3FMProject

Bringing
Dublin Port
To 2040

Summary of Mitigation Measures

COMHLACHT CHALAFORT ÁTHA CLIATH
DUBLIN PORT COMPANY

RPS
A TETRA TECH COMPANY

Third & Final
Masterplan
Project

SUMMARY OF MITIGATION MEASURES

Contents

SUMMARY OF MITIGATION MEASURES

DPC seeks to achieve the highest possible standards of environmental management during both the construction and operational phases of the 3FM Project. A summary of all proposed mitigation measures and monitoring requirements proposed within the Environmental Impact Assessment Report (EIAR) are contained in this Report.

1. Construction Phase Mitigation Measures

This EIAR assesses the likely significant effects of the 3FM Project on the environment arising from the construction of the 3FM 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. This includes the incorporation of a range of mitigation measures into the design of permanent works including noise barriers; the provision of Interpretative markers to delineate the alignment of the Great South Wall (GSW); active travel routes; and other community, biodiversity and heritage gain elements.

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 3FM Project.

Table 1 summarises the mitigation measures and monitoring programmes recommended within the EIAR during the construction phase of the 3FM Project. All mitigation measures proposed within the Natura Impact Statement (NIS) have been included in this EIAR. The development of the mitigation measures has greatly benefitted from the experience gained from monitoring the effectiveness of similar mitigation measures during the construction of the ABR Project since 2016 and more recently the ongoing construction of the MP2 Project since 2022.

Table 1 Construction Phase Mitigation measures and monitoring

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.	The design of the 3FM 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 NORA (and other COMAH) establishments. Based on this conservative assessment, it is considered that the final design layout of the 3FM Project would satisfy the HSA's criteria under its land use planning guidelines. The 3FM Project will therefore not increase the risk of major accidents and disasters. To remain vigilant, DPC has developed a comprehensive Emergency Management Plan that caters for the range of accident and emergency events
Potential for damage to the environment.	
Potential for damage to the facilities, plant and equipment of DPC, its commercial partners, tenant companies and neighbours.	

Potential Impact	Summary of Proposed Mitigation
	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 hazard. DPC's Emergency Management Plan competencies are continuously enhanced through participation in training and exercises at different levels.
Chapter 7 BIODIVERSITY, FLORA & FAUNA	
Japanese Knotweed, a regulated invasive plant species listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended, has been recorded at locations on the Poolbeg peninsula in, or adjacent to Dublin Port lands. Two other regulated invasive plant species have been detected, Sea Buckthorn and 3-cornered leek. A precautionary approach will be undertaken to prevent the importation and spread of Invasive Alien Species.	DPC has developed an Invasive Alien Plant Species Management Plan (2019) for all the port estate. In addition, a project specific 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 the Draft CEMP. 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 when 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, plant and personnel 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;

Potential Impact	Summary of Proposed Mitigation
	• 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 for the identification of the most likely species to be encountered prepared by the initial IAS assessment; • Notification of any suspected new occurrences of IAS to the Environmental Facilities Manager. • Compliance with the Sea Pollution (Ballast Water Management Convention) Regulations 2023 to control non-native aquatic species. 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.
An artificial badger sett enclosure is <3m from the site boundary. The nearest sett entrance is c. 8m from the site boundary. Increased activity during the construction (fence removal, landscaping etc.) may cause increased disturbance to badgers using the artificial sett.	An Ecological Exclusion Zone (EEZ) will be set up to ensure no disturbance to the artificial badger sett at Irishtown Nature Park prior to commencement of pre-site clearance and construction works. Temporary hi-visibility fencing will be erected 25 m from the sett. No vehicles, storage or stockpiling of materials will be allowed within the EEZ. This disturbance will be temporary. When the works are complete, and the new grassland habitat is vacated, there will be benefits for badger i.e., the provision of wider protective grassland buffering, as well as screening (boundary tree planting alongside the new Area O – Ro-Ro Terminal).

Potential Impact	Summary of Proposed Mitigation
Precautionary measures will be undertaken to minimise the risk of injury or disturbance to birds in the area of operations.	DPC has developed a Black Guillemot Management Plan 2023-2030, and a Tern Colony Management Plan 2023-2030 to secure the conservation objectives for Black Guillemot and Tern species in Dublin Port. A project specific Bird Management Plan will be implemented for the duration of the proposed construction works. A draft Birds & Marine Ecology Management Plan is presented in the Draft CEMP. 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: • The 3FM Project Black Guillemot Management Plan shall be implemented in full. • Where known Black Guillemot nesting sites are likely to be unavailable to birds in the following season due to 3FM Project construction works, they will be blocked in advance over the winter preceding the breeding season to prevent access and nest boxes will be deployed in the immediate vicinity. • A programme to monitor Black Guillemots in Dublin Port shall be undertaken. This monitoring programme shall continue throughout the construction phase and for a period of two years after the completion of the works, with surveys during the breeding season from March to May. The results of this monitoring programme shall be submitted to the planning authority at 12-monthly intervals to maintain a public record. • The 3FM Project Tern Colony Management Plan shall be implemented in full. • A programme to monitor the existing Tern colonies and proposed additional Tern Colony under the 3FM Project shall be undertaken. This monitoring programme shall continue throughout the construction phase and for a period of two years after the completion of the works, with surveys undertaken within the period from April to September, under licence from NPWS. The results of this monitoring programme shall be submitted to the planning authority at 12-monthly intervals to maintain a public record. • No pre-construction site clearance or removal of vegetation in terrestrial areas shall take place during the bird breeding season (1st March – 31st August). • Planting in the shelterbelt south of Area O shall include use of native species that maximise the foraging and nesting opportunities for passerines using the area.

Potential Impact	Summary of Proposed Mitigation
	• No rock breaking shall take place during demolition of the Sludge Jetty within 75m of tern sub-colonies at CDL or ESB Platform during May and June. • No piling shall take place within 75m of tern sub-colonies at CDL or ESB Platform during May and June. • All Capital Dredging shall take place during the winter months (October – March). An additional benefit from this mitigation measure is that Terns will have migrated from Dublin Port during the periods of capital dredging. • There is evidence that Sand Martin nest in crevasses in the harbour wall of Pigeon House Harbour to the east of the Sludge Jetty. There were however no Sand Martins recorded during surveys undertaken in 2024. The 3FM Project has been designed to avoid any direct impact on the length of harbour wall where Sand Martins have previously nested. Construction works proposed in the vicinity of the Harbour Wall will be planned to minimise disturbance during the bird breeding season. <u>Monitoring</u> • 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 3FM Project and for a period of two years after the completion of such works. The results of this monitoring programme will be submitted to the planning authority at 12-monthly intervals to maintain a public record. • DPC will also continue to undertake a programme to monitor winter wetland birds in a subset of the adjacent European Sites of the South Dublin Bay and River Tolka Estuary Special Protection Area. This programme shall include the Tolka Estuary and the maritime area adjacent to the Great South Wall in the Lower Liffey Estuary. 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 the planning authority at 12-monthly intervals to maintain a public record. • A programme to monitor the Sand Martin colony at the entrance to Pigeon House Harbour shall be undertaken. Site visits between April and August will monitor activity to estimate apparently occupied nests. The results of this monitoring programme shall be submitted to the planning authority at 12-monthly intervals to maintain a public record.

Potential Impact	Summary of Proposed Mitigation
Precautionary measures will be undertaken to minimise the risk of injury or disturbance to marine ecology and fisheries in the area of operations.	A Birds and Marine Ecology Management Plan will be implemented for the duration of the proposed construction works, presented in the Draft CEMP. A Dredging Management Plan will also be implemented for the duration of the proposed construction works, presented in the Draft CEMP. The following key mitigation measures shall apply to Capital Dredging 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. This includes all proposed capital dredging required for the 3FM Project; • 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; • A schedule of no-dredging windows has been prepared and will apply to specified locations in the navigation channel. The capital 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. In addition, upstream of Berth 49 the no-dredging period will be extended to include the period from 15th March to 31st March. • A trailing suction hopper dredger (TSHD) or back-hoe dredger will be used for the capital dredging works. When operating in the River 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. The following key mitigation measures shall apply to impact piling activities to minimise the impact of the proposed works on fisheries: • No impact piling for construction activities for the SPAR Bridge, SPAR Viaduct, the Maritime Village and Ro-Ro Terminal will take place during March to May inclusive, the three months of the year when vulnerable smolts are likely to run in their highest numbers. • Due to the greatly reduced number of adult salmon returning in recent years, down to circa 250 individual salmon, an additional no-piling window will apply to July and August for impact piling at the Ro-Ro Terminal. • The July-August closed period for piling also applies to impact piling at the Turning Circle boundary wall and temporary works piling.

Potential Impact	Summary of Proposed Mitigation
	• The July-August closed period for piling also applies to the Lo-Lo Terminal (Area N outer piles and dolphins).
Precautionary measures will be undertaken to minimise the risk of injury or disturbance to marine mammals in the area of operations	A Marine Mammals Management Plan will be implemented for the duration of the proposed construction works, presented in the Draft. 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) Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (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-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 including dredging & piling plant 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 ramp-up 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. • Once normal dredging operations commence there is no requirement to halt or discontinue the activity at night-time, nor if weather or

Potential Impact	Summary of Proposed Mitigation
	visibility conditions deteriorate, nor if marine mammals occur within a radial distance of the sound source that is 500m for dredging and demolition works. Notwithstanding this, MMOs will implement additional best-practice mitigation where feasible by directing operations to areas where marine mammals are absent, or requesting delays to activities to provide animals an opportunity to disperse. • Any approach by marine mammals into the immediate (<50m) works area will be reported to the National Parks and Wildlife Service. • Non-piling windows, and implementation of piling controls when marine mammals occur in specified monitoring zones have been set for impact piling. • Piling is restricted to 0700h and 1900h (Monday to Friday), 0800h to 1300h (Saturday) and no piling will take place on Sundays or Bank Holidays. Therefore, during piling periods, active piling operations will only occur for a maximum of about 38% of that period, allowing extensive unimpeded use of the harbour area by marine mammals throughout project construction. • An extended monitoring zone will be implemented for harbour porpoise during piling at Area N and Area K. This zone will include all areas within the Bull Walls, and no piling will be permitted if harbour porpoise are present in this area during a pre-watch. A minimum of two MMOs are required to effectively monitor this extended zone. • The MMO will keep a record of the monitoring and log all relevant events using standardised data forms available from NPWS and submit to the NPWS on completion of the works. • In line with international best 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 FPODS 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 and MP2 Project environmental monitoring programmes. • The deployment of a Passive Acoustic Monitoring (PAM) system at North Bank Light in the inner Liffey channel will continue for the duration of the

Potential Impact	Summary of Proposed Mitigation
	construction phase. The PAM system uses a hydrophone to detect the presence of marine mammals in real time.
Chapter 8 Land, SOILS, GEOLOGY, HYDROGEOLOGY	
The potential risk to construction workers from contaminants during the earthworks is low with the exception of identified asbestos fibres at identified locations.	The risk to construction workers via the inhalation of asbestos fibres during earth works / ground disturbance shall be mitigated through the appropriate use of PPE / RPE.
There is potential for ground gas within Area O which was formally a landfill site operated by DCC.	A venting system is recommended in order to allow a steady release of ground gases during the construction phase. This will mitigate the risk of off-site ground gas migration. The type and specifications for the venting system will be determined at detailed design stage of the project. The construction phase will include the installation of ground gas protection measures within buildings in Area O. To achieve the appropriate level of protection, consideration has been given to BS8485:2015+A1:2019 'Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings'.
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, presented in the Draft CEMP. The following precautionary measures shall 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 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.

Potential Impact	Summary of Proposed Mitigation
	• 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 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 Draft CEMP).
Capital Dredging and Spoil Disposal	A Dredging Management Plan will be implemented for the capital dredging proposed as part of the 3FM Project. The mitigation for dredging operations in the 3FM 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 3FM Project: • Loading will be carried out by a back-hoe dredger or trailing suction hopper dredger (TSHD). • The capital dredging activity 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. • No over-spilling from the vessel will be permitted while the dredging activity is being carried out within the inner Liffey Channel. • The TSHD 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. • The dredger's hopper will be filled to a maximum of 4,100 cubic metres (including entrained water) to control suspended solids released at the dumping site. This is equivalent to a maximum quantity per trip of 2,030 tonnes (wet weight). • 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 Impact	Summary of Proposed Mitigation
	• 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.
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 shall 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; 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 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	The following precautionary measures shall be undertaken to minimise the risk of impacting on water quality within the receiving environment: • The risk of water quality impacts associated with works machinery, infrastructure and on-land operations (for example

Potential Impact	Summary of Proposed Mitigation
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.	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 GPP26 “Safe storage – drums and intermediate bulk containers” shall 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”.
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 3FM Project. It is proposed to maintain the four water quality monitoring stations already in position for the ABR Project and MP2 Project. The specification is based on 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 undertaken by the ABR Project to define the relationship between Turbidity and suspended solids,

Potential Impact	Summary of Proposed Mitigation
	• A data acquisition and transfer system is being used to enable the transmission of high resolution data at approximately 15 minute intervals. • Trigger levels that will prompt investigation are proposed for Dissolved Oxygen and Peak Suspended Solids based on Turbidity records in the Water Quality Management Plan (see Draft CEMP). • 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 3FM 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 3FM Project. • The data collected is also being shared with research organisations (e.g. Dublin City University, Maynooth University and University College Cork).
Chapter 10 AIR QUALITY	
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 & Odour Management 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 Draft CEMP). The following precautionary measures shall be undertaken to minimise the potential nuisance caused by dust at the nearest sensitive receptors and on sensitive ecosystems: • Site roads will be regularly cleaned and maintained as appropriate. Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will 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

Potential Impact	Summary of Proposed Mitigation
	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; • Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary; • Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind; • Water misting, or sprays will 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 are kept to a minimum; • Monthly monitoring of dust deposition levels will be undertaken for the duration of construction for comparison with the guideline of 350mg/m^2/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 be reviewed as part of a Dust Minimisation Plan.
The potential exists for odour generation and nuisance to occur during the construction phase.	A draft Dust & Odour Management Plan has been prepared and follows the guidance presented in the Environment Agency of England and Wales “Odour Management Guidance” (H4 Guidance, 2011) (see Draft CEMP). 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 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.
CHAPTER 11 CLIMATE	

Potential Impact	Summary of Proposed Mitigation
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.	It is proposed to develop a Project Carbon Management Plan (PCMP) for the project. This PCMP will be aligned with the principles of PAS2080:2023 – a global standard for managing whole-life (embodied and operational) carbon in the built environment and infrastructure. The development of the carbon life cycle assessment presented in the EIAR is the first phase of the PCMP and this plan will be formally developed at detailed design stage by the design team to facilitate handover to the Contractor for construction stage as a contractual obligation for a cap on the levels of embodied and operational carbon. Post construction the PCMP will be handed back to DPC to facilitate the operational management of carbon for the project. The PCMP will minimise the carbon footprint of the construction phase through requiring low emission plant; reducing embodied carbon by specifying low-carbon concrete mixes when possible; re-using/re-cycling material; limiting use of carbon-intensive materials; incorporating sustainable design principles; implementing efficient energy management systems and identifying energy saving opportunities; promoting use of carbon-neutral biofuels and renewable energy if possible. Embodied carbon in the materials employed in the construction phase dominate the climate impact and to mitigate these impacts, sustainable material choices have been made during the engineering design to reduce embodied carbon from the construction of the proposed development by 30%. The construction stage of the Project therefore complies with existing policy requirements and, in particular, the target in Chapter 13 of CAP24, which sets a target to decrease embodied carbon in construction materials produced and used in Ireland by at least 30% by 2030. The mitigation in the proposed development achieves this target in reducing the total embodied carbon in the construction materials for the 3FM Project by 30%. DPC will revisit this mix during detailed design to achieve greater embodied reductions where possible based on industry practices and innovative materials available at the time of construction. 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: • The use of non-concrete assets shall be optimised in the design, e.g. gravel footpaths, grassed drains etc. to minimise the need for concrete. • All aggregates required for pavement materials 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

Potential Impact	Summary of Proposed Mitigation
	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. • Sustainable timber post fencing will be specified over steel in boundary treatments where possible. • 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, the Contractor shall prepare a Mobility Management Plan for site staff.
Chapter 12 NOISE & VIBRATION	
There is the potential for noise impacts associated with the construction phase of the proposed development at the nearest sensitive receptors in the absence of mitigation.	A Noise & Vibration Management Plan (NVMP) will be implemented for the duration of the proposed construction works. A draft NVMP is presented in the Draft CEMP. This document will be reviewed and updated throughout the construction phase. A temporary 4m noise barrier will be installed between the construction works and the nearest properties at Pigeon House Road and the Coastguard Cottages throughout the duration of construction works in this area. This will ensure that the relevant BS5228 noise threshold limits will not be exceeded at these 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 shall 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,

Potential Impact	Summary of Proposed Mitigation
	• 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 noise emissions from plant including exhausts or engines will be 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 the potential for vibration impacts associated with the construction phase of the proposed development at the nearest noise sensitive receptors and sites of cultural heritage significance in the absence of mitigation.	Vibration monitoring will be undertaken throughout the construction phase where vibration generating activities have the potential to generate significant vibration impacts at the nearest sensitive properties. Chapter 16 Cultural Heritage provides details and the management plans that will be in place to control construction activities in close proximity to sites of cultural significance. As part of these management plans, vibration monitoring will be undertaken at these sites where there is potential for vibration-generating activities to impact upon these sites.
There is potential for underwater noise as a result of piling activities in the absence of mitigation.	The use of vibratory piles for a substantial portion of the piling requirements will reduce the amount of impact driving and underwater noise generation. 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. Seasonal constraints on pile driving will be implemented through mandatory non-piling windows for specific construction activities. Non-piling windows vary from two to five months in duration. All piling, dredging and demolition works will be undertaken in accordance with NPWS Guidance (2014) at set out under Chapter 7 Biodiversity, Flora and Fauna.

Potential Impact	Summary of Proposed Mitigation
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 (DCC). 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 key elements of the 3FM Project subject to approval of DCC. Noise monitoring stations are also currently in operation at East Wall Road, and at Clontarf, representative of nearest sensitive noise receptors to the north and west of the 3FM Project site. It is proposed that these two monitoring stations will be maintained for the duration of the 3FM Project construction phase. An additional noise monitoring station is proposed towards Sandymount, sited to be representative of nearest sensitive noise receptors to the south of the 3FM 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 & Vibration Management Plan. This will also include any liaison requirement with DCC 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, DCC 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 DCC 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

Potential Impact	Summary of Proposed Mitigation
	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 and in the Liffey channel for the ABR and MP2 Projects. 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 locations upriver and downstream of the works in the navigation channel. Monitoring will be carried out within two months following commencement of the piling activity.
Chapter 13 MATERIAL ASSETS - COASTAL PROCESSES	
Potential influence of proposed structures upon coastal processes could have negative environmental impacts.	Modelling of tidal currents and the movement of sediments has informed the final open piled design of the proposed Lo-Lo Terminal at Area N and bridge / viaduct spans to mitigate any impact on riverine and coastal environments, nearby European sites, and existing structures including the Great South Wall. This mitigation by design has reduced the potential impact of the 3FM Project on coastal processes to an imperceptible level.
Chapter 14 MATERIAL ASSETS - TRAFFIC & TRANSPORTATION	
Construction traffic during the construction phase of the 3FM Project will be offset by the phased closure of existing operations as the construction sequence progresses to refunction Port lands.	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 the Draft CEMP. The following mitigation measures shall be applied: • Adhering to the Dublin City Council HGV Management Strategy; • A pre-defined haulage route will be agreed with DCC to avoid construction traffic through sensitive road networks at critical times; • 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. • 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

Potential Impact	Summary of Proposed Mitigation
	labour to reduce transport emissions. To implement this, the Contractor shall prepare a Mobility Management Plan for site staff
Chapter 15 MATERIAL ASSETS - SERVICES	
The 3FM Project has the potential to impact on existing and proposed utilities within the Poolbeg Peninsula and in the vicinity of proposed roadworks within the North Port Estate.	The 3FM Project has been designed to avoid any significant impact on existing and proposed utilities. The utilities include: • NORA facilities at Ringsend and Poolbeg, • Uisce Éireann Ringsend Waste Water Treatment Plant; • Encyclis Waste to Energy Plant; • ESB Power Generation; • ESB Power Supply Networks; • Proposed Codling Wind Park Onshore Substation; and • Proposed Dublin City Council District Heating Scheme. No mitigation measures are therefore required.
The 3FM Project requires services - Water Supply, Wastewater and Electricity Supply.	Water Supply - The appraisal has shown that, subject to agreement with Uisce Éireann via the Pre-Connection Enquiry system, the level of demand associated with the 3FM Project will be more than capable of being supplied by the existing Uisce Éireann infrastructure within the subject area. Waste Water - The appraisal has shown that, subject to agreement with Uisce Éireann via the Pre-Connection Enquiry system, the level of demand associated with the 3FM Project will be more than capable of being supplied by the existing Uisce Éireann infrastructure within the subject area. Electricity Supply - The appraisal has shown that the current electricity supply to the port is sufficient to meet the existing demands of the Dublin Port Estate. However short-term issues have been identified in ESB Power Networks ability to cater for project demands in the area, not just for Dublin Port but for all other local customers. DPC intend to liaise closely with ESB to ensure the 3FM Project's Electrical Load Requirements are met in line with the operational timeframes envisaged for the 3FM Project. This will be greatly assisted by the proximity of the 3FM Project to a major hub of electricity generation. The required level of capacity will be met by feeding the proposed sub-stations from the existing network, with MV cables uprated locally where required.

Potential Impact	Summary of Proposed Mitigation
Chapter 16 CULTURAL HERITAGE (including Industrial & Archaeological)	
There is a need for an overarching Archaeology and Cultural Heritage Management Plan to be implemented during the construction phase	DPC has developed a Dublin Port Heritage Conservation Strategy in relation to heritage issues throughout the port estate and this shall apply to the 3FM Project. A project specific Archaeology and Cultural Heritage Management Plan will be implemented for the duration of the proposed construction works, presented in the Draft CEMP. Notification obligations relating to underwater archaeological heritage pursuant to Part 5 of the Historic and Archaeological Heritage Act 2023 will be adhered to.
Ground disturbance activities have the potential to expose elements of the Great South Wall.	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. Laser scan surveys of the Pigeon House Harbour area and the Great South Wall have been undertaken to record these structures in advance of any construction works.
The extension of capital dredging into the south side of the localised channel widening area and ship turning circle represents direct and permanent impacts on what appears to be previously un-dredged locations. It is an 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 Great South Wall. 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. Monitoring will be carried out by suitably qualified and experienced maritime archaeological personnel licensed by the Department of Culture, Heritage and

Potential Impact	Summary of Proposed Mitigation
	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 Ireland. Any appropriate archaeological discoveries shall be notified to the Minister pursuant to section 139 of the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023. 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. 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. 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. 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. 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 and facilities will be provided by DPC on site for use by archaeologists. 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 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.

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	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 17 LANDSCAPE & VISUAL	
Due to distance and the broad scale of the landscape within which the works are located, the change in landscape and visual resource will be negligible and, therefore, the significance of landscape and visual effects during the construction stage will be minor adverse. No significant visual effects are therefore predicted at the construction stage.	Landscape mitigation measures are those taken to help remedy, reduce or compensate for significant landscape and visual impacts created by the development. No significant landscape or visual impacts are predicted for the 3FM Project during the construction phase. There is therefore no requirement for specific landscape mitigation measures to address significant impacts.
Chapter 18 POPULATION & HUMAN HEALTH	
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 3FM Project construction phase are captured.
Chapter 19 WASTE	
Waste materials will be generated during the demolition and site clearance phase of the works	<u>Main Works Contractor</u> • A Main Works Contractor (MWC) will be appointed. DPC and its appointed MWC will ensure that demolition wastes will be collected by an appropriately licensed waste management Contractor and that all management routes comply with the European Union waste hierarchy of prevention, preparing for 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.

Potential Impact	Summary of Proposed Mitigation
	Demolition Survey • The demolition works will be constructed in a phased manor. A Demolition Survey is required prior to any demolition work commencing in order to facilitate and maximise recovery of resources from demolition for beneficial reuse and recycling. 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. As per the best practice guidelines[1] this will be informed by EU Guidelines for the waste audits before demolition and renovation works of buildings (May 2018). A number of asbestos surveys have been undertaken as summarised in Chapter 19 of the EIAR. Any asbestos present in the buildings required to be demolished shall be removed offsite 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. Wastes will be covered where required and stored in stockpiles, dedicated skips or secure containers for hazardous materials. Signage will be required to ensure waste is sorted into the appropriate categories on-site. Appropriate measures to prevent environmental impacts such as run-off, will be implemented as needed. 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

[1] https://www.epa.ie/publications/circular-economy/resources/CDWasteGuidelines.pdf

Potential Impact	Summary of Proposed Mitigation
	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. <u>Reuse of demolished material on-site</u> In order to divert waste from being reuse/recycled off site or landfilled, possibilities for reuse of inert demolition material as fill on site will be considered, following appropriate testing to ensure materials are suitable for their proposed end purpose. If suitable engineered fill material or suitable CDW arising material is identified in the construction phase/sequencing then this material will be used as infill. Suitable CDW arising material will be used in the following construction activities: • It is proposed to raise the ground level of the Maritime Village site by an average in excess of 1.5m which will require an estimated 30,200m^3 of imported fill material or suitable engineered fill material/suitable CDW arisings. • Turning Circle (north-east corner of Masterplan Area M) 26,500m^3 • Area 0 32,250m^3 • Area L 6,900 m^3 The existing surfacing, concrete and underlying gravel infill at Area K will be removed or reused if suitable. This will be reviewed on an ongoing basis. DPC and its appointed MWC will consult with the EPA prior to construction to ensure that the appropriate licences, permits and exemptions are in place prior to initiation, for example, crushing concrete on site will require a waste facility permit. The existing 100 berth floating marina, and the dedicated rowing pontoons at the Maritime Village site will also be removed together with their anchor block mooring systems and access walkways. Where possible elements will be reused in the proposed new facilities. Under section 3(1) of the Waste Management Act 1996, as amended the requirements do not apply to the following materials, which hence are not considered 'waste'[2]: • Land (in-situ) including unexcavated contaminated soil and buildings permanently connected with land – relates to land and buildings prior to any construction or demolition where material remains untouched. Once it has been excavated or otherwise removed, the material may

[2] Best practice for the preparation of resource & waste management plans for construction & demolition projects EPA 2021

Potential Impact	Summary of Proposed Mitigation
	enter into the control regime set down by the Waste Management Acts. • Uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated. In addition, the following provisions within the European Union (Waste Directive) Regulations 2011–2020 allow for the classification of resources out of the waste regime as follows: • Article 27 allows for the notification of a material as a by-product rather than a waste where certain criteria can be demonstrated by the legal person (i.e. further use is certain, no need for further processing, produced as part of a process and further use is lawful). Article 28 sets out the grounds by which a material, which is recovered or recycled from waste, can be deemed to be no longer a waste and complies with a set of end-of-waste criteria (substance/ object to be used for specific purposes, a market or demand exists, fulfils technical requirements and no overall adverse impact to human health or the environment).
There is likely to be an increase in the amount of waste produced during the construction phase of the works.	<u>Duty of Care in relation to correct waste authorisations</u> 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 is handled only by a body authorised under the Waste Management Acts as amended 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. <u>On-site waste management</u> Project design will incorporate adequate dedicated space for a Waste Storage Area(s) to cater for the segregation and storage of all various waste streams during construction. This waste storage compound will be fully enclosed within the development and will allow for waste sorting, segregation, handling activities such as bailing of cardboard and plastic and sufficient waste storage. Site compounds are identified in Chapter 5 of this EIAR. Separate compounds will be used for different phases of the works. Each compound is located in or immediately adjacent to the relevant works phase, such as to cause minimal interference to general port operations. Wastes will be covered where required and stored in stockpiles, dedicated skips or other suitable receptacles and secure containers for hazardous materials. Signage will be required to ensure

Potential Impact	Summary of Proposed Mitigation
	waste is sorted into the appropriate categories on-site. Appropriate measures to prevent environmental impacts such as run-off, will be implemented as needed. 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. The Contractor will ensure adequate security measures are put in place. Segregation of Materials Construction waste materials shall be sorted and segregated on-site for recycling into appropriate categories on-site, for example: • Wood/Timber • Metals • Cardboard & paper • Glass • Plastics • Rubble • General waste 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 appropriate testing to ensure materials are suitable for their proposed end purpose. Currently there is no proposed areas to be infilled using engineered fill material and suitable CDW arising from demolition works within the footprint of the development. However this will be reviewed on an ongoing basis. DPC and its appointed MWC will consult with the EPA prior to construction to ensure that the appropriate licences, permits and exemptions are in place prior to initiation. Under section 3(1) of the Waste Management Act 1996, as amended the requirements do not apply to the following materials, which hence are not considered 'waste'[3]: • Land (in-situ) including unexcavated contaminated soil and buildings permanently connected with land – relates to land and buildings prior to any construction or demolition where material remains untouched. Once it has been excavated or otherwise removed, the material may enter into the control regime set down by the Waste Management Acts. • Uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain

[3] Best practice for the preparation of resource & waste management plans for construction & demolition projects EPA 2021

Potential Impact	Summary of Proposed Mitigation
	that the material will be used for the purposes of construction in its natural state on the site from which it was excavated. In addition the following provisions within the European Union (Waste Directive) Regulations 2011–2020 allow for the classification of resources out of the waste regime as follows: • Article 27 allows for the notification of a material as a by-product rather than a waste where certain criteria can be demonstrated by the legal person (i.e. further use is certain, no need for further processing, produced as part of a process and further use is lawful). Article 28 sets out the grounds by which a material, which is recovered or recycled from waste, can be deemed to be no longer a waste and complies with a set of end-of-waste criteria (substance/ object to be used for specific purposes, a market or demand exists, fulfils technical requirements and no overall adverse impact to human health or the environment). <u>Construction Waste Management Plan (CWMP)</u> Construction waste will be managed as part of the CWMP contained in the CEMP, which will be implemented by the appointed Contractor for the duration of the construction works. As demonstrated in the draft CEMP, the CEMP will contain procedures for the management of waste and related pollution control measures. The CEMP will be a live document and will be subject to revision throughout the course of the construction phase but will contain all measures outlined in the draft CEMP appended to the EIAR. Specific waste management requirements include: • Identify how the waste will be dealt with (i.e. disposal, re-use on/off site etc.). • Building materials should be chosen with an aim to 'design out waste.' • Identify potential end markets e.g. reuse, recycling facilities, waste treatment facilities and disposal sites. • All waste leaving site will be recycled, recovered or reused where possible, with the exception of those waste streams for which appropriate facilities are currently not available. • On-site segregation of non-hazardous waste materials into appropriate categories, where possible, including any excavated soils, concrete, bricks, tiles, ceramics and plasterboard, metals and timber. • On-site segregation of all hazardous waste materials into appropriate categories including contaminated soils, waste oil and fuels and paints, glues, adhesives and other known hazardous substances.

Potential Impact	Summary of Proposed Mitigation
	• Control measures and attention to materials quantity requirements to avoid over-ordering and generation of waste materials. • Agreements with materials suppliers to reduce the amount of packaging or to participate in a packaging take-back Scheme. • Implement a 'just in time' materials delivery systems to avoid materials being stockpiled, which increases the risk of the damage and disposal as waste. • Segregation of waste at source where practical. • 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. • Measures to ensure appropriate staff training and levels of awareness in relation to waste management. • Waste streams will be collected by an appropriately licensed and permitted private waste Contractor, appointed by the Contractor for recycling, recovery or disposal at suitably licensed facilities. • Provide a method to calculate the difference between expected waste quantities prior to commencement of the project and actual waste quantities after the project is complete. • The appointed Contractors for the site preparation, piling, earthworks and construction phases of the works will be contractually obliged to follow the CEMP and all relevant legislation. <u>Project Resource and Waste Management Plan (RWMP)</u> A Project RWMP will be prepared in accordance with 'BEST PRACTICE GUIDELINES for the preparation of resource & waste management plans for construction & demolition projects.' A preliminary draft plan has been incorporated into the CEMP to ensure effective waste management and recycling of waste generated during the works. The Plan will be implemented from the outset of the project and throughout the duration of the project taking into consideration the waste management hierarchy to encourage sustainable development, environmental protection and optimum use of resources. The appointed Contractors for the site preparation, earthworks and construction phases of the works will be contractually obliged to follow the Project RWMP and all relevant legislation. <u>Waste Arising from Wash Down Facility</u> Solid waste in the form of sediments will arise from the wheel wash unit settlement tank. The unit will be inspected daily (for example, to check automated features are working and settlement content) and emptied in

Potential Impact	Summary of Proposed Mitigation
	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. <u>Fuels and hydraulic oils/lubricants</u> 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.
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 appointed Contractor will monitor the amount of waste stored to ensure that the permitted limits of any exemption are not exceeded. The CEMP will set out measures and procedures to monitor waste flows on site and update records. The appointed Contractor will be required to appoint a Resource Manager (RM) throughout the construction stage of the proposed development. The RM will be trained in how to set up and maintain a record keeping system, how to perform, audit and how to establish targets for waste management on site. They will also be trained in the best method for sorting, segregation and storage of recyclable materials, have information on the materials that can be reused on-site and implement the Project C&D Waste Management Training of staff on site will be coordinated by the RM and as such, a waste training programme will be organised. A basic awareness course will be held for all Contractor site personnel to outline the RWMP and to detail the sorting and segregation of waste at source. This may be incorporated with other training needs (e.g. general site induction, safety training etc.). This basic course will describe the materials to be sorted and 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. Records will be kept for each waste material which leaves the site, whether for reuse on another site, recovery, recycling or disposal. A system will be put in place to record the waste arising on site during demolition and construction phases. The RM will have responsibility to maintain and record the following:

Potential Impact	Summary of Proposed Mitigation
	• List of up-to-date authorised waste collection permit NWCPO numbers and destination facilities permit/waste licence/PPC numbers being used • Provide when required letter on headed paper signed by relevant competent person from the destination facilities confirming acceptance of the material and tonnages agree specifically referencing the site • Waste Classification undertaken were required (Laboratory testing and Haz Waste Online results) • 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 RM from the licensed waste 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. The RM will ensure that the waste docket used are specific to the authorised waste collector that collected the waste. If waste movements are not accounted for, the reasons for this should be established in order to see if and why the record keeping system has not been maintained. 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 appointed RM will be responsible for conducting a waste audit at the site during the C&D phase of the development. A review of all records for waste generated and transported off-site, should be undertaken mid-way through the C&D phase. Upon completion of the C&D phase a final report will be prepared summarising the outcomes of waste management processes adopted and the total recycling / reuse / recovery figures for the proposed development.

Mitigation by avoidance has also been used, where possible. A summary of the Closed Periods identified by the mitigation measures are set out below:

1.1 Capital Dredging

Mitigation by avoidance includes restricting capital dredging to the winter seasons (October to March) to avoid disturbance of nesting terns. The proposed capital dredging Closed Periods are set out in Figure 1.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All Capital Dredging												
Upstream of Berth 49 includes the period 15th to 31st March												

Figure 1 Capital Dredging Closed Periods (denoted by orange coloured cells)

1.2 Piling Activity

Riverside impact piling activity is also restricted to avoid disturbance of migrating salmon. The proposed Closed Periods for riverside impact piling are set out in Figure 2.

- The period March to May represents the peak smolt run (river to sea)
- The period July to August represents the peak adult salmon return (sea to river).

Vibratory piling is allowable during these periods.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SPAR bridge												
SPAR Viaduct												
Marina (pontoon piles)												
Area K Berth 45												
Area K Ro-Ro ramp locating piles												
Turning circle and temporary works piling												
Area N outer piles x 5 rigs												
Area N inner piles x 5 rigs												
Oil Terminal Dolphin												

Figure 2 Impact Piling Closed Periods (denoted by orange coloured cells)

Impact piling activity within 75m of Dublin Port's tern colonies is also restricted to avoid disturbance. The proposed closed periods for impact piling proximate to the tern colonies are set out in Figure 3. These closed periods coincide with the restrictions for salmon impacts mitigation at Area K and Area N.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Impact Piling within 75m of the Tern Colonies												

Figure 3 Impact Piling Closed Periods within 75m of Dublin Port's Tern Colonies (denoted by orange coloured cells)

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 3FM Project which forms part of the 3FM 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 3FM 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 and MP2 Project which includes representatives of DPC, the Contractor, Dublin City Council (DCC) and MARA. 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 3FM Project.

DPC will appoint a suitably qualified person to the role of Environmental Facilities Manager (Environmental Clerk of Works) to monitor the 3FM 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 has been prepared for the construction phase of the 3FM Project and are presented in the Draft CEMP and summarised in Table 2. These draft Construction Environmental Management Plans will be finalised as required prior to the commencement of construction 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 suite of monitoring programmes has also been prepared for the construction phase of the of the 3FM Project and are presented in the Draft CEMP and summarized in Table 3.

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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	Compliance with the Waste Framework directive (2008/98/EC)	Yes	During Construction	Monthly Reports, input to 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	Monthly Reports, input to Annual Environmental Report	Report submitted to Planning Authority and EPA	Yes	Complaints Procedure
Noise & Vibration 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 and Odour 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, 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
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	Implementation of DPC's Black Guillemot and Tern Management Plans.
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

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
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 dredging mitigation measures	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.
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

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
Badger Sett Ecological Exclusion Zone (EEZ)	**Visual checks to ensure the EEZ remains in place and functional**	Monthly during construction	Irishtown Nature Park	EEZ / fencing integrity	1 person	None	N/A	Terrestrial Ecologist	Monthly during monitoring period
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	N/A	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.	N/A	Bird Specialist under licence from NPWS	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 within inner Liffey channel including Tolka Estuary	Bird Flocks - species and approx. numbers.	2 to 3 as required	Low tide ± 2 hours. Daylight. Good weather conditions.	N/A	Bird Specialist	Annually (year ending March) by 31st July each year.
	Sand Martins	Annually in period April to August. Two surveys to be carried out on two separate dates.	Pigeon House Precinct and environs	Number of apparently occupied nest sites.	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.

Monitoring Programme	Monitoring Element	Frequency of Monitoring	Location	Parameters Measured	Surveyors / Support	Sampling Constraints	Action Threshold	Monitoring and Reporting	Report / Frequency
MARINE MAMMALS	**Marine Mammal Observation in exclusion zones**	For piling, dredging and demolition operations within the foreshore	Within 500m of dredging / demolition operations. Within 1000m of piling operations. Within the Bull Walls for Harbour Porpoise during piling.	Presence of marine mammals	1 to 3 as required	Suitable vantage point./ on dredging vessels.	Presence of marine mammal in exclusion zone.	Marine Mammal Observer	NPWS MMO Location and Effort Forms
	Continuous Static Acoustic Monitoring (SAM)	Ongoing logging using F-PODS at four stations	4 locations Dublin Bay/Lower Liffey	Echolocation clicks of dolphins and porpoises	F-PODs to be retrieved every 3-4 months	F-PODs to be positioned on seabed using acoustic releases	N/A	Marine Mammal Ecologist	Annually (year ending March) by 31st July each year.
	Continuous Passive Acoustic Monitoring (PAM)	Ongoing logging using hydrophone at one station	North Bank Light, inner Liffey channel	Echolocation clicks of dolphins and porpoises	PAM system to be serviced annually	N/A	Presence/ Absence	Marine Mammal Ecologist	Annually (year ending March) by 31st July each year
	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.	N/A	Marine Mammal Ecologist	Annually (year ending March) by 31st July each year.
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.

Monitoring Programme	Monitoring Element	Frequency of Monitoring	Location	Parameters Measured	Surveyors / Support	Sampling Constraints	Action Threshold	Monitoring and Reporting	Report / Frequency
ATMOSPHERIC NOISE AND DUST	**Dust Deposition**	Continuous over project duration	3 locations: • Poolbeg Marina; • East Wall • Towards Sandymount	Dust deposition using Bergerhoff Dust Deposition Gauges	Deposition jars to be replaced monthly	N/A	350mg/m^2/d	Environmental Facilities Manager	Monthly Synoptic and Annually (year ending March) by 31st July each year.
	Noise Levels	Continuous for duration of Project	4 locations: • Poolbeg Marina; • Clontarf; • East Wall • Towards Sandymount	Equivalent Continuous Sound Pressure Level (Laeq)	Yearly calibration of noise meters	N/A	65 dBA 65 dBA 70 dBA 65 dBA	Environmental Facilities Manager	Weekly to Contractor/DPC Annual AER
UNDERWATER NOISE	**Underwater Noise Levels**	Validation surveys	4 locations Inner Liffey Channel	dB SEL to monitor TTS -Temporary hearing impact	Boat Support	N/A	140 dB SEL Porpoise, 170 dB SEL Seals 150 dB SEL Fish	Underwater Noise Specialist	Survey required during piling operations within 2 months after commencement
GROUND GAS & GROUNDWATER LEVEL MONITORING	**Gas Monitoring using in-situ telemetry enabled ground gas monitoring device.** **Groundwater level monitoring using in-situ continuous**	Continuous monitoring of ground gas and groundwater level to commence prior to ground improvement works, during works, and for a further 2 weeks following the completion of ground	Area O (at former landfill site)	CH_4 CO_2, O_2, CO, H_2S, LEL, Flow, atmospheric pressure	N/A	N/A	Notable change in ground gas levels as a result of ground improvment works.	Contaminated Land Specialist	Weekly data report and trend interpetation. Final Report following the completion of monitoring programme.

Monitoring Programme	Monitoring Element	Frequency of Monitoring	Location	Parameters Measured	Surveyors / Support	Sampling Constraints	Action Threshold	Monitoring and Reporting	Report / Frequency
	groundwater level loggers.	improvement works.							
ARCHAEOLOGY	**Interaction with GSW and other protected structures. Restoration works. Monitoring for potential new finds**	Continuous for duration of Project	Capital Dredging, Landside works	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

3. Operational Phase Mitigation Measures

The existing land uses within the footprint of the 3FM Project comprise the manoeuvring and berthing of vessels, the handling of Ro-Ro, Lo-Lo and Bulk cargo; HGV traffic distributing cargo to and from Dublin Port and other activities on relatively short-term leases including site compounds and concrete mixing plant.

The 3FM Project is designed to provide port infrastructure which will improve the efficiency of port operations and increase the throughput of Ro-Ro and Lo-Lo cargo.

The future land uses within the footprint of the 3FM 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 included in this EIAR

Table 4 Operational Phase Mitigation measures recommended within the EIAR

Potential Impact	Summary of Proposed Operational Mitigation
Chapter 6 RISKS OF MAJOR ACCIDENTS & DISASTERS	
Potential for loss of life or injury to Natural Events.	The 3FM Project does not introduce any new risks that could cause or exacerbate a major accident, nor is it considered that the 3FM Project will significantly alter the risks presented to existing COMAH establishments during normal Port operations. The 3FM Project will operate under Dublin Port's existing Emergency Response Plan.
Potential for damage to the environment.	
Potential for damage to the facilities, plant and equipment of DPC, its commercial partners, tenant companies and neighbours.	
Chapter 7 BIODIVERSITY, FLORA & FAUNA	
Japanese Knotweed, a regulated invasive plant species listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended, has been recorded at locations on the Poolbeg peninsula in, or adjacent to Dublin Port lands. Two other invasive species have been detected, Sea Buckthorn and 3-cornered leek.	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

Potential Impact	Summary of Proposed Operational Mitigation
	ensuring best practice in relation to the movement of materials into, within or out of the operations area.
Bats Unsuitable / obtrusive lighting could discourage foraging and/or commuting activity along the coastal path connecting Sean Moore Park and the new Port Park. Similarly, unsuitable / obtrusive lighting used to light the sports pitch within Port Park could discourage foraging and/or commuting along adjacent new treelines or across the wider new wildflower meadow.	New lighting along the upgraded path connecting Sean Moore Park and the new Port Park & Wildflower Meadow will be in accordance with the Institution of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light (ILP, 2021) and Bats and Artificial Lighting in the UK (ILP, 2023). Within the new Port Park, lighting is proposed around the sports pitch. Lighting is designed here to minimise light spill by using LED floodlights that have a very low upward light output ratio and will also be fitted with back reflectors to cut off the low throwback to reduce light pollution to areas adjacent the pitch. LED luminaires will be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability. Column heights will minimise light spill and glare visibility. Luminaires will be mounted horizontally, with no light output above 90° and/or no upward tilt (ILP, 2023).
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 3FM Project capital dredging campaign is completed, the 3FM Project dredged areas will be incorporated into Dublin Port's maintenance dredging plan which will be subject to a Maritime Area Consent 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 back-hoe 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 third level academic institutions to explore fisheries enhancement measures within the framework of the 3FM Project area,

Potential Impact	Summary of Proposed Operational Mitigation
	concentrating in particular in optimising biodiversity and fisheries biomass associated with new harbour structures.
Long-term Monitoring of marine mammals and shipping noise	DPC will continue to operate a Passive Acoustic Monitoring (PAM) system at the North Bank Light to monitor underwater noise trends as a result of shipping and to monitor the usage of the inner Liffey channel by porpoise and dolphin.
Chapter 8 LAND, SOILS, GEOLOGY, HYDROGEOLOGY	
	No specific operational phase mitigation measures with regard to land, 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 back-hoe 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. • 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 3FM Project on Water Quality.	The operational phase of the 3FM Project will be subject to Dublin Port's existing Environmental Management System (EMS) which is

Potential Impact	Summary of Proposed Operational Mitigation
	accredited to 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 constructed as part of the 3FM 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.
Chapter 10 AIR QUALITY	
Potential impact of increase road traffic on Air Quality & Climate.	Mitigation of road traffic emissions are mainly achieved through EU legislation driven improvements in fuel and engine technology resulting in 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 has developed 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.
Potential impact on future shipping emissions on Air Quality & Climate.	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 3FM 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) at the proposed Ro-Ro Terminal (Area K) and the proposed Lo-Lo Terminal (Area N). 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

Potential Impact	Summary of Proposed Operational Mitigation
	of berthing. This reduces direct emissions from the ships while in port and at the closest point to the sensitive human receptors in the area.
Chapter 11 CLIMATE	
Potential impacts of Climate Change.	It is proposed to develop a Project Carbon Management Plan (PCMP) for the project. This PCMP will be aligned with the principles of PAS2080:2023 – a global standard for managing whole-life (embodied and operational) carbon in the built environment and infrastructure. The development of the carbon life cycle assessment presented the EIAR is the first phase of the PCMP and this plan will be formally developed at detailed design stage by the design team to facilitate handover to the Contractor for construction stage as a contractual obligation for a cap on the levels of embodied and operational carbon. **Post construction the PCMP will be handed back to DPC to facilitate the operational management of carbon for the project.**
Chapter 12 NOISE & VIBRATION	
There is potential for operational phase noise impacts associated with the 3FM Project at the nearest noise sensitive properties in the absence of mitigation measures.	Two 4m noise barriers are proposed to separate the proposed SPAR and Area K from the nearest noise sensitive properties at Pigeon House Road and the Coastguard Cottages. In addition to this, a low noise road surface is proposed for the SPAR. The port will acquire electrified plant/equipment for the operations of the 3FM Project where these are available. There has been significant improvement on a global level in the area of port plant electrification, including the application of automation and sensors for reducing noise associated with stacking activity. On the basis of the significant improvement in reducing noise from such activity that has taken place in recent years, it would be anticipated that there will be further improvements in reducing noise from port-related plant and vehicles in the years between now and when the proposed 3FM Project will be operational in 2040. Such improvements in port-related plant/vehicles are over and above anything assumed or incorporated into the noise impact assessment for the 3FM Project.
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 & Vibration 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;

Potential Impact	Summary of Proposed Operational Mitigation
	• 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 shipping traffic from Dublin Port, Dun Laoghaire, Howth and leisure traffic from marinas around the bay. DPC will monitor Dublin Port shipping traffic related underwater noise using the PAM system located at North Bank Light. 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 taken to control noise emissions from those vessels.
Chapter 13 MATERIAL ASSETS - 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 Maritime Area Consent (MAC) 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 14 MATERIAL ASSETS - TRAFFIC & TRANSPORTATION	
Mobility Management Plan & Smarter Travel	An outline Mobility Management Plan (oMMP) has been appended to Chapter 14 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 3FM Project.

Potential Impact	Summary of Proposed Operational Mitigation
Chapter 15 - MATERIAL ASSETS - SERVICES	
Securing a robust Electricity Supply in preparation of shore to ship power coming on-line.	DPC will secure a robust electricity supply to meet the electrical load requirements in preparation of shore to ship power coming on-line. DPC will work closely with ESB to quantify the electrical load capacity of the overall port lands (North and South of the Liffey) with a view to compiling a masterplan to deliver the electrical load requirements in the medium and long term. The 3FM Project electrical load requirements will form a key element of this masterplan. The masterplan will take account of the energy efficiencies being achieved by DPC.
Chapter 16 CULTURAL HERITAGE (including Industrial & Archaeological)	
Potential Impact of future developments on the Great South Wall.	There will be no significant residual impact on the cultural heritage resource, as a result of the Operational Phase of the 3FM Project. Archaeological surveying by competent and experienced maritime archaeologists licensed by DHLGH of Pigeon House harbour walls in the vicinity of the turning circle is recommended at the following intervals: 1. Within 12 months of operation 2. After six years of operation in order to confirm that the engineering design modelling predicting no significant impact is consistent with the actual condition of the walls.
Chapter 17 LANDSCAPE & VISUAL	
Potential impact of future developments on the Landscape	The design evolution of the 3FM Project has been undertaken to enable incorporation of the following built-in design measures: • Integration of constructed elements with existing elements such as existing roads and buildings; • Appropriate colour of fencing and structures to reflect existing the port character; and Directional lighting.y

Potential Impact	Summary of Proposed Operational Mitigation
Chapter 18 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.
Chapter 19 WASTE	
Dublin Port Waste Reception and Handling Plan	The current Dublin Port Waste Reception and Handling Plan 2023 underpins all waste related operations at Dublin Port. "*The purpose of this plan is to ensure that the needs of potential users and waste regulators are taken into account when planning and operating port waste reception facilities; to ensure that all mariners are aware of the requirement to transfer ashore their ship waste at every port they visit the location, cost and procedures for using the facilities and in Dublin Port. Also, it is a means of informing the ships masters and their agents/terminal operators regarding the legislative requirements and the consultation arrangements by the port for the future development of adequate facilities within the port.*" Ship waste is classified as the waste delivered by ships calling at ports[4]. The purpose of the Plan is to ensure that: • The needs of potential users and waste regulators are considered when planning and operating port waste reception facilities; • To ensure that all mariners are aware of the requirement to transfer ashore their ship waste at every port they visit; • Outline the location of the costs and procedures for using the waste reception facilities in Dublin Port; • There is a means of informing the ships masters and their agents/terminal operators regarding the legislative requirements;

[4] Dublin Port Company Environmental Report 2023

Potential Impact	Summary of Proposed Operational Mitigation
	• Outline the Port's consultation arrangements for the future development of adequate facilities within the port. Port waste concerns the waste generated by port-based activities. DPC is responsible for the management of a wide range of wastes arising at Dublin Port. Waste from DPC operational activities is collected and managed by a licensed waste Contractor. Paper, cardboard, plastic bottles, aluminium cans and compostable are separated from mixed municipal waste (MMW) and recycled. Timber, metal and waste electrical and electronic equipment (WEEE) are also separated for recycling.
On-Site Waste Management	The 3FM Project design incorporates adequate dedicated space to cater for the segregation and storage of all various waste streams within the terminal building. This 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. Waste from operational activities will collected and managed by a licensed waste Contractor.
Environmental Management System	DPC will continue to implement its Environmental Policy and update its Environmental Management System for the development consistent with best practice. DPC is committed to achieving high standards of environmental management. This is reflected in the company's commitment to its ESPO's EcoPorts Ports Environmental Review System (PERS). It is DPC Environmental Policy to set clear environmental objectives and targets and to regularly monitor progress against them. The following has been set in relation to waste management. **Objective :** Increase DPC's Waste Management Performance **Target :** Maintain DPC's waste recycling rate with a constant aim of 100% recycling Ensure all waste arisings from capital projects monitored and annual statistics are submitted.