Irish Water

Whitegate-Aghada Sewerage Scheme- UTAS Cork Bundle

Construction Environmental Management Plan (CEMP)

Issue | 27 October 2020

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1 Introduction

1.1 Overview

This Construction Environmental Management Plan (CEMP) has been prepared by Arup to support Irish Water's planning application for the proposed Whitegate and Aghada Sewerage Scheme (hereafter referred to as 'the proposed development'). The proposed development comprises the following elements (see also Figure 1 below):

A) A proposed wastewater treatment plant (WWTP) at Ballytigeen TD, with associated and ancillary development works including an access road, tanks, storage facilities, inlet works, all associated site development works, boundary fencing around the perimeter of the WWTP, a gravity sewer and long sea outfall to convey treated discharge effluent from the WWTP to White Bay through Glanagow TD and Trabolgan TD.

B) A proposed underground wastewater pump station and associated infrastructure in Rostellan at the Thomas Kent Memorial Park at Rostellan TD, including an underground pump sump, underground stormwater storage tank, valve and flowmeter chambers, manholes, pipework, access road and gate, control kiosks and vent stack.

C) A proposed rising main at Rostellan TD, Ballynafarsid TD and Aghada TD, to convey flows from the proposed Rostellan pump station to a proposed pump station in Lower Aghada.

D) A proposed underground wastewater pump station and associated infrastructure at Lower Aghada located west of the pier at Aghada TD, including an underground pump sump, underground stormwater storage tank, valve and flowmeter chambers, manholes, pipework, access road, gate, control kiosks, a surge vessel, a vent stack and the decommissioning of an existing package wastewater treatment plant.

E) A proposed rising main to convey flows from the proposed Lower Aghada pump station to an existing sewer in the Upper Aghada sewerage network at Aghada TD.

F) A proposed upgrade to the existing sewerage system by the replacement of an existing 150mm diameter sewer with a proposed 225mm diameter sewer at Aghada TD and Curragh TD.

G) A proposed underground wastewater pump station and associated infrastructure at the Square in Whitegate village including an underground pump sump, underground stormwater storage tank, valve and flowmeter chambers, manholes, pipework, control kiosks and vent stack, and decommissioning of existing pump station, in Mosestown TD and Ballincarroonig TD.

H) A proposed rising main to convey flows from the proposed Whitegate pump station to the proposed WWTP at Mosestown TD, Corkbeg TD, Ardnabourkey TD and Ballytigeen TD.

I) A proposed 225mm diameter gravity sewer in Ardnabourkey TD and decommissioning of an existing septic tank.

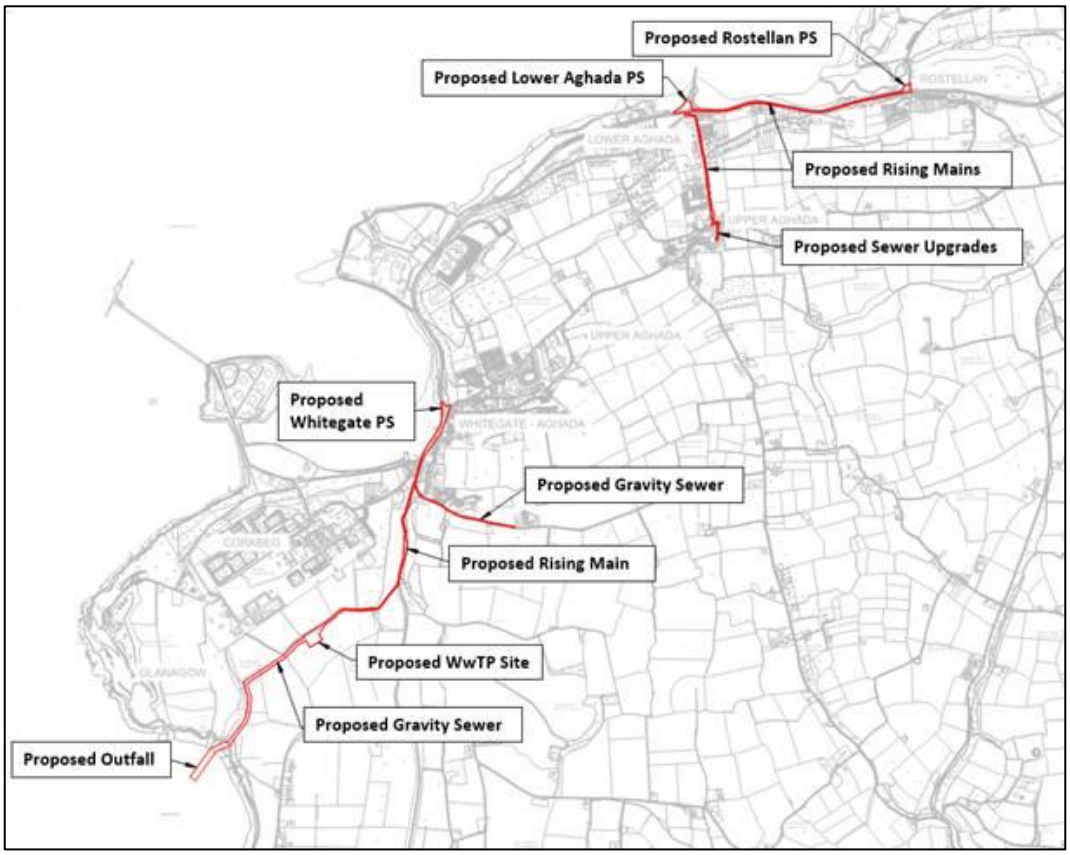

Figure 1: Proposed Development

1.2 Objective

The objective of the CEMP is to provide a framework for how Irish Water and any contractor(s) appointed will manage and where practicable minimise negative environmental effects during the construction of the proposed development. Construction is considered to include all site preparation, enabling works, demolition, materials delivery, waste removal, construction activities and associated engineering works.

Irish Water intends to procure the proposed development using a design and build type contract. Under this type of contract, the contractor will be responsible for the detailed design of the proposed development, within the constraints set out in the planning permission, NIS, etc.

The contractor will, as necessary, develop this CEMP further following appointment and prior to commencing works on site. Implementation of the CEMP will ensure disruption and nuisance are kept to a minimum.

This CEMP identifies the minimum requirements with regard to the appropriate mitigation, monitoring, inspection and reporting mechanisms that need to be implemented throughout construction. Compliance with this CEMP does not absolve the contractor or its sub-contractors from compliance with all legislation and bylaws relating to their construction activities.

This CEMP has been produced to accompany the planning application to ensure compliance with legislative requirements and the environmental reports that have been prepared for the proposed development. This CEMP must be read in conjunction with the following reports for specific details and requirements in relation to certain construction aspects and specific environmental controls (where appropriate):

- Whitegate-Aghada Archaeological Impact Assessment Reports (including Archaeological Impact Assessment, Site Investigation Monitoring, Site Investigation Testing and Underwater Archaeological Impact Assessment Report);
- Whitegate-Aghada EIA Screening Report;
- Whitegate-Aghada Natura Impact Statement (NIS), which includes, as appendices, an Ecological Impact Assessment Report and associated appendices and an Invasive Alien Species Report.

1.3 Structure

This CEMP is structured as follows:

- Section 1 provides and introduction to the proposed development and outlines the objective of the CEMP.
- Section 2 outlines management, including training, communications, monitoring, record keeping, etc.
- Section 3 sets out the operational control requirements and procedures to be employed during construction to manage environmental aspects; and also describes measures to be implemented to minimise likely significant negative effects, as far as practicable, during the construction of the proposed development.
- Section 4 outlines emergency response requirements and procedures.
- Section 5 sets out requirements for site demobilisation.

2 Environmental Management

2.1 Environmental Policy

The environmental policy of this project is to carry out the works in full compliance with all applicable environmental regulations, Irish Water regulations and any other requirements that are specified in this document.

Prevention of pollution from activities through a system of operational controls that include written instructions and staff training appropriate to the environmental requirements of their work.

Implementing this environmental policy shall be undertaken through the successful operation of the CEMP.

2.2 Training Awareness and Competence

Site staff shall be competent to perform tasks that have the potential to cause a significant environmental impact. Competence is defined in terms of appropriate education, training and experience. Environmental awareness and training will be achieved by:

- Site induction, including relevant environmental issues.
- Environmental posters and site notices.
- Method statements and risk assessment briefings.
- Toolbox talks, including instruction on incident response procedures.
- Key project specific environmental issues briefings.

All managers and supervisors will be briefed on the CEMP.

Method statements shall be prepared for specific activities prior to the works commencing and shall include environmental protection and mitigation measures and emergency preparedness appropriate to the activity covered. The contractor's environmental ecologist shall review key method statements prior to their issue.

Method Statement briefings will be given before personnel carry out key activities for the first time.

2.3 Communication

The CEMP will be distributed to the project team, including sub-contractors, to ensure that the environmental requirements are communicated effectively. Key activities and environmentally sensitive operations shall also be briefed to staff and Contractors. Project, client and company environmental policies, where available, will be displayed on site.

The Contractor will define procedures for internal and external communication. The client may require that any communication with external parties such as environmental regulators or the public is undertaken through a nominated representative.

The agreed CEMP may be published on the project website.

During the construction phase, internal communication will include regular progress meetings, which shall cover:

- Training undertaken;
- Progress report;
- Inspections, audits and non-conformance;
- Complaints received;
- Visits by external bodies and the outcome or feedback from such visits;
- Objective/target achievement, including reporting on environmental performance.

External communication, including letter drops or meetings, and liaison with statutory authorities shall be overseen by the Client Project Manager.

2.4 Monitoring, Audit and Inspections

Periodic inspections by the Contractor shall address environmental issues including dust, litter, noise, traffic, surface water, waste management and general housekeeping.

An inspection audit of the construction site shall be carried out. Environmental aspects of this audit shall be documented. The frequency of these audits (weekly/ monthly/other) will be based on the nature of Contractor activity.

2.5 Keeping of Records

The Construction Manager shall ensure that fully detailed records are maintained of any ‘incident/event’ likely to cause non-compliance and / or harm to the environment. Environmental Incidents/Near Miss Reports will be reported and recorded.

Complaints and follow up actions on the construction site will be managed by the construction management team and the Contractor shall ensure that all complaints are recorded according to requirements.

The Contractor shall be responsible for ensuring that a full record and copy of all Safety Data Sheets (SDS) pertaining to their works is kept on file and up to date in their site offices.

The Contractor’s construction management team shall be responsible for monitoring the movement and treatment of all waste during the construction phase of the project. Monitoring will be carried out to record the nature, quantities and off-site destination of wastes.

2.6 Non-Conformance and Corrective and Preventative Action

Procedures for addressing non-conformance and corrective actions are to be provided. These may include, for example:

- A Non-Conformance Report (NCR) that will be raised to record any environmental incident and work that has not been carried out in accordance with the CEMP or Method Statement.
- A Corrective Action Report (CAR) that will be raised where a deficiency is identified as a result of monitoring, inspection, surveillance and valid complaints.
- Any actions identified shall nominate an owner to follow through the action to be taken, along with a specified timescale for it to be closed out.

2.7 Incident Preparedness and Response

The likelihood of an incident can be minimised by effective planning through development of Emergency Response Procedures (see Section 4 of this document). These procedures will identify the on-site risks and appropriate responses. Suitable equipment, such as spill kits, oil booms and absorbent material, shall be held at appropriate locations on site. Effective pollution incident response procedures rely on the following elements:

- Identification of all possible emergency scenarios;
- Effective planning, e.g. availability of booms, spills kits at appropriate locations;
- Identification of receptors/pathways (e.g. surface water drains);
- Identification and dissemination of contact numbers;
- Definition of site-based staff responsibilities;
- Appropriate site-based staff training;
- Exercise of incident scenarios – spill drills;
- Availability of suitable spill kits at appropriate locations on the site; and
- Implement lessons learnt from previous incidents.

All appropriate site staff will be made aware of the company's site emergency procedure(s) (e.g. spillage, leakage, fire, explosion and flooding). They will be made aware that drain covers and spill kits are available and training will be provided to ensure that staff know how to use the available equipment.

3 Operational Control Requirements and Procedures

3.1 Site Establishment

3.1.1 Access

The Contractor will define the method of delivery/removal of material and plant from the sites, including the identification of access routes for deliveries and personnel. These routes are to be clearly signed.

No machinery is to enter lands not within the site and no unauthorised personnel are to be allowed access the construction site.

3.1.2 House Keeping

A 'good housekeeping' policy shall be adopted across the site. This will include the following requirements:

- No fires on site;
- Considerate behaviour of all site staff, including on the local roads;
- Removal of food waste and other rubbish at frequent intervals;
- Site access roads shall be regularly cleaned and maintained as appropriate. Hard surface road shall be swept to remove mud and aggregate material from their surface as a result of the development. Any un-surfaced roads shall be restricted to essential site traffic only. Furthermore, any road in the vicinity of the development that has the potential to give rise to dust must be regularly watered, as appropriate, during extended dry and/or windy conditions;
- Temporary portable toilet facilities shall be provided for staff during the construction period. These units will be maintained regularly, and the waste disposed of by an appropriate contractor;
- Any fuel stored on site shall be stored in double skinned, bunded containers and shall be located in a designated work compound;
- Temporary site offices shall be provided for staff during the construction period. These units are to be maintained regularly.

3.2 Waste Management

All waste generated during construction will be appropriately managed and disposed of or re-used offsite in accordance with the waste hierarchy and relevant waste management guidance and legislation.

A Construction and Demolition Waste Management Plan (CDWMP) plan will be required to be developed by the contractor following appointment and prior to commencing works on site.

The CDWMP shall address waste generation and the arrangements made for prevention, reuse, recycling disposal and collection of recyclables and wastes.

3.3 Invasive Plant Species

An Invasive Alien Species (IAS) survey and report was undertaken for Whitegate-Aghada Sewerage Scheme. This report is included in Appendix E of the NIS.

Section 11 of the Invasive Species Survey Report states that prior to the commencement of works, the works area will be re-surveyed to accurately assess any changes in distribution in the intervening period. In addition, an Invasive Species Management Plan will be prepared in accordance with best practice guidelines and all work related to invasive species at construction stage will be in accordance to this Management Plan. The report identified that Japanese Knotweed and Himalayan knotweed were recorded at various locations within the study area. The route has been designed to avoid the largest area of Japanese Knotweed/Himalayan knotweed at White Bay and standard measures will be implemented to ensure there is no spread of this species from stands located in other areas, in accordance with the Management Plan. A buffer zone of seven metres will be put in place in respect of each stand of Japanese Knotweed were possible. This zone will be clearly fenced, and no works will proceed within these buffer zones. The extent of the infestation will be determined by the supervising ecologist. The various control methods which can be utilised for invasive alien species are outlined in the Whitegate-Aghada IA survey report.

3.4 Traffic and Transportation

The Contractor is required to implement the following measures in relation to traffic and transportation during construction:

- Adequate parking will be provided at the proposed Lower Aghada Pump Station site;
- Trucks required to wait on sites will switch off engines to avoid unnecessary fuel usage and noise;
- Wheel washes and lances will be provided by the Contractor as required, to ensure that wheels, bodies and sides of trucks are clean prior to leaving Pump Stations sites and the WWTP site;
- Roads outside the sites will be visually inspected on a daily basis and power swept and washed as and when required;
- All site staff including truck drivers will be required to abide by the normal rules of the road;
- The Contractor shall prepare a Detailed Construction Traffic Management Plan (CTMP) covering all construction stages that takes into account other potential construction works. CTMP will demonstrate how pedestrians, cyclists and motorised vehicles can pass through the works areas safely and that measures are in place which ensure traffic operates in as an efficient manner as possible;

- The CTMP will include a detailed consultation plan to deal with third party queries from both residents and retail/ commercial operators. The CTMP will require agreement with both Cork County Council and An Garda Síochána.
- The Contractor will appoint a single point of contact to facilitate the communication of the various traffic management plans and the preparation of a project specific website to aid communications would also be beneficial.

3.5 Noise and Vibration

Noise and vibration monitoring will be undertaken at the start of each new activity to determine the compliance with limit values. This may involve monitoring on a daily basis during the first weeks of the construction works, but subject to satisfactory results, this could be relaxed to once a week/twice-weekly depending upon the site activities. The frequency will be increased again if particularly noisy activities (such as pile driving) are undertaken.

Continuous noise and vibration monitoring will take place at the nearest sensitive receptor to the works. Environmental noise and vibration monitoring is to be undertaken only by suitably-trained and experienced staff.

Specific mitigation measures, which will be adopted where appropriate to demonstrate best practicable means (BPM), including;

- Careful selection of equipment, construction methods and programming with the objective of reducing noise and vibration where possible. Only equipment, including road vehicles, conforming to relevant national or international standards, directives and recommendations on noise and vibration emissions, will be used;
- Using noise-control equipment such as jackets, shrouds, hoods, and doors, and ensuring they are closed;
- Locating plant, as far as is reasonably practicable, away from receptors or as close as possible to noise barriers or hoardings where these are located between the source and receptor;
- Ensuring that all plant is maintained regularly to comply with relevant national or international standards;
- Ensuring that air lines are maintained and checked regularly to prevent leaks;
- Operating plant in the mode of operation that minimises noise emissions;
- Ensuring that plant is shut down when not in use;
- Prohibiting works vehicles waiting or queuing on the public highway;
- Constructing temporary infrastructure (e.g. haul roads) of materials that minimise noise and vibration;
- Avoiding percussive piling, except where there is an overriding justification;
- Rotary drills and bursters actuated by hydraulic or electrical power will be used for excavating hard material.

In some instances, chemical bursting can be used where nearby sensitive structures are particularly vulnerable to vibration from pneumatic breakers, etc.;

- Handling all materials, particularly steelwork, in a manner that minimises noise. For example, storing materials as far as possible away from sensitive receptors and using resilient mats around steel handling areas;
- Designing all audible warning systems and alarms to minimise noise. Non-audible warning systems can be used in preference, i.e. Cab-mounted CCTV or the use of banksmen. If required, ensure that audible warning systems are switched to the minimum setting required by the health and safety authority (HSA), and where practicable use 'white noise' reversing alarms in place of the usual 'siren' style reversing alert;
- Designing haul routes to minimise the amount of reversing required;
- Selecting electrically powered plant that is quieter than diesel or petrol- driven plant, if interchangeable; and
- Fitting suitable anti-vibration mountings where practicable, to rotating and/or impacting equipment;
- Unnecessary revving of engines will be avoided, and equipment will be switched off when not required;
- Rubber linings shall be used in chutes and dumpers etc. to reduce impact noise;
- Drop heights of materials shall be minimised;
- Construction plant and activities to be employed on site shall be reviewed to ensure that they are the quietest available for the required purpose;
- Regular and effective maintenance by trained personnel shall be carried out to reduce noise and/or vibration from plant and machinery;
- Site activities shall be limited to 7am - 7pm, Monday to Friday; and 8am - 2pm, Saturday. It may be necessary in exceptional circumstances to undertake some certain types of activities outside of normal construction core working hours.

  Any such working hours outside the normal construction core working hours will be agreed with the Employer's Representative. The planning of such works will have regard to nearby sensitive receptors.

3.6 Archaeological Monitoring

The Contractor will be required to implement the following measures in relation to archaeology during construction:

- All ground excavations associated with the proposed development will be monitored by a suitably qualified archaeologist. This will enable the identification of any previously unrecorded features/ deposits of archaeological significance.

Full provision will be made to ensure the preservation by record of any such features, should that be deemed the most appropriate manner in which to proceed, following consultation with the DCHG.

- All archaeological works will be carried out under the supervision of a project archaeologist, appointed on behalf of Irish Water, to ensure all mitigation measures are implemented.
- All excavations associated with the marine outfall will be monitored by a suitably qualified underwater archaeologist. Works will be carried out under licence to the DCHG and full provision will be made to ensure the preservation by record of any features that may be identified, should that be deemed the most appropriate manner in which to proceed, following consultation with the DCHG.

3.7 Air Quality

3.7.1 Emissions and Odours

Any works that risk creating odours shall be planned appropriately so as to minimise any effect. Any processes that emit fumes, odours or smoke is to comply with manufacturer's and, if appropriate, regulatory limits to prevent nuisance or a regulatory breach. All plant and vehicles shall comply with European Union (EU) emission limits for their vehicle class as a minimum and are to be regularly maintained. A programme of maintenance checks shall be developed for plant on site and adhered to.

Any plant and equipment emitting black smoke will be taken out of service immediately and the defect rectified. Plant shall be located a maximum distance from sensitive receptors. Where possible use mains or battery powered equipment over diesel powered.

3.7.2 Dust

Fine spraying of water (e.g. using a bowser) is the most effective way to suppress dust. Repeat spraying shall be provided regularly, especially during warm, sunny and dry weather when water will evaporate quickly. It will be ensured that the works do not create excessive mud or a flow of dirty water that can run off into watercourses. Areas that would need to be considered for spraying include;

- Unpaved work areas subject to traffic or wind;
- Site haul roads;
- Sand, spoil and aggregate stockpiles; and
- During the loading and unloading of dust generating materials.

Non-potable water will be used for damping down where possible, e.g. rainwater captured on site. Other effective measures to reduce the dust impact on nearby receptors include, control of vehicle speeds and speed restrictions and sweeping of hard surface roads.

- Vehicle speed restrictions will be followed to reduce dust impact on nearby receptors.
- Sweeping of hard surface roads will be carried out to reduce dust impact on nearby receptors.

3.8 Nature Conservation

3.8.1 Ecological Impact Assessment (EcIA) Report Mitigation Measures

Specific mitigation measures are detailed in the Ecological Impact Assessment Report (EcIA) included in the planning application (Appendix C of the NIS). Refer directly to this report for further details. These measures are also included below:

- It is possible that some root damage to the existing sycamore tree located in the Thomas Kent Memorial Park, Rostellan may arise during the construction works. It is intended to retain the tree if at all possible. An aboriculturalist will assess the condition of the tree during and following the completion of site works. The aboriculturalist may specify a crown reduction to minimise the risk of wind blow or in worst-case scenario may specify removal. It is proposed that three evergreen oaks (*Quercus ilex*) will be planted within the memorial park to ensure that tree cover is maintained.
- Works in close proximity to or within the Cork Harbour SPA will avoid the wintering bird season (September to March). Refer to Figure 1 below in relation to NIS mitigation measures and to Section 8.2 of the NIS. This will minimise the disturbance to any wintering/migratory bird species utilising the harbour during this period. During operation there will not be a significant increase in noise or activity associated with the development.

Figure 2: Construction works will be avoided during the winter bird season at the areas outlined above. The most sensitive areas (Rostellan PS and Lower Aghada PS), which will require hoarding between the works and the water's edge, is shaded red.

3.8.1.1 Construction measures – general guidelines

All personnel involved with the project will receive an on-site induction relating to operations and the environmentally sensitive nature of European sites and to re-emphasise the precautions that are required as well as the precautionary measures to be implemented. All staff and subcontractors have the responsibility to:

- Work to agreed plans, methods and procedures to eliminate and minimise environmental impacts;
- Understand the importance of avoiding pollution on-site, including noise and dust, and how to respond in the event of an incident to avoid or limit environmental impact;
- Respond in the event of an incident to avoid or limit environmental impact;
- Report all incidents immediately to their line manager;
- Monitor the work place for potential environmental risks and alert the immediate line manager if any are observed; and
- Co-operate as required, with site inspections.

The following measures will be implemented:

- The supervising ecologist who will be employed by the Contractor will liaise with the Contractor and will be responsible for dealing with any specific ecological issues which may arise during the works and liaising with statutory bodies if required.

- The employment of good construction management practices will minimise the risk of pollution of soil, storm water run-off, river water or groundwater.
- The Construction Industry Research and Information Association (CIRIA) in the UK has issued a guidance note on the control and management of water pollution from construction sites, Control of Water Pollution from Construction Sites, guidance for consultants and contractors (Masters-Williams et al 2001). Relevant measures which will be implemented are outlined below:
    - Hazardous material will be bunded to be able to contain 110% volume to guard against potential accidental spills.
    - Mobile settlement tanks discharging via silt socks will be utilised if required to filter surface water emissions from the site to any drains or watercourses
    - Works will not be undertaken during periods of heavy rainfall.
    - Wash down and washout of concrete transporting vehicles will not be permitted at the location of construction. Such wash down and washout activities will take place at an appropriate facility offsite or at the location where concrete was sourced.
    - Spill kits are retained to ensure that all spillages or leakages are dealt with immediately and staff are trained in their proper use. Any such spills, in the unlikely event of their occurrence would be minor.

3.8.1.2 Construction works – water quality

- The working area used during construction will be clearly outlined prior to the commencement of works and will be kept to the minimum area necessary to effectively complete the works. Vegetation will be retained where possible.
- All site personnel will be trained and aware of the appropriate action in the event of an emergency, such as the spillage of potentially polluting substances. In the event of spillage of any polluting substance and/or pollution of a watercourse, Cork County Council, Inland Fisheries Ireland and the NPWS shall be notified.
- A silt curtain will be installed downgradient of the site works and between the works and sensitive aquatic receptors during construction. The use of Terrastop Premium Silt Fence (or similar) will provide effective protection during construction works.
- It is noted that all vehicles used on site will be inspected on a daily basis to ensure there are no minor leaks of hydrocarbons. All site personnel will be trained and aware of the appropriate action in the event of an emergency, such as the spillage of potentially polluting substances.
- Concrete pouring will not take place during heavy rain when run off is likely due to excess water. Shuttering will be designed to accommodate small increases in the volume of material contained within the shuttered area due to rainfall.

- Construction of the long sea outfall will generally be restricted to the period April – October, with the period between November - February generally avoided. In this manner, the months with normally worst wave and wind conditions, which lead to higher levels of sediment suspension and transport, will be avoided. The Contractor should be aware of tidal and wind forecasts and should monitor these closely.

3.8.1.3 Construction works - protection of habitats

- To prevent incidental damage by machinery or by the deposition of spoil during site works, any habitats earmarked for retention in close proximity will be securely fenced or sign posted early in the construction phase. These will be clearly visible to machine operators.
- Habitats that are damaged and disturbed will be left to regenerate naturally or will be rehabilitated and landscaped, as appropriate, once construction is complete. Disturbed areas will be seeded or planted using appropriate native grass or species native to the areas where necessary.
- Mature trees will be avoided. Any hedgerows/scrub habitat disturbed during construction will be replanted using a suitable mix of native species.
- One sycamore tree is located within an area of amenity grassland at the proposed Pump Station at Rostellan. This tree lacks the structural elements that would provide potential bat roosts and as an isolated non-native species is considered of low ecological value. However, it is a locally important visual element in the context of the local landscape. Works in proximity to the tree will be minimised, however due to exposed location and as there will be some root damage, an aboriculturalist will assess the condition of the tree during and following the completion of site works (see earlier in this Section for further detail).

3.8.1.4 Construction works – storage and waste

- Oil, petrol and other fuel containers will be double-skinned and bunded to be able to contain 110% volume to guard against potential accidental spills or leakages entering local watercourses linked to the European sites. Bund specification will conform to the current best practice for oil storage such as Enterprise Irelands Best Practice Guidelines. Construction materials will be stored in a secure compound to prevent the potential for vandalism and theft of material.
- Dedicated fuel storage areas will be introduced on-site or fuelling should take place offsite.

3.8.1.5 Construction works – Ecology

Works will primarily take place during hours of daylight to minimise disturbance to any roosting birds or feeding nocturnal mammal species.

3.8.1.6 Construction works – noise

- Best practice noise and vibration control measures will be employed by the Contractor. The best practice measures set out in BS 5228 (2009) Parts 1 and 2 will be complied with. This includes guidance on several aspects of construction site environmental measures, including, but not limited to the following:
  - The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item should be selected.
  - If replacing a noisy item of plant is not a viable or practical option, consideration will be given to noise control "at source".
    This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier. For example, resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can often be controlled by fixing resilient materials in between the surfaces in contact.
  - Mobile plant will be switched off when not in use and will not be left idling.
  - All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.

3.8.1.7 Invasive species

Measures for dealing with invasive species are outlined in Appendix E of the NIS (Invasive Species Survey). The Report on this survey states that prior to the commencement of works, the works area will be re-surveyed to accurately assess any changes in distribution in the intervening period. In addition, an Invasive Species Management Plan will be prepared in accordance with best practice guidelines and all work related to invasive species at construction stage will be in accordance to this Management Plan. The method for the elimination of Japanese knotweed on the site will be implemented with reference to the relevant codes of practice and guidelines: Best Practice Management Guidelines – Invasive Species Ireland (Maguire et al. 2008), NRA (2010) and EA (2007) Managing Japanese Knotweed on Development Sites: The Knotweed Code of Practice.

3.8.1.8 Bird Mitigation Measures

See Section 3.7.2 below, Natura Impact Statement – Mitigation Measures.

3.8.1.9 Otter Mitigation Measures

A pre-construction otter survey will be carried out prior to the commencement of site works. Any holts found to be present will be subject to monitoring and mitigation as set out in the NRA Guidelines for the Treatment of Otter prior to the Construction of National Road Schemes (2006b). If found to be inactive, exclusion of holts may be carried out during any season.

No wheeled or tracked vehicles (of any kind) will be used within 20m of active, but non-breeding, otter holts. Light work, such as digging by hand or scrub clearance will also not take place within 15m of such holts, except under license. The prohibited working area associated with otter holts will be fenced and appropriate signage erected. Where breeding females and cubs are present no evacuation procedures of any kind will be undertaken until after the otters have left the holt, as determined by a specialist ecologist. Breeding may take place at any season, so activity at a holt must be adjudged on a case by case basis. The exclusion process, if required, involves the installation of one-way gates on the entrances to the holt and a monitoring period of 21 days to ensure the otters have left the holt prior to removal.

3.8.2 Natura Impact Statement - Mitigation Measures

Specific mitigation measures are detailed in the NIS and include all of those already provided in the EcIA above. In addition, the following specific measures are also included in the NIS:

3.8.2.1 Bird Mitigation Measures

- Works in close proximity to the Cork Harbour SPA will avoid the wintering bird season (September to March) as indicated in Figure 1 of this Report. This will minimise the disturbance to any wintering/migratory bird species utilising the harbour during this period. Hoarding will be required between the works area and the adjoining shoreline habitats at the proposed Pump Station at Lower Aghada during works during the summer period as this area is used by feeding birds during the summer months.
- The Wildlife Act 1976, as amended, provides that it is an offence to cut, grub, burn or destroy any vegetation on uncultivated land, or any such growing in any hedge or ditch from the 1st of March to the 31st of August. Exemptions include the clearance of vegetation in the course of road or other construction works or in the development or preparation of sites on which any building or other structure is intended to be provided. Nonetheless, it is recommended that vegetation be removed outside of the breeding season.

3.9 Surface Water Runoff

In addition to the water quality measures detailed above, the following is a list of the best practice construction measures for managing surface water run-off that will be implemented for the duration of the construction phase:

- All fuels/chemicals or other materials classified as hazardous will be kept stored within a bunded enclosed spillage tray or cabinet. A folder with an inventory of the chemicals along with their applicable SDS sheets and shall be kept within the designated fuel storage area.
- Fuelling and lubrication of machinery is not to be carried out within 50m of the shoreline.
- Machinery must not be leaking oil when carrying out the work.

- Any spillage of fuels, lubricants of hydraulic oils is to be immediately contained and the contaminated soil removed for proper disposal.
- No vehicles shall be left unattended when refuelling and a spill kit including an oil containment boom and absorbent pads shall be on site at all time;
- All vehicles shall be regularly maintained, washed and checked for fuel and oil leaks;
- Dewatering of excavations will be treated prior to discharge of water to a watercourse. Prior to discharge into White Bay, a number of measures will be implemented to intercept and treat silt laden surface water run-off. These measures will include, as a minimum, a boundary swale complete with "Sedimats" or equivalent and check dams, settlement ponds including a forebay and a siltbuster to be used by the Contractor to promote settlement and filtration. A boundary silt fence as a redundancy measure to retain any remaining silt and sediment.
- There shall be no direct pumping of contaminated water from the works to a watercourse at any time;

The following standard practices shall be implemented to reduce the generation of silt-laden run-off:

- All stockpiles of excavated material shall be covered to prevent run off of silt;
- Silt fences shall be provided at all locations where the works (including temporary works and haul roads) are within 10m of the shore;
- Silt fences/swales shall be provided at all locations where surface water run-off may enter/leave the working areas, and adjacent to the haul roads;
- The short-term storage and removal / recovery or disposal of excavated material shall be considered and planned such that risk of pollution from these activities is minimised.

The following measures will be implemented to reduce the impact on existing drainage:

- Stockpiles of topsoil and/or materials shall not obstruct existing drainage routes. Existing drains outside the development area will not be interfered with or blocked during the construction phase.

The following measures will be implemented to reduce the impact on the existing hydrological regime of the study area:

- Temporary works, such as material storage will be located to not significantly change flood flow paths anywhere within the study area.

3.10 Coastal Processes

The following mitigation measure is proposed with respect to effects on coastal processes from construction of the long sea outfall:

- Construction of the outfall will generally be restricted to the period April – October, with the period between November - February generally avoided. In this manner, the months with normally worst wave and wind conditions, which lead to higher levels of sediment suspension and transport, will be avoided. The Contractor should be aware of tidal and wind forecasts and should monitor these closely.

3.11 Other mitigation measures

During construction of the proposed Rostellan Pumping Station located in the Thomas Kent Memorial Park, the existing sculpture, commemorative plaque, flag pole, outdoor tables and seats, information sign at the entrance and the bollard and chain fencing will be removed and stored safely off-site. They will be placed back approximately in their current position on the completion of construction works. Topsoil will be reinstated, and grass seeded, to ensure that the finished Memorial Park would be similar to the existing Park.

4 Emergency Response Requirements and Procedures

A description of an Emergency Response Plan (ERP) is presented in this section of the CEMP. It provides details of procedures to be adopted in the event of an emergency in terms of site health and safety and environmental protection.

4.1 Environmental Emergency Procedure

The site-specific Emergency Response Plan (ERP) includes details on the response required and the responsibilities of all personnel in the event of an emergency. The ERP in terms of health and safety will require updating and submissions from the various contractors and suppliers as the proposed project progresses.

4.2 Spill Control Measures

Every effort will be made to prevent an environmental incident during the construction and operational phase of the proposed project.

Oil/Fuel spillages are one of the main environmental risks that will exist on the proposed site which will require an emergency response procedure. The importance of a swift and effective response in the event of such an incident occurring cannot be over emphasised.

The following steps provide the procedure to be followed in the event of such an incident.

- Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers;
- If applicable, eliminate any sources of ignition in the immediate vicinity of the incident;
- Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill;
- If possible, cover or bund off any vulnerable areas where appropriate such as drains, watercourses or sensitive habitats;
- If possible, clean up as much as possible using the spill control materials;
- Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited;
- Notify the Environmental Manager immediately giving information on the location, type and extent of the spill so that they can take appropriate action;
- The Environmental Manager will inspect the site and ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring; and

- The Environmental Manager will notify the appropriate regulatory body such as Cork County Council, National Parks & Wildlife Service, Environmental Protection Agency (EPA) and Inland Fisheries Ireland (IFI), if deemed necessary.

Environmental incidents are not limited to just fuel spillages. Therefore, any environmental incident must be investigated in accordance with the following steps.

- The Environmental Manager must be immediately notified;
- If necessary, the Environmental Manager will inform the appropriate regulatory authority. The appropriate regulatory authority will depend on the nature of the incident;
- The details of the incident will be recorded on an Environmental Incident Form which will provide information such as the cause, extent, actions and remedial measures used following the incident. The form will also include any recommendations made to avoid reoccurrence of the incident;
- If the incident has impacted on a sensitive receptor such as an archaeological feature the Environmental Manager will liaise with the Project Archaeologist;
- A record of all environmental incidents will be kept on file by the Environmental Manager and the Main Contractor. These records will be made available to the relevant authorities such as Cork County Council, and DHPLG if required;
- In the event of any incident occurring which may impact significantly on the environment during the carrying out of the works, or during operations following the completion of these works, that incident will be reported to the relevant authority (e.g. Irish Coast Guard, NPWS, etc.) immediately by telephone.

The Contractor is responsible for any corrective actions required as a result of the incident e.g. an investigative report, formulation of alternative construction methods or environmental sampling, and will advise the Main Contractor as appropriate.

By carrying out the above steps, a proper system will be in place to investigate, record and report any potential accidents or incidents.

4.3 Fire Control Measures

Every effort shall be made to prevent the outbreak of a fire during the construction and operational phase of the proposed project. Fire extinguishers and first aid supplies will be available in the work area. In the event of such an incident, the health and safety of all personnel will be a priority.

The Contractor must ensure that there are:

- adequate fire escape routes;

- adequate measures for the prevention of internal and external spread of fire; and
- access and facilities for the fire safety services.

4.4 Emergency Flood Measures

The Contractor is required to prepare a comprehensive plan for managing the works that are being undertaken within areas susceptible to flooding.

The plan is required to outline proposed work methods, risk assessments and the emergency response measures and protocols that will be established to ensure the works can be carried out in a safe manner.

5 Site Demobilisation

In clearing the site, it is vital that wastes are managed in accordance with legislation, including avoiding burning of any clearance materials. Before a project is considered to be complete, the Contractor is required to clear away, and remove from the site, all equipment and materials. Any materials removed during the site demobilisation are still subject to transport management plans, loading procedures, waste management etc. This includes unused materials stored or taken to another site.