Contractor.

This NMP will be fully in accordance with the following documents;

- ABR2 Project EIAR Terrestrial Noise & Vibration chapter and mitigation measures therein when prepared;
- British Standard BS5228:2009+A1:2014 Noise & vibration control on construction and open sites;
- NRA Guidelines for the Treatment of Noise and Vibration in National Road Schemes (2004);
- NRA Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (2014)'
- Dublin City Council (DCC) – Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition.

The purpose and aims of the NMP are to:

- Establish noise guidance criteria to be used;
- Detailed outline of monitoring programme to be adopted including information on instrumentation, monitoring locations, monitoring procedure/methodology;
- Detailed outline of all proposed mitigation measures to control and minimise noise from all phases and areas of construction activity;
- Outline of management procedures for ensuring that the appropriate mitigation measures are appropriately managed;
- Outline of procedures for liaising with the public and Dublin City Council.

The proposals for noise monitoring and noise mitigation measures included in this document relate to the entire duration of construction works associated with the ABR2 Project.

The Noise Management Plan will be finalised when Contractors are appointed, and liaison with Dublin City Council has taken place with regard to approval of the updated NMP. The updated NMP will detail the specific roles and responsibilities of personnel related to the implementation of the NMP.

2 Mitigation Measures

Mitigation measures will include the requirements for best practice and adherence to the following relevant Irish policies, strategies, legislation, and guidelines, or recognised international guidelines where Irish guidelines are not available:

(a) The construction noise and vibration levels arising from the proposed development shall not exceed Noise Threshold Limits in BS5229BS5228:2009+A1:2014 (Part 1), set out in Table 1.

(b) Mitigation measures likely to be included in the EIAR, shall be adhered to, in compliance with British Standard BS5228:2009+A1:2014 – Noise and vibration control on construction and open sites. In relation to noise (Part 1), such mitigation includes:

- Ensuring that mechanical plant and equipment used for the purpose of the works are fitted with effective exhaust silencers and are maintained in good working order;
- Careful selection of quiet plant and machinery to undertake the required work where available;
- All major compressors will be 'sound reduced' models fitted with properly lined and sealed acoustic covers which should be kept closed whenever the machines are in use;
- Any ancillary pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers;
- Machines in intermittent use will be shut down in the intervening periods between work;
- Ancillary plant such as generators, compressors and pumps will be placed behind existing physical barriers, and the direction of noise emissions from plant including exhausts or engines will be placed away from sensitive locations, in order to cause minimum noise disturbance. Where possible, in potentially sensitive areas, acoustic barriers of enclosures will be utilised around noisy plant and equipment.
- Handling of all materials will take place in a manner which minimises noise emissions;
- Audible warning systems will be switched to the minimum setting required by the Health & Safety Authority.

A complaints procedure shall be operated by DPC throughout the construction phase and the Contractor will be instructed to make all efforts to address any noise issues at the nearest noise sensitive properties.

Table 1: Noise Threshold Limits at Nearest Noise Sensitive Receptors

	Threshold Limits [dB(A)]		
	Category A	**Category B**	**Category C**
Night-time (23:00 - 07:00)	45	50	55
Evening and Weekends (19:00 - 23:00 Weekdays, 13:00-23:00 Saturdays, 07:00-23:00 Sundays)	55	60	65
Weekday daytime (07:00-19:00) and Saturdays (07:00-13:00)	65	70	75

Section 12.1.4 of the Terrestrial Noise and Vibration EIAR Chapter includes the total risk assessment completed for the ABR2 Project based on the details included within this guide. As stated in Section 12.4 of the EIAR Chapter, the ABR2 Project falls into the high risk category in the total risk assessment, albeit marginally so. Table 2 to Table 7 provide details of the good practice measures outlined in the guide for high-risk projects. These measures only include the noise-related elements included within the guide.

Table 2: General Considerations

General Considerations	
All site staff shall be briefed on noise mitigation measures and the application of best practicable means to be employed to control noise.	All sites
Good Quality site hoarding should be erected to maximise the reduction in noise levels.	Medium and high risk sites
The contact details of the contractor and site manager shall be displayed to the public, together with the permitted operating hours, including any special permissions given for out of hours work.	Medium and high risk sites
The site entrance shall be located to minimise disturbance to noise sensitive receptors.	Medium and high risk sites
Internal haul routes shall be maintained and steep gradients shall be avoided.	Medium and high risk sites
Material and plant loading and unloading shall only take place during normal working hours unless the requirement for extended hours is for traffic management (i.e. road closure) or health and reasons (application must be made to DCC a minimum of 4 days prior to proposed works).	All sites
Use rubber linings in chutes, dumpers and hoppers to reduce impact noise.	Medium and high risk sites

General Considerations	
Minimise opening and shutting of gates through good coordination of deliveries and vehicle movements.	Medium and high risk sites

Table 3: Mitigation for Plant

Plant	
Ensure that each item of plant and equipment complies with the noise limits quoted in the relevant European Commission Directive 2000/14/EC.	All sites
Fit all plant and equipment with appropriate mufflers or silencers of the type recommended by the manufacturer.	All sites
Use all plant and equipment only for the tasks for which it has been designed.	All Sites
Shut down all plant and equipment in intermittent use in the intervening periods between work or throttle down to a minimum.	All sites
Power all plant by mains electricity where possible rather than generators.	Medium and high risk sites
Maximise screening from existing features or structures and employ the use of partial or full enclosures for plant.	Medium and high risk sites
Locate movable plant away from noise sensitive receptors.	All sites

Table 4: Mitigation for Vehicle Activity

Vehicle Activity	
Ensure all vehicle movements (on site) occur within normal working hours. (Other than where extension of work requiring such movements has been granted in cases of required road closures or for health and safety reasons).	All sites
Plan deliveries and vehicle movements so that vehicles are not waiting or queuing on the public roads. If unavoidable engines should be turned off.	Medium and high risk sites
Minimise the opening and closing of the site access through good coordination of deliveries and vehicle movements.	Medium and high risk sites
Plan the site layout to ensure that reversing is kept to a minimum.	Medium and high risk sites

Vehicle Activity	
Where reversing is required use broadband reverse sirens or where it is safe to do so disengage all sirens and use banksmen.	Medium and high risk sites
Rubber/neoprene or similar non-metal lining material matting to line the inside of material transportation vehicles to avoid first drop high noise levels.	Medium and high risk sites

Table 5: Mitigation for Demolition

Demolition Phase	
Employ the use of acoustic screening; this can include planning the demolition sequence to utilise screening afforded by buildings to be demolished.	Medium and high risk sites
If working out of hours for Health and Safety reasons (following approval by DCC) limit demolition activities to low level noise activity unless absolutely unavoidable.	All sites
Use low impact demolition methods such as non-percussive plant where practicable.	Medium and high risk sites
Use rotary drills and 'bursters' activated by hydraulic or electrical power or chemically based expansion compounds to facilitate fragmentation and excavation of hard material.	High risk sites
Avoid the transfer of noise and vibration from demolition activities to adjoining occupied buildings through cutting any vibration transmission path or by structural separation of buildings.	Medium and high risk sites
Consider the removal of larger sections by lifting them out and breaking them down either in an area away from sensitive receptors or off site.	High risk sites

Table 6: Mitigation for Ground Works and Piling

Ground Works and Piling Phase	
The following hierarchy of groundwork/piling methods should be used if ground conditions, design and safety allows: • Pressed in methods, e.g., hydraulic jacking • Auger/bored piling; • Diaphragm walling;	Medium and high risk sites

Ground Works and Piling Phase	
• Vibratory piling or vibro-replacement; Driven Piling or dynamic consolidation.	
The location and layout of the piling plant should be designed to minimise potential noise impact of generators and motors.	Medium and high risk sites
Where impact piling is the only option utilise a non-metallic dolly between the hammer and driving helmet or enclose the hammer and helmet with an acoustic shroud.	Medium and high risk sites
Consider concrete pour sizes and pump locations. Plan the start of concrete pours as early as possible to avoid overruns.	Medium and high risk sites
Where obstructions are encountered, work should be stopped and a review undertaken to ensure that work methods that minimise noise are used.	Medium and high risk sites
When using an auger piling rig do not dislodge material from the auger by rotating it back and forth. Use alternate methods where safe to do so.	Medium and high risk sites
Prepare pile caps using methods which minimise the use of breakers, e.g., use hydraulic splitters to crack the top of the pile.	Medium and high risk sites

Table 7: Monitoring

Monitoring	
Establish pre-existing levels of ambient noise by baseline monitoring or use of the noise maps.	Medium and high risk sites
Carry out regular on-site observation monitoring and checks/audits to ensure that BPM is being used at all times. Such checks shall include; • Hours of work • Presence of mitigation measures • Number and type of plant • Construction methods Site reviews must be recorded and made available for inspection.	High risk sites
Monitor noise and vibration continuously during demolition, piling, excavation and sub and superstructure works at agreed locations and report to DCC at agreed intervals and in an agreed format.	High risk sites

Monitoring	
To comply with this the following must take place. The monitoring locations for existing sites as agreed with officers of Dublin City Council must remain in situ. If additional monitoring is required this will be provided and the new locations will be agreed with Dublin City Council. For all new sites the monitoring locations must be agreed with Dublin City Council. The results of the monitoring must be forwarded to officers of the Air Quality Monitoring and Noise Control Unit every two weeks in the following format: Provide the construction noise level as defined in British Standard 5228 and the peak particle velocity readings for the hours of operation of the site. This will include the construction noise level for any overtime period worked outside of normal working hours. Provide a report detailing and discussing the noise and vibration levels over the reporting period. If a breach is recorded the follow up action that took place to prevent any further breaches must be included in the report. This information must be provided in electronic format. If results are required owing to complaints the results will be provided as soon as possible by the contractor to Dublin City Council.	
Appraise and review working methods, processes and procedures on a regular basis to ensure continuous development of BPM	Medium and high risk sites
The 'ABC' Method detailed in Paragraph E.3.2 of BS 5228-1:2009 shall be used to determine acceptable noise levels for day, evening and night time work.	Medium and high risk sites
Vibration levels must be kept below 1.0 mm/sec (PPV) where possible. Where levels are expected to exceed this value residents must be warned and an explanation given.	Medium and high risk sites
Contact details for the site manager and liaison officer should be displayed prominently on the site hoarding.	Medium and high risk sites
All staff should be briefed on the complaints procedure and the mitigation requirement and their responsibilities to register and escalate complaints received.	Medium and high risk sites
Send regular updates at appropriate intervals to all identified affected neighbours/ businesses via a newsletter and post relevant information on the site hoarding. Also make the information available via email/website including weekly noise monitoring reports.	Medium and high risk sites
Arrange regular community liaison meetings at appropriate intervals including prior to commencement of the project.	High risk sites
Meet regularly with neighbouring construction sites to ensure activities are coordinated to minimise any potential cumulative issues.	High risk sites

3 Noise Monitoring Programme

Noise surveys will be conducted in accordance with BS7445: Description and Measurement of Environmental Noise. All measurements will be made using Type 1 precision digital sound levels meters and associated hardware, which will conform to BS EN 60804. Sound level meters will be periodically calibrated in accordance with BS7580: Sound Level Meter Verification. The following parameters will be recorded as a minimum: LAeq, Lamax, Lamin, LA10 and LA90.

The existing noise monitoring stations that have been in place to monitor noise levels associated with the ABR and MP2 Projects will be maintained throughout the duration of the ABR2 Project.

All data will be collected and analysed on a weekly basis and the analysed data will be fed back to DPC and the Contractors on a weekly basis with a view to reviewing the compliance of construction phase activities in the context of any relevant conditions in planning approval if granted, and the thresholds/requirements included in this CEMP. This will also include any liaison requirement with Dublin City Council in this regard.

Any noise nuisance issues associated with the construction phase activities will be immediately assessed and analysed in relation to the recorded noise levels and all correspondence with DPC, the Contractor, Dublin City Council and the residents will be conducted with the appropriate level of urgency. This will include the appropriate liaison with DPC and the Contractor to control activities to ensure that the construction phase activities are in line with any relevant planning conditions and the CEMP.

4 Reporting

Interim synoptic reports will be produced on a regular basis, usually calendar months, and submitted to Dublin City Council and the project liaison group.

Summary data and graphical outputs for each year of the construction phase will form part of an Annual Environmental Report. The data will be prepared in an analytical output that will aim to provide a concise representation of the construction phase noise levels from the Port and will aim to avoid presentation of lengthy datasets.

5 Equipment

The number and location of noise meters will be agreed with Dublin City Council. These will operate for the entire duration of the construction phase. Permanent secure noise monitoring stations have previously been established at the marina adjacent to Pigeon House Road, at East Wall Road, and at Clontarf as part of the ABR and MP2 Projects' Noise Management Plans for nearby sensitive noise receptors. These existing monitoring sites will be maintained for the ABR2 Project subject to approval as above.

The noise meters used will conform to the description of a Type 1 precision digital sound level meters as described in the relevant noise guidance documentation. All equipment will be calibrated at regular intervals.