Contents

15. SCHEDULE OF ENVIRONMENTAL MITIGATION MEASURES

15.1 Introduction

This revised Schedule of Environmental Mitigation has been prepared as part of the Request for Further information (RFI) required by Fingal County Council. The revised schedule includes all of the mitigations as scheduled in the original Chapter 15 Schedule of Environmental Mitigations of the EIAR for the proposed Howth Harbour FHC Dredging Project. This revised Schedule of Mitigations differs by including the following mitigations that have been added as part of the EIAR review requested by the RFI;

- Physical interventions into and removal of historic fabric associated with the original pier construction should be kept to a minimum in order to preserve the integrity of the structure, with physical repairs only carried out in order to prolong the life of the pier.
- Care should be taken when transporting heavy building materials to avoid damage to the existing building fabric of the pier and the historic buildings situated on it. Protective measures should be put in place in areas which might be vulnerable to damage.
- Monthly dust monitoring at four locations as shown in the **RFI response report, Appendix 4 Dust Impact Assessment, Figure 1** for the duration of the construction works. The TA Luft threshold guideline value of 350mg/m2/day will apply.
- If the TA Luft guideline value is exceeded the dust source will be identified and specific mitigation measures applied to the source. Mitigation measures to be considered if the TA Luft is exceeded will include additional damping down, hoarding and a wheel wash.

Where unavoidable environmental effects have been identified, measures have been proposed to mitigate against these effects as much as reasonably possible.

The schedule sets out the implementation programme of all mitigation measures contained within the EIAR and the EIAR review. The recommended mitigation measures and predicted impacts are comprehensively detailed in the relevant chapters of the EIAR and summarised in **Table 15.1** below.

15.2 Format of the Mitigation Schedule

The mitigation schedule on the following pages is structured in accordance with the following project phases:

- Pre-construction
- During construction
- Operational phase

The mitigation schedule is presented in table format which, for each of the above-mentioned project phases, outlines the environmental aspect or resource for which mitigation is required, the required or proposed mitigation measure, and outlines any residual impacts where relevant.

Table 15.1 Programme of Mitigation Measures

TIME FRAME / SCHEDULE	ASPECT/ RESOURCE	ENVIRONMENTAL MITIGATION / RECOMMENDATION	RESIDUAL IMPACT FOLLOWING MITIGATION
PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS	**POPULATION AND HUMAN HEALTH**	To reduce potential impact on the resources using the marina harbour close contact communication and coordination will be opened with the commercial fishermen, Howth Yacht Club and the RNLI.	Residual impacts will be construction phase short term a slight negative effect and an operational phase permanent significant positive effect.
	BIODIVERSITY	**Environmental Management & Monitoring** A suitable qualified project ecologist will be employed for the duration of the works to ensure that mitigation measures and relevant ecological planning conditions are implemented in full. The project ecologist will also have a role in reviewing and approving all work method statements. The project ecologist will have the authority to stop works should an unforeseen issue arise. Additional environmental management tools include: • A detailed **Construction and Environmental Management Plan** (CEMP) will be developed by the appointed Contractor. This CEMP will comprise all of the construction mitigation measures, which are set out in this report. • A **Water Quality Management Plan** will be agreed with the relevant authority. • An **Invasive Species Management Plan** will be developed/implemented	The residual effects will be imperceptible to not significant.

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		Birds Bird monitoring will be undertaken prior to commencement of construction. Monitoring will have a particular focus on the Harbour itself and mudflat/sandflats and waters around Claremont Strand. Surveys conducted will be as follows: • Breeding Bird Surveys / Black Guillemot Surveys – April to August • High Tide / Low Tide Summer Surveys – May to August • Winter Bird Surveys – October to March This will allow for comparative analysis with 2019/2020 surveys. To mitigate the impact on the Black Guillemot and enhance breeding bird habitat on the site for Black Guillemot, 4 nesting tunnels / nest boxes will be incorporated into the proposed reclamation area and/or existing pier structures, at appropriate locations to encourage increased numbers of breeding pairs in the harbour. A qualified ecologist will be engaged to choose appropriate locations for nest boxes and supervise installation. Once the new nest boxes are in position a preconstruction survey will take place to ensure that the nest locations on the West Pier are not in use before construction starts. Under licence and with agreement of the NPWS the black guillemot nests in the holes within structures on the west pier will be blocked. The purpose of this is to stop possible nesting that may be abandoned later due to construction works. It is expected that the Black Guillemots will find more suitable nesting locations within the new nest boxes. To reduce disturbance on the remaining two identified winter roosts, screening will be erected along the southern boundary of the reclamation area. This will reduce disturbance on the southern winter roost near Claremont Beach. Screening or fencing will be erected around the winter roost at the end of the East Pier. The screening or fencing on the East Pier will happen over the period of time that the winter roosts are used by the birds (generally autumn and winter). The type of screening or fencing best suited and the requirement to close the walkway on the top of the pier wall at this location, will be agreed with the project ecologist before construction starts. All vegetation removal required to accommodate the works will be done outside of the bird breeding period, March to August, inclusive.	

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	LAND AND SOILS	Drainage and associated pollution control measures will be implemented on site before the main body of construction activity commences.	During the construction phase, once the mitigation measures are implemented there will be a short term not significant effect on the land and soil environment from the proposed development. During the operational phase once the mitigations are implemented the impacts on the land and soils from the proposed development range from a permanent not significant negative effect to a permanent not significant positive effect on the land and soils.
	MATERIAL ASSETS	The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services unless this has been agreed in advance with the relevant service provider.	The impact of the proposed project on resource use is a permanent significant positive effect. The impact of the proposed project on other material assets will be a short term not significant effect.
	CULTURAL HERITAGE	A detailed archaeological survey will be completed of the glacis of the West Pier that will extend from the glacis toe to the rear of the buildings that populate the West Pier. The survey will ensure to include the glacis and the two historic slipways and their details that are built into the glacis. The survey will be to a high standard, capable of producing metrically accurate plan, section and profile drawings that capture the detail. If a laser-scan is to be deployed to achieve this, the work will meet the standards required for large building surveys and will produce modelled space and cloud-point data that is accessible and interpretable to non-specialist end-users.	No residual impacts

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DURING CONSTRUCTION PHASE	**BIODIVERSITY**	**Habitats** To prevent incidental damage by machinery or by the deposition of spoil during the site clearance stage, any habitats earmarked for retention, particularly Annex I habitats in close proximity to site works, will be securely fenced off early in the construction phase. The fencing will be clearly visible to machine operators. **Birds** Bird monitoring will be undertaken during construction work using same methodology as outlined in pre-construction mitigation section. Lighting will be provided with the minimum luminosity during the construction phase and operational phase. Lights will be focused away from the intertidal areas which support feeding birds. Light spillage will be minimised and directed to the intended area only, particularly along the northern boundary, by use of accessories such as hoods, cowls, louvres and shields. Dark Zones will be maintained for roosting intertidal bird species in areas where lighting is not necessary. However, where lighting is required, this lighting should be placed at a minimum height using the lowest lux value permitted for health and safety. Exclusion zones will be established during the wintering bird period. These will be focused around the Claremont Beach to the southwest of the proposed reclamation area i.e. outside the proposed development boundary. Site personnel will avoid this area during rest periods e.g. breaks, as not to introduce a potential disturbance factor to foraging birds. This will allow for the continuance of exposed mudflat habitat, particularly during low tide, to be utilised as feeding ground for wading birds. **Marine mammals** A soft start procedure should be used to allow any marine mammals present in the area to vacate prior to the full dredging operation commencing. A dedicated Marine Mammal Observer will conduct a 15-minute watch for marine mammals within 200m of the dredger prior to start up. If a seal or cetacean (or otter) is sighted within 100m of the dredger, start-up must be delayed until the animal(s) is/are observed to move outside the mitigation zone or the 15 minutes has passed without the animal being sighted within the mitigation zone.	The residual effects will be imperceptible to not significant.

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		Invasive Species To prevent the transfer of in situ invasives off site and the introduction of ex-situ invasive plant species to the site, the following measures are proposed: • To reduce the likelihood of invasive species spreading throughout the site, the construction personnel involved in works will be trained in basic relevant invasive species prevention and management. • Invasive species management methodologies and plans outlining Best Available Techniques (BAT) will be sourced from current best practice/TII (The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads).	
	WATER	**Control of Suspended Solids during Dredging** During the dredging works, loss of suspended sediments will be controlled with the use of environmental buckets. A Water Quality Management Programme (WQMP) will be prepared by the contractor and implemented to incorporate the mitigation measures outlined in this section. Mitigations are as follows; • Environmental buckets to be fitted to the dredge excavator; • Silt curtains to be placed around the dredge as it is working; • Monitoring of the waters outside the harbour in line with agreed parameters and limits from the licencing authority; and • If monitoring indicates exceedances of agreed limits further management of the dredging methods will be undertaken to bring concentrations below the exceedance limits. **Monitoring** Limits on turbidity or suspended solids will be agreed with the relevant authority prior to commencement of works. The water quality will be monitored during works by the following methods: 1. Fixed station in situ water quality monitoring 2. Boat-based in situ water quality monitoring 3. Visual water quality monitoring 4. Laboratory water quality monitoring *Fixed station in situ water quality monitoring* Turbidity sensors should be used to determine turbidity during the dredging operation using in-situ readings. Continuous, real-time, in situ water quality data should be collected through the use of sensors deployed on a buoy near the construction site. High-frequency data is averaged at regular intervals and uploaded via telemetry to a website.	The residual impact will have a likely not-significant short term adverse effect on water quality.

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		Fixed locations for turbidity sensors should be identified and agreed with the relevant authority. *Boat-based in situ water quality monitoring* Monthly mobile manual monitoring will also take place by boat-based water quality monitoring, the frequency of which should be approved by the relevant authority. *Visual water quality monitoring* Daily visual monitoring should also be carried out from the shore and dredging vessel by the Contractor and Resident Engineer. The visual monitoring will include: • Visual monitoring for suspended solids within and outside of the harbour. • Daily inspection of surface water management systems including the stockpile drainage locations and any authorised discharge locations. • A log will be kept of all visual monitoring. *Laboratory water quality monitoring* Samples should be collected at agreed regular intervals and locations to test for suspended solids. The plan should be approved by the relevant authority. **Temporary Construction Compound** • Drainage within the temporary site compound will be directed to an oil interceptor to prevent pollution if any spillage occurs. • The waste water tank, and sewage tank will be emptied as required by a vacuum tanker, and removed from site to a licensed facility. These staff facilities will be removed at the end of the construction phase. • Temporary toilet facilities will be managed by the Contractor during the construction phase. • A bunded containment area will be provided within the compound for the storage of fuels, lubricants, oils etc. • The compound will be in place for the duration of the construction phase and will be removed once commissioning is complete. • Treatment of dredge material will be carried out in an enclosed and controlled material treatment facility. The facility consisting of the mixing plant, binder silos, storage areas and pumps will be fully bunded. Any loss of dredge material within the bunded area will be collected and fed through the treatment facility again for disposal within the reclaimed area.	

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		Reclamation works Dewatering will occur under appropriate authorisations and will be monitored to ensure limit parameters are followed. **Waste** Standard good waste management practices will be employed on the site during the construction and operational stages to ensure that waste management activities do not pose a risk to water quality. **Storage and Stockpiles** • Stockpiles will be located away from drainage systems and silt retaining measures (silt fence/silt curtain or other suitable materials) to reduce risk of silt run-off shall be installed along the downgradient edges of stockpiled earth materials. • Temporary storage areas for fuels and other hazardous materials required by the contractor during construction will be stored in appropriately bunded facilities to prevent the accidental spillage of hazardous liquids that could cause soil and groundwater contamination. • Collision with oil stores will be prevented by locating oils within a steel container in a designated area of the site compound away from vehicle movements. • Long term storage of waste oils will not be allowed on site. These waste oils will be collected in leak-proof containers and removed from the site for disposal or re-cycling by an approved service provider. • The scale of potential impacts on water quality will be reduced by only storing the required volume of oils for the works taking place at the time. • Oil and fuel stored in bunded areas shall be stores an appropriate distance from any watercourse/discharge point etc, as to prevent accidental spills entering the harbour. • Access to oil stores will be controlled by the storage of oils/fuels within a locked steel container/designated area, and cannot be accessed when there are no site personnel present. • Collision with oil stores will be prevented by highly visible signs/posted. • Leakages of oil from oil stores will be prevented by storing these oils in bunded tanks which have a capacity of 110% of the total volume of the stored oil. Ancillary equipment such as hoses and pipes will be contained within the bunded storage container. Taps, nozzles, or valves will be fitted with a lock system.	

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		• The volume of leakages will be prevented through monitoring oil storage tanks/drums for leaks and signs of damage. This will be carried out daily/regularly by the Environmental Manager. • Long term storage of waste oils will not be allowed on site. These waste oils will be collected in leak-proof containers, and removed from the site for disposal, or re-cycling by an approved service provider. **Control of concrete/ cementitious materials** Concrete for the reclamation area works will be poured *in situ*. The following measures will be implemented during the use of concrete: • To reduce the potential for cementitious material entering the Harbour, concrete pours will be supervised by the Construction Manager/suitably qualified Engineer/Environmental Manager. • The Construction Manager/Site Engineer will ensure that the formwork for the concrete works, are completely sealed prior to concrete pour, and there is no potential for concrete to enter the adjoining waters. • Weather and tidal conditions will be monitored, as to allow sufficient time for the concrete to cure, preventing runoff. • In the event of a spillage on site, the Environmental Manager/Site Engineer will shut down the supply of concrete immediately, temporarily seal off the area. Any spillage will be collected immediately, before entering marine waters, and deposited in appropriate manner/area/removed off site to an appropriate licensed landfill. • If dewatering is required, all contaminated water will be pumped to suitably sized settlement area/tank/bowser and treated, in order to prevent solids/contaminants escaping to the Harbour. • pH will be monitored continuously in the Water Quality Management Plan. • To reduce the volume of cementitious water, washout of concrete trucks will not take place on site. Concrete trucks will be washed out off site, at the batch area/source quarry. **Stabilised and solidified sediment mitigations** • Once stabilised dredge material is pumped into the reclamation area, excess water (supernatant) will form on the surface. Excess water (supernatant) will be collected from the surface of deposits and returned to the treatment area for reuse to fluidise the dredge spoil as necessary to make it pumpable. In cases where there is a higher amount of excess water then is required for reuse then the excess water or trade effluent will be treated and under a trade effluent licence be discharged to the sewer	

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		system or storm water system as authorised. The treatment required would be expected to be triple interceptor tank followed by a settlement and/or flocculent tank before discharge under licensed conditions. • The treatment locations will be continuously monitored by either the Site Engineer/ Environmental Clerk of Works / Environmental Manager. • As cement will be used in the treatment process, if there is a requirement, all high-alkaline water draining from the facilities must be neutralised in a settlement area (can dose with CO_2), before being discharged under authorisation, after settlement, back into Howth Harbour, preferably toward the inner end of the harbour. This will prevent leaching of heavy metals, avoid the adverse impacts of highly alkaline discharges, and minimise of the discharge of suspends solids. **Refuelling of Construction Plant On-Site** • Refuelling will be carried out using 110% capacity double bunded mobile bowsers. The refuelling bowser will be operated by trained personnel. The bowser will have spill containment equipment which the operators will be fully trained in using. • Plant nappies or absorbent mats to be place under refuelling point during all refuelling to absorb drips. • Mobile bowsers, tanks and drums should be stored in secure, impermeable storage area, away from drains and open water. • To reduce the potential for oil leaks, only vehicles and machinery will be allowed onto the site that are mechanically sound. An up to date service record will be required from the main contractor. • Should there be an oil leak or spill, the leak or spill will be contained immediately using oil spill kits; the nearby dirty water drain outlet will be blocked with an oil absorbent boom until the fuel/oil spill has been cleaned up and all oil and any contaminated material removed from the area. This contaminated material will be properly disposed of in a licensed facility. • The site Environmental representative will be immediately informed of the oil leak/spill, and will assess the cause and the management of the clean-up of the leak or spill. They will inspect nearby drains for the presence of oil, and initiate the clean-up if necessary. • Immediate action will be facilitated by easy access to oil spill kits. An oil spill kit that includes absorbing pads and socks will be kept at the site compound and also in site vehicles and machinery. • Correct action in the event of a leak or spill will be facilitated by training all vehicle / machinery operators in the use of the spill kits and the correct containment and	

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		cleaning up of oil spills or leaks. This training will be provided by the Environmental Manager at site induction. • In the event of a major oil spill, a company who provide a rapid response emergency service for major fuel spills will be immediately called for assistance, their contact details will be kept in the site office and in the spill kits kept in site vehicles and machinery. **Vessels/barge/s** • It is recommended that appropriate fuel management measures are put in place, and agreed with the Harbour Master prior to the works commencing, to ensure that no significant negative impacts occur to water quality. Potential leaks from vessels/boats will be mitigated by contractually requiring the contractors to only operate/supply vessels/boats that are in good working order, up to date in servicing etc., and free of leaks.	
	LAND AND SOILS	**Standard mitigation** The following mitigation measures are recommended: • Sustainable use of materials on site. Workers on-site should be briefed prior to commencing work with regard to appropriate use and disposal of waste; • Tight control on material required to avoid waste. Incoming materials should be of a suitable quantity so as to ensure a minimum amount of waste is generated; Temporary storage areas for fuels and other hazardous materials required by the contractor during construction will be stored in appropriately bunded facilities to prevent the accidental spillage of hazardous liquids that could cause soil contamination.	During the construction phase, once the mitigation measures are implemented there will be a short term not significant effect on the land and soil environment from the proposed development. During the operational phase once the mitigations are implemented the impacts on the land and soils from the proposed development range from a permanent not significant negative effect to a permanent not significant positive effect on the land and soils.
	AIR QUALITY AND CLIMATE	Standard mitigation measures will be implemented. This will include the following: • Monthly dust monitoring at four locations as shown in the **RFI response report, Appendix 4 Dust impact assessment Figure 1** for the duration of the construction works. The TA Luft threshold guideline value of 350mg/m2/day will apply. • If the TA Luft guideline value is exceeded the dust source will be identified and specific mitigation measures applied to the source. Mitigation measures to be considered if the TA Luft is exceeded will include additional damping down, hoarding and a wheel wash. • Dampening of exposed earthwork activities and site haul roads during dry weather; • Covering of stockpiles and/or dampened during dry weather; • Control of vehicle speeds, speed restrictions and vehicle access; and	The residual construction phase impact will be a short term not significant effect on air quality from fugitive dust emissions. Once operational, there will be a neutral impact on air quality from the proposed development.

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		• Sweeping of hard surface roads. • Internal and public roads will be inspected regularly for cleanliness and cleaned as necessary; • All loads entering and leaving the site should be covered during dry periods if dust becomes a nuisance on site; • Control of vehicle speeds passing over access roads and within the site; and • Daily site inspections should take place to examine dust measures and their effectiveness. • Generators will be located away from sensitive receptors. • Stockpiles will be located as far as possible from sensitive receptors and covered and/or dampened during dry weather. • Staff training and the management of operations will ensure that all dust suppression methods are implemented and continuously inspected. • Dust monitoring will be undertaken at the nearest sensitive receptor during the construction phase. The TA Luft dust deposition limit values of 350 mg/m^2/day (averaged over one year) will be applied as a 30-day average. Construction traffic mitigation measures: • Ensure regular maintenance of plant and equipment. Carry out periodic technical inspection of vehicles to ensure they perform most efficiently; • Implementation of the Construction Traffic Management Plan to minimise congestion; and All site vehicles and machinery to be switched off when not in use - no idling.	
	NOISE AND VIBRATION	• Onsite noise monitoring will be undertaken once the works have started. This will assess the level of noise impacting on the West Pier. This will occur at different times depending on the location of the dredging barge. The results of this monitoring will define a working area between the hours of 7pm and 9pm in order to comply with the evening time noise limit. • Liaison with the businesses on the West Pier to let them know what works are taking place when and to get feed back on the noise impacts will take place. • Solid hording will be put up around the pump compound on West Pier in order to reduce noise impact coming from equipment. During the works, best practice noise reduction measures described in *British Standard 5228-12009+A1:2009, Code of Practice for Noise and Vibration Control on Construction and Open Sites* will be incorporated into the Construction and Environmental Management Plan.	Given the nature of the works it is difficult to quantify exactly the noise impact at each noise sensitive receptor as it will vary from day to day as the works progress. The model predicts no daytime exceedance of the limit criteria. There is a predicted exceedance of the limit criteria during evening hours on West Pier. Once mitigation measures are implemented there will be a short term not significant effect on businesses and visitors at West Pier. The works are short term and once completed there will be no significant residual noise.

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	ARCHAEOLOGY AND ARCHITECTURE	Archaeological monitoring licensed by the National Monuments Service will be conducted of all terrestrial, inter-tidal/foreshore and seabed disturbances associated with the development, with the proviso to resolve fully any archaeological material observed at that point. The level of monitoring of the dredging operation within the harbour basin should be limited to those areas and depths not achieved in the 1980s construction campaign. The following archaeological monitoring and management measures will be undertaken: • Retaining a project archaeologist/s. An archaeologist experienced in maritime archaeology will be retained by the Department of Agriculture, Food and the Marine for the duration of the relevant works. • Retaining a conservation engineer. A conservation engineer experienced in industrial and maritime architectural heritage will be retained by the Department of Agriculture, Food and the Marine for the duration of the relevant works, to advise specifically in relation to works associated with the West Pier. • 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. Licence applications take a minimum of four weeks to process through the Department of Housing, Local Government and Heritage, and advance planning is required to ensure that the necessary permits are in place before site works commence. It is anticipated that the following licence types will be required: Excavation, to cover monitoring and investigations works; Detection, to cover the use of metal-detectors; and Dive Survey, to cover the possibility of having to conduct underwater inspections. Since 2017, Excavation licence applications must be accompanied by a letter from the client on their letterhead 'confirming that sufficient funds and other facilities are available to the archaeologist to complete the archaeological excavation, post-excavation, and preliminary and final reports (including specialist reports)'. The Department of Agriculture, Food and the Marine has confirmed that sufficient funds and other facilities as required will be made available to the project archaeologist to complete all reports required. • Archaeological monitoring will be carried out by suitably qualified and experienced maritime archaeological personnel licensed by the Department of Housing, Local Government and Heritage. Archaeological monitoring is conducted during all terrestrial, inter-tidal/foreshore and seabed disturbances associated with the development. The level of monitoring of the dredging operation within the harbour basin should be limited to those areas and depths not achieved in the 1980s	No residual impacts on archaeological or architectural assets are anticipated.

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		construction campaign. Archaeological monitoring will be undertaken in a safe working environment that will facilitate archaeological observation and the retrieval of objects that may be observed and that require consideration during the course of the works. The monitoring will include a finds retrieval strategy that is in compliance with the requirements of the National Museum of Ireland. • The time scale for the construction phase will be made available to the archaeologist, with information on where and when ground disturbances will take place. • Discovery of archaeological material. In the event of archaeologically significant features or material being uncovered during the construction phase, machine work will cease in the immediate area to allow the archaeologist/s to inspect any such material. • Archaeological material. Once the presence of archaeologically significant material is established, full archaeological recording of such material will be recommended. If it is not possible for the construction works to avoid the material, full excavation will be recommended. The extent and duration of excavation will be a matter for discussion between the client and the licensing authorities. • Archaeological team. It is recommended that the core of a suitable archaeological team be on standby to deal with any such rescue excavation. This would be complimented in the event of a full excavation. • Archaeological dive team. It is recommended that an archaeological dive team is retained on standby for the duration of any in-water disturbance works on the basis of a twenty-four or forty-eight hour call-out response schedule, to deal with any archaeologically significant/potential material that is identified in the course of the seabed disturbance activities. • A site office and facilities will be provided by Department of Agriculture, Food and the Marine on site for use by archaeologists. • Secure wet storage facilities will be provided on site by the Department of Agriculture, Food and the Marine 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. • Post-construction project report and archive. It is a condition of archaeological licensing that a detailed project report is lodged with the DCHG within 12 months of completion of site works. The report should be to publication standard and should	

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		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. <u>Architecture mitigation measure include the following:</u> • Physical interventions into and removal of historic fabric associated with the original pier construction should be kept to a minimum in order to preserve the integrity of the structure, with physical repairs only carried out in order to prolong the life of the pier. • Care should be taken when transporting heavy building materials to avoid damage to the existing building fabric of the pier and the historic buildings situated on it. Protective measures should be put in place in areas which might be vulnerable to damage. These measures are subject to the approval of the National Monuments Service at the Department of Housing, Local Government and Heritage. The Department of Agriculture, Food and the Marine has and will continue to engage with the Department of Housing, Local Government and Heritage.	
	LANDSCAPE AND VISUAL	Specific landscape and visual mitigation measures are not considered necessary. Instead, the carefully considered siting and design of the proposed reclamation works are inherent to the appraisal of landscape / seascape and visual impacts herein. Thus, the predicted impacts (pre-mitigation) are the same as residual impacts (post-mitigation) in this instance.	No significant visual impact.
	MATERIAL ASSETS	Good site practice and careful management on site will ensure efficient resource management and a reduction in waste. Any waste generated on site will be segregated at source and will be taken off site to an appropriate facility by an authorised contractor. All waste streams will be identified within the contractor's waste management plan at the outset and a defined area will be identified for the segregation and storage of waste. Adequate signage and notices will be provided on site along with training and supervision of staff to ensure compliance with sound waste management practice. The waste treatment activity and placement of the treated material will be undertaken in accordance with the conditions of a waste or IE licence from the EPA.	The impact of the proposed project on resource use is a permanent significant positive effect. The impact of the proposed project on other material assets will be a short term not significant effect.

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		Controls as part of the contractor's Construction and Environmental Management Plan will ensure minimal waste being generated and minimise the risk of pollution. Fully registered waste management companies will only be used to remove waste from the site. Standard good practice of only ordering the required amount of materials will be implemented. The small quantities of solid waste (packaging, surplus construction materials, etc) generated during the construction stage of the project will be sorted on site prior to disposal/recycling as appropriate off site by a licensed waste contractor.	
	TRAFFIC AND TRANSPORTATION	The Main contractor shall prepare and implement a construction traffic management plan for the duration of the works. The traffic management plan will take into account all health and safety construction traffic guidelines. The plan will include delivery routes for the construction materials.	Slight to moderate long-term negative effects.

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OPERATIONAL PHASE	**Biodiversity**	**Birds** During the operational phase of the proposed development a permanent winter roost area will be established on the newly constructed revetment pier. This will provide a continuation of the existing winter roost area on the West Pier. The roost area will be fenced or screened off to reduce disturbance as agreed with the project ecologist.	The residual effects will be imperceptible to not significant.
	WATER	**Monitoring** Monitoring of the water quality during the operational phases will take place. The monitoring will be in accordance with an EPA issued licence needed to undertake the proposed works. The monitoring will include sampling and testing of the waters to show compliance with the EPA licence. The licence will not be surrendered until the EPA are satisfied there is no environmental liability with the proposed project. **Maintenance** Surface water run-off will be collected through a network of gullies feeding into storm water drains. The drains will collect at a number of hydrocarbon/silt interceptors before outfalling into the sea through headwalls in the proposed revetment. Maintenance of the interceptors will be carried out periodically during the operation of the west pier.	The residual impact of the S/S sediment will have a likely permanent imperceptible negative effect on water quality. The removal of the contaminated sediments and containing them within the reclaimed land will have a permanent not significant positive effect on water quality.