

SUMMARY OF MITIGATION MEASURES









SUMMARY OF MITIGATION MEASURES

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SUMMARY OF MITIGATION MEASURES

DPC seeks to achieve the highest possible standards of environmental management during both the construction and operational phases of the MP2 Project. A summary of all mitigation measures and monitoring requirements proposed within the Environmental Impact Assessment Report (EIAR) are contained in this Report.

1. Construction Phase Mitigation Measures

The EIAR assesses the likely significant effects of the MP2 Project on the environment arising from the construction of the MP2 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 effects to be eliminated or reduced to an acceptable level during the preliminary design stage. Following an examination, analysis and evaluation of the direct and indirect significant effects of the project in relation to the receiving environment, additional mitigation measures and monitoring programmes have been recommended which will be fully implemented during the construction phase of the MP2 Project.

Table 1 summarises the mitigation measures and monitoring programmes recommended within the EIAR during the construction phase of the MP2 Project. All mitigation measures proposed within the NIS have been captured by the EIAR.

Table 1 Mitigation measures and monitoring recommended within the EIAR

Potential Impact Summary of Proposed Mitigation

Chapter 6 RISKS OF MAJOR ACCIDENTS & DISASTERS

Potential for loss of life or injury to employees, Contractors, visitors and local residents.

Potential for damage to the environment.

Potential for damage to the facilities, plant and equipment of DPC, its commercial partners, tenant companies and neighbours.

- The design of the MP2 Project has been informed by a COMAH land use planning assessment, the purpose of which was to examine the development in the context of the Health and Safety Authority's COMAH land use planning guidance, and to identify the types of development that may be compatible with the COMAH risk zones around the Calor (and other COMAH) establishments. Based on this conservative assessment, it is considered that the final design layout of the MP2 Project would satisfy the HSA's criteria under its land use planning guidelines. The MP2 Project will therefore not increase the risk of major accidents and disasters.
- To remain vigilant, DPC has developed a comprehensive Emergency Management Plan (see Appendix 6 of this EIAR) that caters for the range of accident and emergency events that may occur within its estate (or that may occur outside of the estate and that are likely to have a direct, knock on effect).
- In the event of an incident, DPC would activate its plan accordingly, in which case people would be directed away from the source of the



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	hazard.	
	DPC's Emergency Management Plan competencies are continuously	
	enhanced through participation in training and exercises at different	
	levels.	

Chapter 7 BIODIVERSITY, FLORA & FAUNA

No regulated invasive plant species listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended, were identified on site during baseline habitat surveys of the site in 2018 and 2019. Nevertheless, a precautionary approach will be undertaken to prevent the importation and spread of Invasive Alien Species

• An Invasive Alien Species (IAS) Management Plan will be implemented for the duration of the proposed construction works. A draft IAS Management Plan which includes an initial IAS Assessment.is presented in Appendix 19 of this EIAR. The IAS Management Plan links into the Construction Waste Management Plan and Construction Traffic Management Plan to prevent the introduction or spread of IAS. The Plan outlines containment and eradication measures to be implemented if any IAS are identified.

Prevention

- Prevention measures will range from raising awareness of IAS and the
 potential for their dispersal, to ensuring best practice in relation to the
 movement of materials into, within or out of the operations area.
 Measures to be implemented shall include:
 - Ensuring that rock armour, gravels, sand or soils to be imported to the site are sourced from authorised/licensed quarry operators;
 - Specifying that such material should be free of invasive plant species and their propagules;
 - Implementing a waste management plan for the proper storage and controlled movement of waste materials;
 - Implementing a materials handling plan for the proper storage and controlled movement of materials;
 - Implementing a construction traffic management plan for control of vehicle and plant access and movements, including wheel wash and plant inspection at site entrance;
 - Ensuring that all vehicles and construction plant arriving on site are reasonably clean and free of significant deposits of mud and plant debris (particularly tyres, wheel arches, excavator buckets and tracks) that might be a vector for spread of IAS;
 - Cordoning off any IAS locations on site identified and mapped in the initial IAS assessment;
 - Washing down machinery that has operated in IAS infested areas in designated locations before moving within the site or leaving the site;
 - Inclusion of IAS awareness in toolbox talks using visual aids to identification for the most likely species to be encountered



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	prepared by the initial IAS assessment; - Notification of any suspected new occurrences of IAS to the Environmental Facilities Manager.	
	 Containment / Treatment If any IAS is identified on the construction site, the management plan will contain its spread in the first instance and subsequently eradicate it if possible from the site. This will include implementation of the following measures: Cordoning off any invasive species infestations to limit movement of people / machinery in infested area and relevant buffer zones; Confirmation of the identification of the species concerned, and collation of relevant information; Selection of the most appropriate best practice methods for control / treatment; 	
	 Prioritisation of treatment areas; Undertaking physical or chemical control measures as appropriate in line with best practice guidance and in compliance with health and safety requirements; Ensuring control measures are undertaken by suitably qualified personnel; Handling and disposal of treated material appropriately to prevent further spread. 	
Precautionary measures will be undertaken to minimise the risk of injury or disturbance to birds in the area of operations	 A Bird Management Plan will be implemented for the duration of the proposed construction works. A draft Bird Management Plan.is presented in Appendix 19 of this EIAR. The following precautionary measures will be undertaken to minimise the risk of injury or disturbance to nesting and breeding birds in the 	
	 area of operations Black Guillemots –nest-boxes and other artificial nest sites will be provided prior to construction; Breeding Terns – the capital dredging scheme will be confined to the winter months (October – March) when the terns have migrated from the site. 	
	 The following precautionary measures will be undertaken to minimise the risk of injury or disturbance to non-breeding waterbirds in the area of operations Construction of Berth 53 will temporarily cease during periods of greatest low spring tides when bird feeding grounds adjacent to Berth 53 in the Tolka Estuary are exposed to avoid disturbance of 	



Potential Impact	Summary of Proposed Mitigation
	birds; - Gates will be used at the site of the Greenway to control the movement of people during the periods of low spring tides above, again, to avoid disturbance at feeding grounds within the Tolka Estuary.
	 Monitoring DPC is committed to continuing a programme to monitor Black Guillemots, Common Tern and Arctic Tern in Dublin Port throughout the construction phase of the MP2 Project and for a period of two years after the completion of such works. The results of this monitoring programme will be submitted to Dublin City Council at 12-monthly intervals to maintain a public record.
	DPC will also continue to undertake a programme to monitor winter wetland birds in the adjacent European Sites at the South Dublin Bay and River Tolka Estuary Special Protection Area. This monitoring programme will continue throughout the construction phase and for a period of two years after the completion of such works, with monthly surveys from October to March. The results of this monitoring programme will be submitted to Dublin City Council at 12-monthly intervals to maintain a public record.
Precautionary measures will be undertaken to minimise the risk of injury or disturbance to marine ecology and	A Marine Ecology Management Plan will be implemented for the duration of the proposed construction works. A draft Marine Ecology Management Plan.is presented in Appendix 19 of this EIAR.
fisheries in the area of operations	 A Dredging Management Plan will also be implemented for the duration of the proposed construction works. A draft Dredging Management Plan.is presented in Appendix 19 of this EIAR.
	The following key mitigation measures apply to the Capital Dredging Scheme to minimise the impact of the proposed works on marine ecology
	 No over-spilling at the surface of the dredger for all dredging activities within the inner Liffey Channel will be permitted;
	 The dredger will work on one half of the channel at a time within the inner Liffey channel to prevent the formation of a silt curtain across the River Liffey;
	 The dredging of sediments within the navigation channel will be carried out during the winter months (October – March) to negate any potential impact on salmonid migration (particularly smolts) and summer bird feeding, notably terns, in the vicinity of the dredging operations;
	 A trailer suction head dredger (TSHD) or Back-hoe dredger will be used for the capital dredging works. When operating in the River



Potential Impact	Summary of Proposed Mitigation
	Liffey Channel, the TSHD pumps will be switched off when the drag head is being lifted and returned from the bottom as the dredger turns between successive lines of dredging to minimise the risk of fish entrainment;
	 A maximum of 4,100m³ of sediment and entrained water will be loaded into the dredger's hopper for each loading/dumping cycle, equivalent to approximately of 2,030 tonnes (wet weight).
	The following key mitigation measures apply to piling activities to minimise the impact of the proposed works on fisheries:
	No piling will take place along the riverside of the Liffey channel during the three months of the year when smolts are likely to run in their highest numbers (i.e. March to May inclusive). This recognises the smaller size of smolts compared to returning adults and lamprey. It also takes account of the fact that smolts have a swim bladder which likely makes them more susceptible than lamprey to pressure trauma due to piling noise.
Precautionary measures will be undertaken to minimise the risk of injury or disturbance to marine mammals in	A Marine Mammals Management Plan will be implemented for the duration of the proposed construction works. A draft Marine Mammals Management Plan.is presented in Appendix 19 of this EIAR.
the area of operations	The following precautionary measures will be undertaken to minimise the risk of injury or disturbance to marine mammals in the area of operations in line with National Parks and Wildlife Service (NPWS) Guidelines (2014)
	 A trained and experienced Marine Mammal Observer (MMO) will be put in place during piling, dredging, demolition and dumping operations. The MMO will scan the surrounding area to ensure no marine mammals are in a pre-determined exclusion zone in the 30-minute period prior to operations. The NPWS exclusion zone is 500m for dredging and demolition works and 1,000m for piling activities.
	Noise-producing activities will only commence in daylight hours where effective visual monitoring, as performed and determined by the MMO, has been achieved. Where effective visual monitoring is not possible, the sound-producing activities will be postponed until effective visual monitoring is possible. Visual scanning for marine mammals (in particular harbour porpoise) will only be effective during daylight hours and if the sea state is WMO Sea State 4 (~Beaufort Force 4 conditions) or less.
	 For piling activities, where the output peak sound pressure level (in water) exceeds 170 dB re: 1µPa @ 1m, a ramp-up procedure will be employed following the pre-start monitoring. Underwater acoustic energy output will commence from a lower energy start-



Potential Impact	Summary of Proposed Mitigation
	up and thereafter be allowed to gradually build up to the necessary maximum output over a period of 20-40 minutes.
	 If there is a break in piling / dredging activity for a period greater than 30 minutes then all pre-activity monitoring measures and ramp-up (where this is possible) will recommence as for start-up.
	 Once normal operations commence (including appropriate rampup procedures), there is no requirement to halt or discontinue the activity at night-time, nor if weather or visibility conditions deteriorate, nor if marine mammals occur within a radial distance of the sound source that is 500m for dredging and demolition works, and 1,000m for piling activities.
	 Any approach by marine mammals into the immediate (<50m) works area will be reported to the National Parks and Wildlife Service.
	The MMO will keep a record of the monitoring using a 'MMO form location and effort (coastal works)' available from the National Parks and Wildlife Service (NPWS) and submit to the NPWS on completion of the works.
	• In line with best international practice, a combination of visual and acoustic mitigation techniques will be used to ensure there are no significant impacts on all Annex II marine species, including harbour porpoise, grey seal and harbour seal. Static Acoustic Monitoring (SAM) through the deployment of CPODs will be used. SAM monitoring sites will be established and maintained throughout the project and for two years post-construction. This technique is to complement and not replace visual techniques.
	The deployment of a SAM system will complement and extend the extensive database currently being collected as part of the ABR Project environmental monitoring programme.

Chapter 8 SOILS, GEOLOGY, HYDROGEOLOGY

The potential risk to construction workers from contaminants during the earthworks is low.

Fill material will be sourced from authorised quarries and will have minimal potential to introduce contamination onto the site.

Chapter 9 WATER QUALITY and FLOOD RISK

Mobilised suspended sediment and cement release through construction and demolition activities are the principal potential sources of water quality impact during the construction phase of the works.

- A Water Quality Management Plan will be implemented for the duration of the proposed construction works. A draft Water Quality Management Plan.is presented in Appendix 19 of this EIAR.
- The following precautionary measures will be undertaken to minimise the risk of impacting on water quality within the receiving environment:
 - sound design principles will be followed to adhere to relevant Irish



Potential Impact	Summary of Proposed Mitigation
	guidelines and recognised international guidelines for best practice; - appropriate erosion and sediment controls during construction to prevent sediment pollution will be implemented; - 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 storm water
	 arising from the construction areas. Management and auditing procedures, including tool box 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 from sediment and other pollutants using measures to intercept the pathway for such pollutants.
	 A draft project specific Pollution Incident Response Plan has been prepared and suitable training will be provided to relevant personnel detailed within the Pollution Incident Response Plan (see Appendix 19 of this EIAR)
Accidental release of highly alkaline contaminants from concrete and cement may arise during the demolition of buildings and structures and the construction of hardstand areas, waterside berths, quay walls, jetties, bridging structures, etc. Concrete and cement pollution may give rise to significant impacts on water quality in the absence of mitigation.	 The following precautionary measures will be undertaken to minimise the risk of impacting on water quality within the receiving environment Breaking of concrete (associated with structure demolition) has the potential to emit alkaline dust into the receiving environment. Where necessary 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 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 (2017). Any on-site concrete production will have the following mitigation measures: bunded designated concrete washout area; closed circuit wheel wash etc.; and initial siting of any concrete mixing facilities such that there is



	no production within a minimum of 10 metres from the aquatic zone; The use of wet concrete and cement in or close to any water body will be carefully controlled so as to minimise the risk of any material entering the water, particularly from shuttered structures or the washing of equipment. Where concrete is to be placed under water or in tidal conditions, 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.
General water quality impacts may arise associated with works machinery, infrastructure and on-land operations including the temporary storage of construction materials, oils, fuels and chemicals. There is the potential for spillage or release of fuel oil and other dangerous substances to result in moderate to significant impacts on water quality in the absence of mitigation.	 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 waste water) will be controlled through good site management and the adherence to codes and practices, Management and auditing procedures, including tool box 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 from sediment and other pollutants using measures to intercept the pathway for such pollutants, 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 PPG 26 "Safe storage – drums and intermediate bulk containers" (Environment Agency, 2011) shall be implemented to ensure safe storage of oils and chemicals; The safe operation of refuelling activities shall be in accordance with PPG 7 "Safe Storage – The safe operation of refuelling
Drainage systems need to be designed to prevent the release of polluted water to the receiving waters.	facilities" (Environment Agency, 2011). The following precautionary measures will be undertaken to minimise the risk of impacting on water quality within the receiving environment — Storm water runoff will be collected in a dedicated storm water



Potential Impact	Summary of Proposed Mitigation
	drainage system and will not be permitted to discharge directly into the marine environment from new jetties and hardstanding areas. The surface water drainage system will consist, inter alia, of heavy duty gullies cast into the reinforced concrete deck, with concrete pipes cast into the in-situ concrete deck structure. These pipes will carry the storm water into an appropriate full retention oil separator which will trap oils and silts prior to being discharges into the harbour waters through a non-return flap valve. A readily and safely accessible monitoring chamber will be provided on the storm water pipeline as appropriate to allow for inspection and sampling of the storm water being discharged, The oil interceptors on the surface water drainage network will be selected and sized based on the pollution prevention guideline: "Use and design of oil separators in surface water drainage systems: PPG3" (Environment Agency, 2006) and BS EN 858 which is the European Standard for the design, performance, testing, marking and quality control of separators within the EU. All separators must comply with this standard. In accordance with PPG3 a class 1 bypass separator will be required for general and car parking areas of the site whilst a class 1 full retention separator will be required for the HGV parking and loading area. Notwithstanding this, full retention separators are proposed for each phase of the development and will be sized in accordance with a design flow of 590l/s for a six hour duration storm and the
Monitoring Measures	 A water quality monitoring system has been designed to ensure robust protection of the marine environment and for users of the inner Liffey channel during the construction phase of the MP2 Project. It is proposed to maintain the four water quality monitoring stations already in position for the ABR Project The specification is based on state of the art 24/7 real time monitoring with water quality monitoring sensors giving high resolution data with respect to the following parameters Turbidity -Dissolved Oxygen Temperature Salinity -pH (additional proposed parameter) Water level is also measured at one monitoring station to provide information on tidal state. Turbidity is measured as a surrogate for suspended solids. Site specific tests have previously been



Potential Impact	Summary of Proposed Mitigation
	undertaken by the ABR Project to define the relationship between Turbidity and suspended solids,
	 A data acquisition and transfer system is being used to enable the transmission of high resolution data at approximately 15 minute intervals.
	The following trigger levels that will prompt investigation are proposed:
	 Dissolved Oxygen level falling below 6 mg/l.
	 Peak Suspended Solids level rising more than 100mg/l above background (Based on the Turbidity v Suspended Solids relationship previously established this is equivalent to an Turbidity increase of 40 NTU above background)
	The Dissolved Oxygen trigger level has been selected to safeguard fish-life.
	 The monitoring network infrastructure has been in place since 2016 and will continue for the duration of the construction phase of the MP2 Project.
	This monitoring system has already generated a robust water quality baseline within the inner Liffey channel with the ability to identify water quality trends. The continuation of the monitoring system will serve to further strengthen the knowledge of water quality trends, a key indicator of the health of the marine environment.
	The water quality data currently being collected is circulated to Dublin City Council on a monthly basis. It is proposed that this transfer of information continues for the duration of the construction phase of the MP2 Project
	 The data collected is also being shared with research organisations (Dublin City University, Maynooth University and University College Cork).

Chapter 10 AIR QUALITY & CLIMATE

Construction works have the potential to result in local impacts through dust nuisance at the nearest sensitive receptors and also to sensitive ecosystems

- A draft dust minimisation plan has been prepared based upon the industry guidelines in the Building Research Establishment document entitled 'Control of Dust from Construction and Demolition Activities' (see Appendix 19 of this EIAR).
- The following precautionary measures will be undertaken to minimise the potential nuisance caused by dust at the nearest sensitive receptors and on sensitive ecosystems
 - Site roads shall be regularly cleaned and maintained as appropriate. Hard surface roads shall be swept to remove mud



Potential Impact	Summary of Proposed Mitigation
Potential Impact	and aggregate materials from their surface while any un-surfaced roads shall be restricted to essential traffic only; - Any site roads with the potential to give rise to dust will be regularly watered, as appropriate, during dry and/or windy conditions (also applies to vehicles delivering material with dust potential); - All HGVs and other site vehicles exiting the site will make use of a wheel wash facility prior to entering onto Dublin Port estate roads and public roads, to ensure mud and other wastes are not tracked onto the roads. Wheel washes will be self-contained systems that do not require discharge of the wastewater to water bodies. - Wheel washes shall be self-contained systems that do not require discharge of the wastewater to water bodies; - Public roads outside the site shall be regularly inspected for cleanliness and cleaned as necessary; - Material handling systems and site stockpiling of materials shall be designed and laid out to minimise exposure to wind; - Water misting, or sprays shall be used as required if particularly dusty activities are necessary during dry or windy periods;
	 All vehicles which present a risk of spillage of materials, while either delivering or removing materials, will be loaded in such a way as to prevent spillage on the public road; It will be required that all vehicles are suitably maintained to ensure that emissions of engine generated pollutants is kept to a minimum; and Monthly monitoring of dust deposition levels each month for the duration of construction for comparison with the guideline of 350mg/m²/day (for non-hazardous dusts). This monitoring will be carried out at a minimum of four locations at sensitive receptors around the proposed works. Where dust levels are measured to be above this guideline, the mitigation measures in the area will
The potential exists for odour generation and nuisance to occur during the construction phase.	 A draft Odour Management Plan (OMP) has been prepared and follows the guidance presented in the Environment Agency of England and Wales "Odour Management Guidance" (H4 Guidance, 2011) (see Appendix 19 of this EIAR). The odour monitoring and investigation aspects of the OMP will follow the EPA "Odour Impact Assessment Guidance for EPA Licenced Sites". The OMP will achieve the following: Employ appropriate methods, including monitoring and contingencies, to control and minimise odour pollution; Prevent unacceptable odour releasing incidents or accidents by



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	 anticipating them and planning accordingly. The plan considers sources, releases and impacts of odour and uses these to identify opportunities for odour management. The OMP will also include a periodic odour audit of the facility by a suitably qualified expert to identify all sources on site together with nature and scale of the odour release and associated construction details. In addition, the plan includes for complaint recording and investigation to ensure that all complaints received at the site are suitably addressed.
Emissions of construction generated Green House Gases (GHG) will arise from embodied emissions in site material, direct emissions from plant machinery /equipment as well as emissions from vehicles delivering material and personnel to the construction site.	 Mitigation measures to minimise CO₂ emissions from the construction phase include the following: Consultation with a wider variety of internal and external stakeholders to ensure all relevant information is included in the development of the plans; Implementation of a Traffic Management Plan which will form part of the specification for the construction works. This will outline measures to minimise congestion and queuing, reduce distances of deliveries and eliminate unnecessary loads; Reducing the idle times by providing an efficient material handling plan that minimizes the waiting time for loads and unloads.
	Reducing idle times could save up to 10% of total emissions during construction phase; — Turning off vehicular engines when not in use for more than five minutes. This restriction will be enforced strictly unless the idle function is necessary for security or functionality reasons; — Regular maintenance of plant and equipment. Technical inspection of vehicles to ensure they will perform the most efficiently. • Materials with a reduced environmental impact will be incorporated into the construction design through re-use of materials or incorporation of recycled materials in place of conventional building materials. The
	following materials will be considered for the construction phase:- Ground Granulated Blast Furnace Slag (GGBS) & Pulverised Fuel Ash - Used as replacements for Portland cements to increase sustainability and carbon footprint of civil and structural works; Steel - The recovery rates associated with using recycled steel are high and research exists which shows that 99% of structural steel arising from demolition sites is recycled or re-used. The carbon emissions emitted during the production of virgin steel can be higher than some other structural materials on a tonne by tonne basis, and recycled steel will be used where possible. An The Energy Management system will include the following



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	measures as:-
	 The use of thermostatic controls on all space heating systems in site buildings to maintain optimum comfort at minimum energy use; The use of sensors on light fittings in all site buildings and low
	 energy lighting systems; The use of adequately insulated temporary building structures for the construction compound fitted with suitable vents; The use of low energy equipment and "power saving" functions on all PCs and monitors in the site offices; The use of low flow showers and tap fittings; The use of solar/thermal power to heat water for the on-site
Chapter 11 NOISE & VIBRATION	welfare facilities and contamination unit (sinks and showers).
There is the potential for noise impacts associated with the construction phase of the proposed development at the nearest noise sensitive receptors.	 A Noise Management Plan will be implemented for the duration of the proposed construction works. A draft Noise Management Plan.is presented in Appendix 19 of this EIAR. British Standard BS5228:2009+A1:2014 – Noise and vibration control on construction and open sites: Part 1 - Noise outlines a range of measures that will be used to reduce noise impacts at the nearest noise sensitive receptors. The measures, which will be applied, include: 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 will be kept closed whenever the machines are in use, Any ancillary pneumatic percussive tools will be fitted with properly lined and sealed acoustic covers which will 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



Potential Impact	Summary of Proposed Mitigation
	placed away from sensitive locations, in order to cause minimum noise disturbance, 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 and Safety Authority, A complaints procedure will be operated by the Contractor throughout the construction phase and all efforts will be made to address any noise issues at the nearest noise sensitive properties.
There is potential for underwater noise as a result of piling activities.	The use of vibratory piles for a substantial portion of the piling requirements will reduce impact driving.
, and a second property of the second propert	Pile driving activity will be carried out as efficiently as possible to reduce the duration of the piling activity. Piling will only take place for a portion of each working day and will not be carried out at night.
Monitoring Measures	Continuous terrestrial noise monitoring will be undertaken for the duration of the construction works 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. The following parameters will be recorded as a minimum: LAeq, LAmax, LAmin, LA10 & LA90.
	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. A permanent secure noise monitoring station has previously been established at the marina adjacent to Pigeon House Road as part of the ABR Project. It is representative of nearest sensitive noise receptors and may prove to be an appropriate location for the MP2 Project subject to approval as above. A second monitoring station is proposed at Clontarf, representative of nearest sensitive noise receptors to the north of the MP2 Project site.
	 All data will be collected and analysed on a weekly basis and the analysed data will be fed back to DPC and the Contractors 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 the draft Noise Management Plan. 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



Potential Impact	Summary of Proposed Mitigation
	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. 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.
	 Underwater noise surveys will be undertaken during the construction phase of the works: The underwater noise surveys will complement the existing underwater noise level measurements which have been recorded during the impact piling carried out inside Alexandra Basin West for the ABR Project. This will provide additional validation of the underwater noise modelling and to ensure the underwater noise levels are contained within the operations area of the port, Underwater noise surveys will be undertaken during the construction period at a minimum of 2 locations upriver and two locations downstream of the works when being carried out in the navigation channel. Monitoring will be carried out at the commencement of the piling activity.

Chapter 12 COASTAL PROCESSES

Potential impact of Berth 53 upon tidal current speeds resulting in erosion of bed levels and a localised modification of the lowest astronomical tide mark. This has the potential to impact upon the winter foraging areas within the South Dublin Bay and Tolka Estuary SPA.

- The potential impact of Berth 53 on tidal currents and the movement of sediments was modelled and this process informed the final open piled berth design to mitigate any impact on the morphology of the South Dublin Bay and Tolka Estuary SPA.
- A wash protection structure has been designed to reduce high thruster jet velocities associated with manoeuvring vessels, again to mitigate any impact on the morphology of the South Dublin Bay and Tolka Estuary SPA.
- This mitigation by design has reduced the potential impact of the MP2
 Project on coastal processes to an imperceptible level.



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Potential Impact	Summary of Proposed Mitigation
Chapter 13 TRAFFIC & TRANSPORT	
There will be an increase in construction traffic during the construction phase of the development.	 A Construction Traffic Management Plan will be implemented for the duration of the proposed construction works. A draft Construction Traffic Management Plan.is presented in Appendix 19 of this EIAR. The following mitigation measures will be applied: Adhering to the Dublin City Council HGV Management Strategy; A pre-defined haulage route will be agreed with Dublin City Council to avoid construction traffic through sensitive road networks at critical times; Time restrictions will be implemented relating to construction vehicles on the adopted road network, Temporary warning signage will be installed, as necessary, Wheel washing, roadside cleaning, load checking and general maintenance of larger vehicles will be in place, Appropriate parking facilities for site operatives and visitors within the site will be provided with all parking areas clearly signed and
	monitored.
Chapter 14 CULTURAL HERITAGE (inc	cluding Industrial & Archaeological)
There is a need for an overarching Archaeology and Cultural Heritage Management Plan to be implemented during the construction phase	An Archaeology and Cultural Heritage Management Plan will be implemented for the duration of the proposed construction works. A draft Archaeology and Cultural Heritage Management Plan is presented in Appendix 19 of this EIAR.
Ground disturbance activities have the potential to expose elements of the 19 th Century Breakwater which are assumed to remain undisturbed beneath Breakwater Road.	Archaeological monitoring licensed by the National Monument Service will be conducted of all ground disturbance activities, including site investigations, with the proviso to resolve fully any archaeological material observed at that point.
The construction of Oil Berth 3 will necessitate the reclamation of the sea pocket that accommodates the Pilot Boat pontoon, and the five ship's timber and one metal piece that are in temporary storage under the pontoon.	There are five ship's timbers and one metal piece located in temporary wet storage under the Pilot Boat pontoon which will be removed to the secure Heritage Zone area for the ABR Project, where they will be placed in water-filled tanks.
It is necessary to demolish the Breakwater terminus or Pier Head to facilitate the construction of Berth 50A.	 Prior to demolition works commencing, the 3D record of existing structure and associated features will be amended where necessary to ensure that the permanent outputs can produce metrically accurate plan, elevation and section drawing information at 1:20 scale. Archaeological monitoring licensed by the National Monuments Service will be conducted of all ground disturbances, with the proviso to resolve



Potential Impact	Summary of Proposed Mitigation
	fully any archaeological material observed at that point. The archaeologist will be facilitated by DPC to complete a comprehensive record of any archaeological features that become exposed in the course of the construction works.
The extension of capital dredging into the south side of the localised channel widening area represents direct and permanent impacts on what appears to be previously undredged locations. It is a area of high archaeological potential and the recovery of shipping debris and/or shipwreck must be anticipated.	 Archaeological monitoring licensed by the National Monument Service will be conducted of all seabed disturbances that might take place prior to construction, including site investigation, with the proviso to resolve fully any archaeological material observed at that point. Archaeological monitoring of all dredging activities and associated seabed disturbance activities conducted within the berth pockets and the localised channel widening area will be carried out, with the proviso to resolve full any material of archaeological significance observed at that point.
Monitoring Measures	Retaining an Archaeologist: An archaeologist experienced in maritime archaeology will be retained for the duration of the relevant works.
	Retaining a Heritage Architect: A heritage architect experienced in maritime and industrial heritage will be retained for the duration of the relevant works, to advise specifically in relation to works associated with the Breakwater terminus Pier Head.
	Archaeological Licences: Archaeological licences will be required to conduct the on-site archaeological works. Licence applications require the inclusion of detailed method statements, which outline the rationale for the works, and the means by which the works will be resolved.
	Archaeological Monitoring:
	 Monitoring will be carried out by suitably qualified and experienced maritime archaeological personnel licensed by the Department of Culture, Heritage and the Gaeltacht. Archaeological monitoring will be 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 observations and the retrieval of objects that may be observed and that require consideration during the course of works.
	 The monitoring will include a finds retrieval strategy that is in compliance with the requirements of the National Museum of



Potential Impact	Summary of Proposed Mitigation
	Ireland. • Time Scale:
	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.
	Discovery of Archaeological Material:
	 In the event of archaeologically significant features or material being uncovered during the construction phase, machine works 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 DPC 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 complimented in the event of a full excavation.
	Archaeological Dive Team:
	 It is recommended that an archaeological dive team is retained on standby for the duration of any in-water disturbance works on the basis of a twenty-four or forty-eight hour call-out response schedule, to deal with any archaeologically significant/potential material that is identified in the course of the seabed disturbance activities.
	A Site Office:
	 A site office and facilities will be provided by DPC on site for use by archaeologists.
	Secure Wet Storage:
	 Secure wet storage facilities will be provided on site by DPC to facilitate the temporary storage of artefacts that may be recorded during the course of the site work.
	Buoying/Fencing:
	 Buoying/fencing of any such areas of discovery will be necessary if discovered and during excavation.
	Machinery Traffic:
	Machinery traffic during construction will be restricted to avoid any



Potential Impact	Summary of Proposed Mitigation
	identified archaeological site/s and their environs.
	Spoil:
	 Spoil will not be dumped on any of the selected sites or their environs.
	Post-construction Project Report and Archive:
	It is a condition of archaeological licensing that a detailed project report is lodged with the DCHG within 12 months of completion of site works. The report 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.
Chapter 15 LANDSCAPE & VISUAL	
There are no significant landscape or visual impacts predicted for the MP2 Project.	The following measures have been incorporated within the engineering design to offset the landscape and visual impact: Integration of constructed elements with existing elements such
	as existing roads and building sites;
	Appropriate colour of fencing and structures; Lea of directional lighting.
	Use of directional lighting.
Chapter 16 POPULATION & HUMAN HI	:ALTH
Embedded mitigation measures	 Monitoring of dust, odour and noise during the construction phase will act as precursors to any health impact, thereby enabling a monitoring regime that enables intervention before any manifest adverse health outcome.
	 As part of annual reporting, DPC already monitors numbers of employees and several financial Key Performance Indicators (KPIs) (such as turnover, profit, tax contributions) to measure year-on-year progress. The continued measurement of these will ensure that financial socio-economic benefits of the MP2 Project construction phase are captured.
Chapter 17 WASTE	
Waste will be generated during the	Main Works Contractor
demolition phase of the works	 A Main Works Contractor (MWC) Environmental Co-ordinator/Waste Manager will be appointed. The MWC will ensure that demolition wastes will be collected by an appropriately licensed waste management Contractor and that all proposed management routes comply with the European waste hierarchy of prevention, preparing for

Potential Impact	Summary of Proposed Mitigation
	reuse, recycling, and recovery with disposal being the last and final option and with other legal requirements. All waste materials leaving the site will be transported and disposed or recovered through licenced operators and in accordance with national waste legislation. Demolition Survey
	• A Demolition Survey is required prior to any demolition work being undertaken. The Demolition Survey will set out all high value waste materials, such as metals, that will be removed from buildings and segregated for possible onward reuse or recycling to maximise recovery. The Demolition Survey will also include intrusive surveying with sampling which will identify the exact extent and location of any asbestos containing materials (ACMs) in the building. Removal offsite of any ACMs from the buildings to be demolished will be required prior to demolition.
	Segregation & Storage of demolition materials
	Demolition debris will be separated into five waste streams on-site:
	 Construction debris (i.e. ceramics, tiles, plasterboard),
	 Masonry materials (i.e. brick, concrete blocks)
	Metals,
	- Timber,
	 Universal waste (i.e. fluorescent bulbs, ballast and mercury containing switches).
	On-site segregation of all hazardous waste materials into appropriate categories will be undertaken:
	 Waste oils and fuels;
	 Paints, glues, adhesives and other known hazardous substances.
	• The storage and reuse of demolition or excavation wastes on site may be subject to a number of waste licensing requirements. If these wastes are to be stored on site, prior to potential reuse or recovery during construction, this activity will be subject to a Waste Management Licence Exemption with a limited tonnage of material permitted to be stored on site. Storage will take place in a secure area on-site and the Contractor will monitor the amount of waste stored to ensure that the permitted limits of the Exemption are not exceeded. DPC and its appointed Contractor will consult with the EPA prior to construction to ensure that the appropriate Waste Management Licence or Exemption is in place.
	Reuse of demolished material on-site
	In order to divert waste from landfill, possibilities for reuse of inert demolition material as fill on site will be considered, following



Potential Impact	Summary of Proposed Mitigation
	 appropriate testing to ensure materials are suitable for their proposed end purpose. Under certain circumstances and in order that uncontaminated excavated soil and stone is beneficially used on-site, DPC and its MWC may decide in accordance with the conditions of article 27 of the European Communities (Waste Directive) Regulations 2011, S.I. No. 126 of 2011 that such material is a by-product and not a waste and will notify the Environmental Protection Agency for a determination. It is proposed the following areas will be infilled using engineered fill material and suitable CDW arising from demolition works within the footprint of the development:
	 Basin of Oil Berth 4,
	 Void between the existing Oil Berth 3 and the proposed new sheet pile wall, Bridging structure in Berth 50A.
	 A waste permit will be required for the infilling of <50,000 tonnes of CDW into Oil Berth 4.
	 CDW may be subject to treatment at the site prior to recovery in Oil Berth 4. Mobile plant may be installed to crush and screen suitable CDW. The operations will be as follows:
	Loading;
	 Crushing and grinding;
	Screening;
	Unloading;
	 On-site off-site transfer of CDW;
	 Stockpiles; and
	Recovery of waste into Oil Berth 4.
	A permit for the recovery operation will be required which is subject to planning.
	 Masonry units from the 19th Century Eastern Breakwater which currently supports the Port Operations Centre are of industrial heritage importance and will be carefully removed and salvaged for relocation elsewhere on site for future heritage gain projects. The quantity of masonry units is estimated to be approximately 7,000m³.
	DPC and its appointed Contractor will consult with the EPA prior to construction to ensure that the appropriate licences, permits and exemptions are in place prior to initiation.
There is likely to be an increase in the amount of waste produced during the	The current Dublin Port Ship's Waste Management Plan (see Appendix 17 of this EIAR) underpins all waste related operations at Dublin Port.

Potential Impact	Summary of Proposed Mitigation
construction phase of the works.	DPC will continue to review and implement any required changes in the waste management plan in order to avoid and minimise the potential effects of vessel generated wastes. DPC will continue to provide adequate reception facilities and remove,
	as far as is practicable, any disincentives to landing waste in the port. DPC will continue to encourage the responsible management of waste, including minimisation and recycling, at the point of generation on ships, reception in ports/harbours, transportation and disposal, and ensure that port and harbour employees and users dispose of wastes responsibly in facilities provided.
	The Ship's Waste Management Plan will continuously evolve to effectively capture materials generated to help ensure that recyclable materials are handled and diverted accordingly. Developing a clear waste management plan that incorporates a customer-facing recycling and organics collection program will help divert materials from landfill.
	A draft MP2 Project specific Construction Waste Management Plan (CWMP) has been prepared (see Appendix 19 of this EIAR) and includes the following specific requirements:
	 Building materials will be chosen with an aim to 'design out waste'. Control measures and attention to materials quantity requirements will avoid over-ordering and generation of waste materials.
	 Agreements with materials suppliers will reduce the amount of packaging or to participate in a packaging take-back Scheme where possible.
	 A 'just in time' materials delivery system will be implemented where possible to avoid materials being stockpiled, which increases the risk of the damage and disposal as waste.
	 Waste arisings will be managed appropriately in line with the Port's waste management hierarchy in accordance with best practice in order to achieve good recycling performance and high landfill diversion.
	 Waste materials will be segregated on-site into appropriate categories. In addition to recyclable items such as paper and drinks bottles, separation of food and food contaminated packaging and consumable items for composting will be implemented, as well as the requirement for more specialist streams (for example, electrical items, hazardous materials).
	 Appropriate receptacles and recycling bins will be clearly labelled for the collection and segregation of each of these waste materials and will be provided throughout the development and open space areas, as appropriate. Wastes will be stored in these receptacles



Potential Impact	Summary of Proposed Mitigation
	in a designated, easily accessible area of the site until collection by an appropriately licensed waste management Contractor. - All waste types and amounts will be recorded and reviewed at regular intervals, to allow for continuous analysis and review of procedures that will be made to reduce waste to landfill, increase the percentage of recycling and reduce waste overall as much as possible.
	 All wastes generated will be managed in accordance with appropriate waste management legislation and policy, and will be transported and recovered / disposed of by licensed waste management Contractors. In order to ensure that these operations are carried out effectively, all staff will receive training as part of their induction to the site including: instructions on the appropriate segregation, handling, recycling and reuse methods to be employed by all parties on-site for wastes generated. Furthermore, the waste management strategy and relevant environmental procedures will be communicated to staff, Contractors and suppliers and it will be a requirement that suppliers, and Contractors promote the adoption of environmentally sound practices.
	 On-site waste management The MP2 Project design will incorporate adequate dedicated space to cater for the segregation and storage of all various waste streams within the site. This waste storage compound will allow for waste segregation, handling activities such as bailing of cardboard and plastic and sufficient waste storage. 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 staff will be provided with training regarding the waste management procedures on commencement of the project. • Construction waste materials shall be segregated on-site for recycling into the following categories: - Timber - Metal
	 Cardboard & paper Glass Rubble General waste Adequate security measures will be put in place. DPC will continue to implement its Environmental Policy and update its
	Environmental Management System for the development consistent with best practice.

Potential Impact	Summary of Proposed Mitigation
	 Duty of care in relation to correct waste authorisations Contractors working on site during the works will be responsible for the collection, control and disposal of all wastes generated by the works. DPC and its appointed MWC will ensure that waste it is handled only by a body authorised under the Waste Management Act to manage it. This duty implies, at the very least, checking to see that the required authorisation is in place, has not expired and is appropriate for the waste types that are to be handled. DPC and its appointed MWC will ensure that all waste materials leaving the site will be transported via a licensed carrier and disposed or recovered through licenced operators and in accordance with national waste legislation. Monitoring and updating of records will be implemented.
Monitoring Requirements	 All waste types and amounts generated will be recorded and reviewed at regular intervals to allow for continuous analysis and review of procedures that will be made to reduce waste to landfill, increase the percentage of recycling and reduce waste overall as much as possible. Waste storage will take place in a secure area on-site and the Contractor will monitor the amount of waste stored to ensure that permitted limits of any Exemption are not exceeded. Measures and procedures to monitor waste flows on site and update records will be clearly set out.
	An Environmental Co-ordinator/Waste Manager will be appointed who will set up and maintain a record keeping system, perform audits and establish targets for waste management on site. The Environmental Co-ordinator/Waste Manager will also implement best practice methods for segregation and storage of recyclable materials, and for reuse of appropriate materials on-site in accordance with the MP2 Project's CWMP.
	The Environmental Co-ordinator/Waste Manager will be responsible for organising and delivering a waste training programme to staff on site. This will provide basic awareness for all staff of the CWMP and the requirement to segregate waste at source. Training may be incorporated with other training needs (e.g. general site induction, safety training etc.). This basic course will describe the materials to be segregated, the storage methods and the location of waste storage areas. A subsection on hazardous wastes will be incorporated and the particular dangers of each hazardous waste will be explained.
	A system will be put in place to record the waste arising on site during demolition and construction phases, and all waste material that leaves the site. The Environmental Co-ordinator/Waste Manager will record the following:



Potential Impact	Summary of Proposed Mitigation
	Waste taken off-site for reuse
	Waste taken off-site for recovery
	Waste taken off-site for recycling
	Waste taken off-site for disposal
	For each movement of waste off-site a signed waste collection docket will be obtained by the Environmental Co-ordinator/Waste Manager from the Contractor. This will be carried out for each material type. This system will also be linked with the delivery records. A signed waste acceptance docket will be issued for each movement of waste on-site. Periodic audits will ensure completeness of records and compliance with the established system.
	Each material type will be examined in order to see where the largest percentage waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how waste can be minimized.
	The Environmental Co-ordinator/Waste Manager will be responsible for conducting a waste audit at the site during the construction phase of the development. A review of all records for waste generated and transported off-site, will be undertaken mid-way through the construction phase.
	Upon completion of the construction phase a final report will be prepared summarising the outcomes of waste management processes adopted and the total recycling / reuse / recovery figures for the development.
	Waste arising from wash down facility
	Solid waste in the form of sediments will arise from the wheel wash unit settlement tank. The unit will be inspected regularly (for example, to check automated features are working and settlement content) and emptied in accordance with manufacturer's instructions. The solid residues will be analysed and the disposal route appropriately selected based on the results of this analysis. A gully emptier tanker will be used to remove settlement tank waste which will be disposed of at an approved waste disposal site.
	Fuels and hydraulic oils/lubricants
	Contractors will ensure all plant is inspected and serviced in accordance with its schedule. A bunded disposal area will be provided. Contractors will provide staff training on the waste management strategy. Disposal/recovery under licence.



2. Implementation of Construction Phase Mitigation Measures

DPC intends to appoint a Contractor(s) to undertake each phase of the works. The mitigation measures set out in the EIAR have been incorporated into a Draft Construction Environmental Management Plan (CEMP) for the MP2 Project which forms part of the MP2 Project planning application (under separate cover). The draft CEMP sets out the **minimum requirements** which will be adhered to during the construction phase of the MP2 Project.

The Draft 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 for the ABR Project which includes representatives of DPC, the Contractor, Dublin City Council (DCC) and The Department of Housing, Planning and Local Government (DHPLG) Foreshore Unit. 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 MP2 Project.

DPC will appoint a suitably qualified person to the role of Environmental Facilities Manager (Environmental Clerk of Works) to monitor the MP2 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.

A suite of draft Construction Environmental Management Plans have been prepared for the construction phase of the MP2 Project and are presented in the Draft CEMP and in Appendix 19 of the EIAR. These draft Construction Environmental Management Plans will be finalised 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. In addition, regular audits of the CEMP will be undertaken during the construction phase of the works by the Environmental Facilities Manager.

A summary of the Construction Environmental Management Plans is presented in Table 2. A summary of the Environmental Monitoring Programmes is presented in Table 3.



Table 2 Summary of the Construction 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	Quarterly 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	Quarterly 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	Collection, control and disposal of all wastes to be recorded	Yes	During Construction	Quarterly Reports	Report submitted to Planning Authority	Yes	Complaints Procedure
Noise Management Plan	Yes	Compliance with NRA Guidelines and BS5229:2009	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
Dust and Odour Management Plan	Yes	Compliance with EPA and BRE Guidelines	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, installation of SAM system	Preconstruction, during construction and for 2 years after works completion	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and NPWS	Yes	Close liaison required with NPWS





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
Birds and Marine Ecology Management Plan	Yes	Adherence to piling and dredging mitigation measures	Specialist surveys required	Preconstruction, during construction and for 2 years after works completion	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and NPWS	Yes	Existing Black Guillemot nest boxes to be removed and replaced at specific time of year.
Archaeology and Cultural Heritage Management Plan	Yes	Compliance with DCHG Guidelines	Monitoring to be undertaken by heritage engineer or architect and marine archaeologist	During Construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and DCHG	Yes	Appropriate Licences required from DCHG
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 Management Plan	Yes	Adherence to mitigation measures and compliance with Dumping at Sea Permit and Foreshore Licence	Yes	During Construction	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and EPA	Yes	Complaints Procedure
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.



Table 3 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	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		Bird Specialist	Annually (year ending March) by 31st July each year.
	Census of Common and Arctic Terns nesting in Dublin Port	Annually in period 10 June to 15 July	Permanent Structures and Pontoons in Dublin Port	Number of apparently occupied nests (egg clutches or flush count).	2 / Boat Support	Moderate weather and sea conditions.		Bird Specialist	Annually (year ending March) by 31st July each year.
	Winter Wetland Birds	Monthly from October 1 to March 31 during each year of the project	Intertidal areas between Dún Laoghaire West Pier and Bull Wall.	Bird Flocks - species and approx. numbers.		Low tide ± 2 hours. Daylight. Good weather conditions.		Bird Specialist	Annually (year ending March) by 31st July each year.
MARINE MAMMALS	Marine Mammal Observation in exclusion zones	For piling, dredging, dumping and demolition operations within the foreshore	Within 500m of dredging / dumping operations. Within 1000m of piling operations.	Presence of marine mammals	1 to 3 as required	Suitable vantage point. Accommodation on dredging vessels.	Presence of marine mammal in exclusion zone.	Marine Mammal Observer	NPWS MMO Location and Effort Forms
	Continuous Static Acoustic Monitoring	Ongoing data logging at four stations (to be confirmed)	4 locations in Dublin Bay	Echolocation clicks of dolphins and porpoises				Marine Mammal Ecologist	



Monitoring Programme	Monitoring Element	Frequency of Monitoring	Location	Parameters Measured	Surveyors / Support	Sampling Constraints	Action Threshold	Monitoring and Reporting	Report / Frequency
	Seal Haul Out Sites Dublin Bay	Monthly	North Bull Island and adjacent areas. Dublin Bay within zones of influence.	Species. Maturity Stage. Behaviour.	Coordinate with NPWS surveys	Low water ± 2 hours.		Marine Mammal Ecologist	
MARINE BENTHOS	Benthic Grab and Video Surveys	Before and after capital dredging programme	Dublin Bay	Benthic Communities Biomass of major Phyla Granulometry Organic Matter Content	Boat Support	Good weather, sea and visibility conditions		Fisheries Specialist	
	Beam Trawl Surveys	Before and after capital dredging programme	Dublin Bay	Fish Communities - Species rank / size ranges					
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, Turbidity, Temperature, Salinity, pH				Environmental Facilities Manager	
ATMOSPHERIC NOISE AND DUST	Dust Deposition	Continuous over project duration	Poolbeg Marina; Clontarf	Dust deposition using Bergerhoff Dust Deposition Gauges				Environmental Facilities Manager	
	Noise Levels	Continuous for duration of Project	Poolbeg Marina; Clontarf	L_{Aeq}				Environmental Facilities Manager	Weekly to Contractor/DPC Annual AER
UNDERWATER NOISE	Underwater Noise Levels	Validation surveys	4 locations Inner Liffey Channel		Boat Support			Underwater Noise Specialist	Survey required at commencement of Piling
ARCHAEOLOGY		An Archaeologist and Heritage Architect will be	Capital Dredging, Landside works including Pier	Ground Disturbance Demolition of Pier Head Dredging				Archaeology Specialist	Monthly Reporting



MP2 PROJECT

DUBLIN PORT COMPANY

SUMMARY OF MITIGATION MEASURES

Monitoring Programme	Monitoring Element	Frequency of Monitoring	Location	Parameters Measured	Surveyors / Support	Sampling Constraints	Action Threshold	Monitoring and Reporting	Report / Frequency
		retained for the	Head						
		duration of the							
		works							
	Management of							Main Works	
	waste streams	Continuous for						Contractor (MWC)	Weekly to
WASTE	arising during	Continuous for duration of Project		All Waste Streams				Environmental Co-	Contractor/DPC
	the construction	duration of Project							Contractor/DPC
	works							ordinator	



3. Operational Phase Mitigation Measures

The existing land uses within the footprint of the MP2 Project comprise the manoeuvring and berthing of vessels, the handling of Ro-Ro and Lo-Lo cargo, HGV traffic distributing cargo to and from Dublin Port and the movement of ferry passengers arriving and departing to/from Dublin Port.

The MP2 Project is designed to provide port infrastructure which will improve the efficiency of port operations and thereby increase the throughput of both cargo and passengers.

The future land uses within the footprint of the MP2 Project will therefore not significantly change and consequently operational mitigation measures are largely based on the following:

- Integration of the new port infrastructure with existing operational plans and procedures;
- Integration with port-wide monitoring programmes to establish environmental trends in order to support future initiatives to enhance the environment or take corrective action, if required;
- Integration of the new port infrastructure with future port-wide initiatives such as the development of an over-arching Climate Change Adaptation Plan and Heritage Plan for the Great South Wall;
- Integration with the strategic objectives of the Dublin Port Masterplan 2040, reviewed 2018.

Table 4 summarises the operational phase mitigation measures recommended within the EIAR. All mitigation measures proposed within the NIS have been captured by the EIAR.

Table 4 Mitigation measures recommended within the EIAR

Potential Impact	Summary of Proposed Operational Mitigation				
Chapter 6 RISKS OF MAJOR ACCIDENTS	S & DISASTERS				
Potential for loss of life or injury to Natural Events.	MP2 Project does not introduce any new risks that could cause or exacerbate a major accident, nor is it considered that the MP2 Project will significantly alter the risks presented to existing COMAH				
Potential for damage to the environment.	establishments during normal Port operations.				
Potential for damage to the facilities, plant and equipment of DPC, its commercial partners, tenant companies and neighbours.	The MP2 Project will operate under Dublin Port's existing Emergency Response Plan.				

Chapter 7 BIODIVERSITY, FLORA & FAUNA

No regulated invasive plant species listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended, were identified on site during baseline habitat surveys of the site in 2018 and 2019. Nevertheless, a precautionary approach will be DPC has committed to formulating an Invasive Alien Species (IAS) Management Plan for the entire port area. The Plan will outline containment and eradication measures to be implemented if any IAS are identified.

The plan will include prevention measures which will range from raising awareness of IAS and the potential for their dispersal, to ensuring best practice in relation to the movement of materials into,



Potential Impact	Summary of Proposed Operational Mitigation
taken to prevent the importation and spread of Invasive Alien Species.	within or out of the operations area.
Potential risk of injury or disturbance to non-breeding waterbirds birds in the area of the MP2 Project during operation.	The following precautionary measures will be undertaken to minimise the risk of injury or disturbance to non-breeding waterbirds in the area of operations: • Gates will be operated at the site of the Greenway to control the movement of people during periods of extreme low spring tides when feeding grounds become available in the vicinity of Berth 53, in order to avoid disturbance.
	DPC will continue to support a monitoring programme of winter wetland birds in the adjacent European designated site of the South Dublin Bay and River Tolka Estuary Special Protection Area for a minimum period of two years post MP2 Project construction works. The monitoring programme will comprise monthly surveys each winter season from October to March.
Potential impact of future maintenance dredging works on marine ecology including fisheries and marine mammals.	DPC need to carry out regular maintenance dredging of the navigation channel, basins and berthing pockets in order to maintain their advertised charted depths and hence provide safe navigation for vessels to and from the Port. When the MP2 Project capital dredging campaign is completed, the MP2 Project dredged areas will be incorporated into Dublin Port's maintenance dredging plan which will be subject to a Foreshore Licence and Dumping at Sea Permit.
	Maintenance dredging will be subject to the implementation of a comprehensive suite of mitigation measures to minimise impact on marine ecology including fisheries and marine mammals. These measures include:
	Loading will be carried out by a backhoe dredger or trailing suction hopper dredger (TSHD). The TSHD's pumps will be switched off while the drag head is being lifted and returned to the bottom as the dredger turns between successive lines of dredging to minimise the risk of fish entrainment.
	Full time monitoring of Marine Mammals within 500m of loading and dumping 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).
Potential opportunities for Fisheries Enhancement	DPC are committed to working with Inland Fisheries Ireland and 3rd level academic institutions to explore fisheries enhancement measures within the framework of the MP2 Project area, concentrating in particular in optimising biodiversity and fisheries



Potential Impact	Summary of Proposed Operational Mitigation
	biomass associated with new harbour structures.
Chapter 8 SOILS, GEOLOGY, HYDROGE	OLOGY
	No specific operational phase mitigation measures with regard to soils, geology and hydrogeology are required.
Chapter 9 WATER QUALITY, and FLOOD	RISK
Potential impact of future maintenance dredging works on Water Quality	DPC will continue to implement comprehensive mitigation measures during all maintenance dredging campaigns to mitigate against potential impacts to Water Quality. These measures include: Loading will be carried out by a backhoe dredger or trailing suction hopper dredger (TSHD).
	No over-spilling from the vessel will be permitted while the dredging activity is being carried out within the inner Liffey Channel.
	The dredger's hopper will be filled to a maximum of 4,100 cubic metres (including entrained water), while dredging silts within the inner Liffey Channel, to control suspended solids released at the dumping site. This is equivalent to a maximum quantity per trip of 2,030 tonnes (wet weight).
	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 and dumping tracks and record of the material being dumped will be maintained for each trip.
	Dumping will be carried out through the vessel's hull.
	The dredger will work on one half of the channel at a time within the inner Liffey channel to prevent the formation of a silt curtain across the River Liffey.
	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.
Potential impacts of the general operation of the MP2 Project on Water Quality.	The operational phase of the MP2 Project will be subject to Dublin Port's existing Environmental Management System (EMS) which is accredited to ISO 14001 standard and the Port Environmental Review System (PERS) which has gained Dublin Port designation as an 'Ecoport' at European level. The EMS will be updated to include all new port infrastructure



Summary of Proposed Operational Mitigation
constructed as part of the MP2 Project, including surface water drainage. The EMS is supported by a comprehensive suite of Standard
Operating Procedures (SOP) providing mitigation of all environmental aspects identified and mechanisms to ensure effective implementation.
SOPs have been prepared for oil and chemical spill responses, mineral oil handling, waste handling, monitoring and maintenance of surface water interceptors and handling of drain cleaning waste. Controls are in place for transport, handling and storage of hazardous materials, ship cargo, dry bulk material, surface water runoff, fuelling and bunkering of vessels and ship discharges. Site audits promote best practice and ensure compliance with the EMS requirements.
Mitigation of road traffic emissions are mainly achieved through EU legislation driven improvements in fuel and engine technology resulting is a gradually reducing emissions per vehicle profile. The collection of EU Directives, known as the Auto Oil Programme, have outlined improved emission criteria which manufacturers are required to achieve from vehicles produced in the past and in future years. DPC is currently developing an initiative with the haulier companies operating in the port to provide the necessary Compressed Natural Gas (CNG) fuelling infrastructure across the port to facilitate the future trend for HGVs to change fuel from diesel to CNG.
A number of EU Directives and the requirements of the Marpol Convention regulate the fuels and emissions employed in the shipping industry. These requirements will remain in practice throughout the operation of the MP2 Project and may be replaced with more stringent emission limits. In addition to the international mitigation implemented by Marpol, DPC has proposed port specific mitigation with a view to reducing emissions while vessels are berthed at the port. DPC propose to provide shore to ship power (SSP) on berths 52 and 53 for vessels at these berths. This will facilitate powering of the berthed vessels by the national grid which will allow the vessel to turn off their main and auxiliary engines for the duration of berthing. This reduces



Potential Impact	Summary of Proposed Operational Mitigation
Potential impacts of Climate Change.	DPC has committed to formulating a Climate Change Adaptation Plan that is cognisant of the DTTAS plan and the Sectoral Planning Guidelines for Climate Change Adaption published by the Department of Communications, Climate Action & Environment. The Adaptation plan will be reviewed in line with the Climate Action and Low Carbon Development Act 2015. This will ensure that an iterative approach to adaptation planning is informed by the latest scientific evidence thus enabling DPC to modify or escalate adaptation actions as appropriate.
Chapter 11 NOISE & VIBRATION	
Operational noise as a result of the MP2 Project	Noise levels during the operation phase of the MP2 Project are not expected to change the noise levels in any measurable way. No mitigation measures are therefore required for the operational phase.
Potential future noise impact from vessel movements during the night-time period	In order to ensure that there is no increase in noise impact from changes to vessel movements during the night-time period, DPC will implement a Noise Management Plan in relation to the ongoing management of noise issues associated with changes to Port activities. This plan will include the following elements as a minimum: • the provision for noise management to be included as a key consideration for all significant changes made to Port operations by senior management within Dublin Port; • the prior assessment of potential noise impacts associated with any alteration to Port activities that may be likely to result in a significant noise impact at the nearest noise sensitive properties; • a range of procedures to mitigate noise during the night-time period, including measures to control tonal/impulsive noise sources (e.g. foghorn, tannoy announcements etc.) before 07:00 hours.
Potential future underwater noise impact from vessels entering and leaving the port	Dublin Bay is subject to commercial traffic from Dublin Port, Dun Laoghaire, Howth and leisure traffic from marinas around the bay. In order to monitor Dublin Port traffic related noise it is proposed to install a hydrophone at the eastern end of the port linked to a vessel identification system. Monitoring will provide information on background (absence of shipping) and ambient (shipping noise included) noise levels and link noise events to specific vessels. This approach ensures that particularly noisy vessels can be identified and appropriate measures outlined in the IMO (2014) guidelines



Potential Impact	Summary of Proposed Operational Mitigation
	taken to control noise emissions from those vessels.
Chapter 12 COASTAL PROCESSES	
Potential impact of future maintenance dredging works on Coastal Processes	Maintenance dredging is an ongoing requirement in Dublin Port. Maintenance dredging is subject to a Foreshore Licence and Dumping at Sea Permit. These licences prescribe strict environmental protection measures to minimise the potential impacts of maintenance dredging on the environment. No other specific operational phase mitigation measures with regard to coastal processes are required.
Chapter 13 TRAFFIC & TRANSPORT	
Mobility Management Plan & Smarter Travel	An outline Mobility Management Plan (oMMP) has been appended to Chapter 19 of the EIAR. The oMMP sets out the type of measures which will progressed by DPC, in liaison with the operator(s), to ensure that the sustainable transport facilities are made available and are utilised by the users of the MP2 Project. It is envisaged that the MMP for the operators within the UFT and the Lo-Lo operator (currently DFT) will, in the fullness of time, fall under the hierarchy of the Port wide Transport/Travel Plan as the Masterplan continues to be implemented over the next 21 years.
Requirement for a high quality public transport	DPC is prepared to provide finance, of up to €100,000 for a period
service between the MP2 Project and the sustainable transport services located at the perimeter of the Dublin Port Estate	of 5 years (€500,000 total) towards the provision of a shuttle service linking the MP2 Project to sustainable transport services located at the perimeter of the Dublin Port Estate.
Chapter 14 CULTURAL HERITAGE (including Industrial & Archaeological)	
Potential Impact of future developments on the Great South Wall.	The design of MP2 Project has ensured that the integrity and stability of the Great South Wall will be maintained and therefore no impacts are predicted. DPC is committed to developing an overarching Heritage Plan for the Great South Wall.
Chapter 15 LANDSCAPE & VISUAL	
Potential impact of future developments on the Landscape	No specific operational phase mitigation measures with regard to Landscape & Visual are required.



Potential Impact

Summary of Proposed Operational Mitigation

Chapter 16 POPULATION & HUMAN HEALTH

Dublin Port will contribute a significant Community Gain that will have a positive impact on Population and Human Health. DPC's Community Gain proposal comprises the following two elements:

DPC will provide a maximum contribution of €1,000,000 towards the provision and operation of a City Farm on lands owned by Dublin City Council adjacent to the port – either in Fairview Park or on Alfie Byrne Road. These lands will be of sufficient scale to support a viable City Farm Project. The provision of this new community asset has the potential to positively influence population and health by providing social benefits and contributing to community cohesion.

DPC will also allocate a sum of €1,000,000 to be invested for the enhancement and support of education provision for St Joseph's Co-Educational Primary School, East Wall, in accordance with a scheme to be developed with local schools and key stakeholders

Chapter 17 WASTE

Operational Phase Waste Management Plan

The current *Dublin Port Ship's Waste Management Plan* (WMP) underpins all waste related operations at Dublin Port. DPC will continue to review and implement any required changes in the waste management plan in order to avoid and minimise the potential effects of vessel generated wastes once the MP2 Project is operational.

DPC will continue to provide adequate reception facilities and remove, as far as is practicable, any disincentives to landing waste in the port. DPC will continue to encourage the responsible management of waste, including minimisation and recycling, at the point of generation on ships, reception in ports/harbours, transportation and disposal, and ensure that port and harbour employees and users dispose of wastes responsibly in facilities provided.

The WMP will continuously evolve to effectively capture materials generated to help ensure that recyclable materials are handled and diverted accordingly. Developing a clear WMP that incorporates a customer-facing recycling and organics collection program will help divert most materials from landfill.

On-Site Waste Management

The MP2 Project design incorporates adequate dedicated space to cater for the segregation and storage of all various waste streams at the Terminal 1 building. The bin storage area will allow for waste segregation, handling activities such as bailing of cardboard and plastic and sufficient waste storage. All staff will be provided with training regarding the waste management procedures.



Potential Impact	Summary of Proposed Operational Mitigation
Environmental Management System	DPC will continue to implement its Environmental Policy and update its Environmental Management System for the development consistent with best practice.