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EIAR Chapter 7: Hydrology Appendix 7.1

Outline Construction Environmental Management Plan

Suir Island Infrastructure Links



Comhairle Contae Thiobraid Árann
Tipperary County Council

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1 INTRODUCTION

This Outline Construction Environmental Management Plan (OCEMP) has been updated since the planning submission on 25th September 2023 to reflect the changes in response to the Request for Further Information (RFI) issued by An Bord Pleanála on 9th July 2024 in accordance with Section 51(4) of the Roads Act 1993, as amended. Altered text since the original copy is indicated by red text.

1.1 Overview

This document sets out the Outline Construction Environmental Management Plan (OCEMP) for the construction of the Suir Island Infrastructure Links proposed development (“the Project”) on behalf of Tipperary County Council.

This OCEMP applies to all works associated with the construction of the proposed civil works, bridge construction and landscaping including the pre-construction site clearance and reinstatement works.

As a contractor has not yet been appointed, the Construction Environmental Management Plan (CEMP) has not been formally adopted and further development and commitment to the OCEMP will be undertaken following selection of Contractors and prior to the commencement of site works.

The OCEMP provides the environmental management framework for the appointed Contractors and Subcontractors as they incorporate the mitigating principles to ensure that the work is carried out with minimal impact to the environment. The construction management team and Contractor’s staff must comply with the requirements and constraints set forth in the OCEMP in developing their CEMP(s). The key environmental constraints associated with the construction of the project, the appropriate mitigation and monitoring controls, are identified in the OCEMP and its supporting documentation.

The implementation of the OCEMP will ensure that the construction phase of the project is carried out in accordance with the commitments made by Tipperary County Council in the planning application process for the development, the Environmental Impact Assessment Report (EIAR) and as required under the conditions of the planning approval.

Following construction commencement, the CEMP is considered to be a living document that will be updated according to changing circumstances of the project and to reflect current construction activities. The CEMP will be reviewed on an ongoing basis during the construction process and will include information on the review procedures.

1.2 Document Structure

The OCEMP has been structured as follows:

- Section 1 outlines the purpose of the OCEMP and highlights the minimum requirements of the CEMP to be compiled by the appointed contractor;
- Section 2 describes the proposed development;
- Section 3 sets out the framework and mechanisms through which environmental requirements would be managed;
- Section 4 outlines the procedures to be employed during construction to manage environmental aspects.
- Section 5 describe the general requirements to be implemented to minimise likely signification negative effects, as far as feasible, during the construction of the proposed development.

1.3 Purpose of OCEMP

This OCEMP 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 Outline CEMP does not absolve the contractor or its sub-contractors from compliance with all legislation and by-laws relating to their construction activities.

This Outline CEMP has been produced as part of the application for planning consent to ensure compliance with legislative requirements and the EIAR that has been prepared for the proposed development.

The purpose of the OCEMP is to provide a framework for the appointed Contractor to:

- Describe the programme for environmental management during construction;
- Implement those monitoring and mitigation measures;
- Outline the principles and minimum standards required of the contractor during the development of the detailed CEMP (and associated Method Statements) and throughout construction;
- Identify the relevant roles and responsibilities for developing, implementing, maintaining and monitoring environmental management; and
- Outline the procedures for communicating and reporting on environmental aspects of the proposed development throughout construction.

It is intended that this OCEMP be utilised as a baseline for the detailed CEMP to be compiled by the appointed contractor and be expanded upon prior to the commencement of any construction activities on site.

1.4 Requirements of the CEMP

The appointed contractor shall be required to comply with all the performance requirements set out in tender documentation included the statutory consent approvals which may be granted by An Bord Pleanála, Office of Public Works, Tipperary County Council, Environmental Protection Agency (EPA), Inland Fisheries Ireland (IFI) and any other statutory stakeholders.

The contractor is required to develop a detailed CEMP(s) that:

- Is in accordance with the mitigation measures specified in the EIAR, NIS and this OCEMP;
- Is in accordance with any conditions that may be prescribed as part of the consent(s) for the proposed development;
- Aligns with design and construction details described in the EIAR and NIS which ensure there is no material change in terms of significant effects on the environment; and
- Where practicable the contractor should seek to identify opportunities for further reducing significant negative environmental impacts by the implementation of best practices.

Further, the contractor is required to develop the following plans, and any others considered relevant, and incorporate accordingly into the detailed CEMP(s);

- Heritage Management Strategy;
- Construction Compound Management Plan;
- Construction Traffic Management Plan;
- Noise and Vibration Management Plan;
- Water Quality Management Plan;
- Dust Management Plan;
- Construction and Demolition Waste Management Plan;
- Invasive Species Management Plan;
- Protected Species Management Plan; and
- Emergency Incident Response Plan.

2 DESCRIPTION OF THE DEVELOPMENT

2.1 Project Description

The proposed development will consist of:

- Two pedestrian bridges, the first bridge linking the proposed North Plaza on The Quay/Quay St/Sarsfield St Junction to Suir Island, and the second bridge connecting Suir Island to Raheen Road.
- The pedestrian bridges will be 4-metre-wide consisting of a double curvature alignment, which allow users to discover Suir Island 'from up high' by walking seamlessly between the trees while linking the project elements (North Plaza, the berm embankment, and the south riverbank) along one sinuous route. The first bridge follows the geometry of Sarsfield Street and arrives on the island following the line of the berm embankment, which then links onto the second bridge facilitating a link to Denis Burke Park on Raheen Road, creating a direct connection for pedestrians/cyclists between the park and the Town Centre.
- Provision of a new public open space called the North Plaza which will be aligned with Sarsfield Street. The steps and ramp will be visible from O'Connell Street creating a new landmark in the town of Clonmel and will encourage pedestrian movement towards the River Suir. The bicycle access ramp is designed to be as transparent as possible so as not to block the view of Suir Island from Sarsfield Street.
- Modification of traffic direction and carriageway width around the North Plaza and The Quay and Quay St.
- Provision of a bus stop on the western side of the North Plaza located on Quay Street with five benches providing comfortable facilities for public transport users.
- Upgrading of the existing 2-metre-wide sidewalk along Quay Street into a 4-metre-wide shared pedestrian/cycle path which will provide unencumbered access to the proposed plaza area underneath the elevated access ramp.
- Provision of a sloping landscaped terrace with public seating, located inside the hairpin-shaped access ramp leading up to the northern bridge crossing.
- Provision of three benches and a 9-metre-long stepped promenade seating area integrated into the circular-shaped plaza.
- Planting of various native tree species around the North Plaza to integrate the proposed development with the existing scenery of Suir Island and complement the visual experience of users.
- Provision of a pedestrian path or promenade along the existing berm embankment across Suir Island linking the two pedestrian bridges, to facilitate access between Denis Burke Park on Raheen Road and the proposed North Plaza on The Quay.
- Construction of a pedestrian/bicycle ramp from the link promenade onto Suir Island Carpark. The ramp is fully integrated into the landscape by using the existing slope of the berm.
- Construction of three sets of steps connecting the link promenade to Suir Island carpark and the eastern end of Suir Island.
- Provision of a mini public space within Suir Island Carpark at the entrance to the proposed Suir Island Gardens.
- Provision of a south arrival point for the second bridge connecting Suir Island to the Raheen Road. The South Arrival Point will consist of one access ramp to the east and one set of steps to the west, integrated with the bridge landing level and running parallel to the footpath. These elements will be located outside the existing flood barrier.
- Road improvements for the safety of pedestrians/cyclists at the South Arrival Point, including the footpaths being widened and the road narrowed to accommodate 3.0-metre-wide lanes.

Removal of three carparking spaces from the southern edge of the road to allow for wider footpaths.

- Installation of two uncontrolled pedestrian crossings positioned at either ends of the proposed access ramp and flight of steps to provide traffic calming at the South Arrival Point. This bridge arrival point will be located close to the school entrance of Raheen College, providing safe and convenient access for the schoolchildren.
- Access ramps and steps are located behind the flood barriers to allow access even during flood events.
- Construction of a new foul pumping station to be located within Suir Island car park which will facilitate future Irish Water connections. Wastewater will be pumped 0.1km approx. via rising main along the proposed bridge linking Suir Island to the proposed North Plaza where it will connect into the existing public network along The Quay.
- Ancillary site development works to include, but not limited to, surface water drainage, lighting and associated electrical works, hard and soft landscaping, road works to include surfacing and line marking, landscaping and installation of street furniture.
- All associated site works.

2.2 Construction Stage

It is anticipated that the construction of the proposed development will be progressed as a single construction contract with the construction phase lasting approximately **24 Months**. The construction start date is proposed for spring or early summer when the Suir River is not in spate and flood risk is reduced when working in the floodplain.

2.3 Construction Procurement

It is proposed that the construction of the development will be tendered under a Public Works Contract for Civil Engineering Works Designed by the Employer.

3 ENVIRONMENTAL MANAGEMENT FRAMEWORK

3.1 Overview

The CEMP will be developed by the contractor to meet the requirements of ISO 14001 and all site works will be undertaken in compliance with the CEMP. The CEMP shall include details of the topics listed below, further information on which is given in the following section.

- Environmental Policy;
- Environmental Aspects Register;
- Project Organisation and Responsibilities;
- Project Communication and Co-ordination;
- Training;
- Operational Control;
- Checking and Corrective Action;
- Environmental Control Measures;
- Complaints Procedure.

The CEMP details all the environmental aspects and impacts associated with this contract such as waste management, pollution prevention and protection of flora and fauna with particular emphasis on the Special Area of Conservation (SAC) and Water Quality in watercourses.

The Qualifying Interests of the Lower-River Suir (National Park & Wildlife Services) are:

- Atlantic salt meadows (*Glauco-Puccinellietalia maritima*) [1330]
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410]
- Watercourses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]
- Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]
- Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [91E0]
- *Taxus baccata* woods of the British Isles [91J0]
- *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029]
- *Austroptamobius pallipes* (White-clawed Crayfish) [1092]
- *Petromyzon marinus* (Sea Lamprey) [1095]
- *Lampetra planeri* (Brook Lamprey) [1096]
- *Lampetra fluviatilis* (River Lamprey) [1099]
- *Alosa fallax fallax* (Twaite Shad) [1103]
- *Salmo salar* (Salmon) [1106]
- *Lutra lutra* (Otter) [1355]

3.2 Environmental Policy

The contractor will complete an Environmental Policy with consideration for impacts on the natural and built environment. All project personnel will be accountable for the environmental performance of the project and will be made aware of the Environmental Policy at induction. The environmental policy will consider and make commitments with regard to the protection of Natura 2000 site emissions to the atmosphere, maintenance of water quality, resource usage energy consumption and waste management.

3.3 Environmental Aspect Register

Once appointed, the Contractor will prepare a register of all sensitive environmental features which have the potential to be affected by the construction works, together with details of commitments and agreements made within the Environmental Impact Statement, the Contract Documentation, Planning

conditions imposed by the local authority, and conditions identified by Statutory Authorities with regards mitigation of potential impacts.

The Environmental Aspects Register provides the relevant information for the preparation of construction method statements and will be regularly updated during the works. A non-exhausted list of sensitive environmental features/receptors is listed below:

- Identification of all waterways for the protection against ingress of suspended solids or any pollutant;
- Air emissions;
- Noise emissions;
- Light emissions;
- Waste generation;
- Use hazardous materials;
- Energy usage;
- Water usage;
- Discharge of wastewater;
- Traffic generation;
- Terrestrial ecology;
- Aquatic ecology;
- Visual impacts;
- Hydrogeology;
- Archaeology and Cultural Heritage.

3.4 Project Organisation and Responsibilities

3.4.1 Employer

Tipperary County Council will be the Employer responsible for ensuring that the competent parties are appointed to undertake construction and that sufficient resources are made available to facilitate the appropriate management of risks to the environment.

3.4.2 Employers Representative

The Employers Representative (ER) appointed by Tipperary County Council will be responsible for the monitoring compliance with the CEMP. The ER may be required to appoint a temporary or permanent specialist(s) with appropriate experience as required to implement on site procedures and monitoring construction on behalf of Tipperary County Council i.e. competent experts in biodiversity, architecture, archaeology and heritage, noise, vibration, dust, waste, land, soils, contamination and/or water.

3.4.3 Employer's Ecological Clerk of Works

The Employer's Ecological Clerk of Works (ECoW) appointed by Tipperary County Council will be responsible for monitoring compliance with the CEMP and other relevant regulations, and conduct inspections and audits as highlighted in this document. The Employer's ECoW will liaise with TCC and other relevant stakeholders to obtain the necessary approvals of Construction Method Statements and the Construction Environmental Management Plans which will be prepared by the appointed contractor. Further details on the ECoW responsibilities are highlighted in **Appendix A** of this report.

3.4.4 Project Manager

The overall responsibility lies with the Project Manager whose responsibility it will be to approve key personnel required for employment on the project. The Project Manager shall liaise with the Site Environmental Manager (SEM) throughout the project construction phase.

The Project Manager will lead the operations in/on the site and will be responsible for the management and control of the activities and will have overall responsibility for the implementation of the CEMP.

The Project Managers main duties and responsibilities in relation to the CEMP include liaising with the Project Team in assigning duties and responsibilities in relation to the CEMP to individual members of the main contractor's project staff.

3.4.5 Site Environmental Manager

The main duties and responsibilities of the SEM include and is not limited to the following:

- Liaise with the Project Manager during the finalisation of the CEMP to assign individual duties and responsibilities bearing in mind the overall organisational structure, the nature of the Environmental Commitments and requirements and the proposed development;
- Ensuring that the CEMP is finalised, implemented and continuously updated;
- Liaise with Tipperary County Council Environmental Manager and the ER on all Method Statements, any alterations to live documents and any other works to ensure protection of environmental receptors identified in the EIAR;
- Being familiar with the information in the pre-construction surveys, construction requirements, planning approval conditions and all relevant method statements;
- Being familiar with the contents, environmental commitments and requirements contained within the reference documentation listed in this OCEMP;
- Being familiar with the baseline data collated during the compilation of the EIAR;
- Assisting Management in liaising with the ER and Tipperary County Council and the provision of information on environmental management during the construction of the Project;
- Assigning duties and responsibilities in relation to the CEMP to individual members of the main contractor's project staff;
- Overseeing, ensuring coordination and playing a lead role in third-party consultations required statutorily, contractually and in order to fulfil best practice requirements;
- Liaising with the ER and Tipperary County Council in the approving of site-specific construction method statements;
- Bring any legal constraints that may occur during certain tasks to the attention of the relevant stakeholders;
- Hold copies of all permits and licenses provided by waste contractors;
- Ensuring that any operations or activities that require certificates of registration, waste collection permits, waste permits, waste licences, etc have appropriate authorization;
- Gathering and holding documentation with respect to waste disposal;
- Keeping up to date with changes in environmental best-practices, legislation and advising staff of such changes and incorporating them into the CEMP;
- Liaising with contactors and consultants prior to works;
- Procuring the services of specialist environmental consultants as required;
- Ensuring that all specialist environmental consultants are legally accredited and proven to be competent;
- Coordinating all the activities of the specialist environmental contractors;
- Ensuring that Environmental Induction Training is carried out on all personnel on site and ensuring that toolbox talks include aspects of Environmental Awareness and Training;
- Responsible for notifying the relevant statutory authority when environmental incidents occur and producing the relevant reports as required;
- Ensuring that all relevant works have (and are being carried out in accordance with) the required permits, licenses, certificates and planning permissions;
- Liaising with the designated licence holders and specific agent defined in the licence with respect to licences granted pursuant to the European Commission (EC) (Natural Habitats) Regulations 1997;
- Carrying out regular documented inspections and audits of the site to ensure that work is being carried out in accordance with the environmental control measures and relevant site-specific method statements;
- Preparation of the Emergency Incident Response Plan;

- Responsible for reviewing all environmental monitoring data and ensuring that they all comply with stated guidelines and requirements; and
- Liaising with management in preparing and inspection of site-specific method statements for activities where there is a risk of pollution or adverse effects on the environment.

3.4.6 Site Manager

A Site Manager will be appointed to oversee the day-to-day management of working areas within the site and ensure effective, safe, planned construction activities are delivered on an ongoing basis to the highest standards practically possible. The Site Manager will be a suitably qualified, competent and experienced professional that will oversee site logistics, communicate regularly with site staff, accommodate project-specific inductions for staff on site and ensure that all work is compliant with the relevant design standards and Health and Safety legislation.

3.4.7 Environmental Specialist Appointed by the Contractor

To fulfil its obligations under the CEMP and to support its Site Environmental Manager, the contractor will be responsible for engaging suitably qualified and experienced professionals including where necessary the following (i.e. depending on the scope of the contract) competent experts:

- Archaeologist;
- Ecologist;
- Aquatic Ecologist/Geohydrologist;
- Noise and Vibration Specialist;
- **Lighting specialist;**
- Air Quality and Dust Specialist;
- Land, Soils, and Contamination Specialist; and
- Water Specialist

3.5 Project Communication and Co-ordination Procedures

3.5.1 Community and Stakeholder Engagement

The contractor will take all practical steps to engage with stakeholders in the local community, focusing on those who may be affected by the construction works including residents, businesses, community resources and specific vulnerable groups.

Communication with the local community, Tipperary County Council and other relevant stakeholders shall be undertaken at an appropriate level and frequency throughout construction. Tipperary County Council will establish a Communications Management Plan that will specify obligations in relation to community and stakeholder engagement that the contractor must adhere to. Where communications are related to environmental issues the Site Environmental Manager will be informed and engaged with, as appropriate.

3.5.2 Regular Consultation and Public Communications

The Communications Management Plan will also specify obligations in relation to regular consultation and public communications activities required during the construction of the proposed development. The contractor will facilitate regular consultation in accordance with the specifications and cooperate with this plan.

Where communications are related to environmental issues the Site Environmental Manager would be informed and engaged with as appropriate. Details of the available communication channels/points of contact for members of the public to contact the project team during construction will be established in advance of the commencement of construction and displayed around working areas.

3.5.3 Advance Notice of Works

The contractor will ensure that local residents, businesses, occupants, general users of the area and stakeholders are informed in advance of construction activities that may affect them. Relevant obligations and procedures in relation to advance notice of works will be identified in the detailed CEMP(s) and in the Communications Management Plan.

All notifications will detail the nature, estimate duration and working hours. All notifications will include a project-specific contact number to which any enquires can be directed. The contractor will be responsible for preparing and issuing the notifications subject to the relevant approval and consents.

3.5.4 Contacts

An emergency contact list will be established and made available to all construction staff employed. The contact list shall be displayed prominently on site as well as at suitable locations where construction activity is being carried out around working areas. The contact list will include key environmental representatives that may need to be contacted in the event of an incident.

3.5.5 Enquiries and Complaints

The contractor shall establish a process for handling all enquires including complaints. All enquires will be recorded and a log would be maintained to include details of the response and actions taken. This will be available upon request for inspection to Tipperary County Council. All enquiries, whether a query or a complaint, will be dealt with in a timely manner.

The Site Environmental Manager will be immediately informed of any environmental related issues that have been raised. Where appropriate, the Site Environmental Manager would be responsible for informing Tipperary County Council, relevant stakeholders and statutory bodies.

4 ENVIRONMENTAL MANAGEMENT PROCEDURES

4.1 Training, Awareness and Competence

The contractor (and subcontractors) would be selected with due consideration of relevant qualifications and experience. The contractor will be required to employ construction staff with appropriate skills, qualifications and experience appropriate to the needs of the works to be carried out during construction.

All employees and subcontractors involved on site will be given a comprehensive induction prior to commencement of the works. This environmental training can be run concurrently with safety awareness training. Training will include:

- Overview of the Environmental Policy and Environmental Management Plan, goals and objectives;
- Awareness in relation to risk, consequence and methods of avoiding environmental risks as identified within the Register of Aspects and with the planning conditions;
- Awareness of roles and individual environmental responsibilities and environmental constraints to specific jobs;
- Location of and sensitivity of Special Area of Conservations, Special Protection Areas, protected monuments, structures etc.
- Location of habitats and species to be protected during construction, how activities may affect them and methods necessary to avoid impacts.

A record will be kept of a signed register on the project files of all attendees of the environmental induction. Toolbox talks based on specific activities being carried out will be given to personnel by the nominated project representative. These will be based on specific activities being carried out and will include environmental issues particular to the Project, including the impact on the environment and ecology:

- Oil/Diesel spill prevention and safe refuelling practice;
- Storage of materials including oil/diesels and cement;
- Emergency response processes used to deal with spills;
- Minimising disturbance to wildlife;
- Emergency response to include water pollution hotline to the EPA and Tipperary County Council for regulator response. Identification of registered / accredited spill clean-up company for oil etc.; and
- Consideration of importance of containment of vehicle washing, containments of concrete /cement / grout washout etc, bank protection using hessian to prevent excessive scour and mobilisation of suspended solids, maintenance of vegetation corridors etc.

4.2 Meetings

Tipperary County Council and/or the Employer's Representative will arrange regular meetings to discuss environmental matters and ensure effective coordination to be attended by:

- Tipperary County Council;
- Employers Representative;
- Contractor;
- Site Environmental Manager; and
- Environmental Specialists – engaged by either the Client and/or Contractor.

4.3 Monitoring, Inspections and Audits

For the duration of the contract, the environmental performance of the contractor will be monitored through site inspections and audits. The programme for monitoring, inspections and audits shall be specified in the contract and it is likely to be a combination of internal inspections and independent external audits that may be either random or routine.

Records of all inspections carried out should be recorded on standard forms and all actions should be closed out in a reasonable time. The detailed CEMP(s) would include further details of inspection procedures.

4.3.1 Monitoring

Mitigation and monitoring will be carried out in accordance with the requirements of the EIAR and NIS so that construction activities are undertaken in a manner that does not give rise to significant negative effects. Suitable monitoring programmes will need to be developed, implemented, documented, and assessed (with potential follow up) in accordance with the specification outlined in the detailed CEMP(s).

The results of all environmental monitoring activities would be reviewed by the Site Environmental Manager on an ongoing basis to enable trends or exceedance of criteria to be identified and corrective actions to be implemented as necessary. The contractor will be required to inform the Employer's Representative of any continuous exceedances of criteria.

4.3.2 Inspections

Routine inspections of construction activities will be carried out by the Site Environmental Manager on a daily basis to ensure all necessary environmental measures relevant to the construction activities are being effectively implemented by construction staff, ensuring legal and contractual conformity. More detailed inspections would be undertaken by the Site Environmental Manager on a weekly basis.

The weekly inspections would be appropriately documented by the Site Environmental Manager and copies of these records and any action required to be undertaken should be made available to the Employers Representative.

Each month one of the weekly inspections will include a review of environmental documentation and records. The monthly inspection will be recorded on a standard form and reported to the Employers Representative within five days of the inspection taking place. This standard form will address the following as a minimum:

- Summary of compliance/non-compliance with the CEMP;
- Results of the monitoring programme;
- Summary of key findings;
- Summary of environmental complaints and queries received; and
- Record of environmental training undertaken by staff.

4.3.3 Audits

Tipperary County Council will arrange for independent environmental audits to be carried out by a third-party during construction. External audits provide the opportunity for an independent auditor to advise on compliance with applicable environmental regulatory requirements, the efficacy of the environmental management approaches used, and recommendations for reducing identified environmental risks (if considered appropriate).

Further, regulatory and statutory bodies may undertake site visits to monitor compliance with legislative and regulatory requirements. These site visits may occur randomly throughout the construction period. The contractor will facilitate these visits and the Site Environmental Manager will be available to provide information as required and deal with any issues that may arise during, or as a result of, these visits.

The contractor will be required to prepare standard forms for reporting and audit items shall include but not be limited to the following activities:

- Review of environmental documentation to establish if relevant requirements are being met and if continual improvement is occurring;
- Site inspection and interviews with on-site personnel; and
- Reporting with recommendations.

For any environmental nonconformities found, the auditor will prepare a Corrective Actions Report to describe and record the findings of the nonconformance (Refer to **Section 4.4.2**). The verification of previous Corrective Actions Reports should be also recorded.

Upon completion of an audit, the auditor will review all Corrective Actions Reports and prepares and Audit Report to summarise the following:

- Corrective action requests raised;
- Previous corrective actions requests and close-out; and
- Observations made during the audit.

The Site Environmental Manager will be entitled to participate in all audits. Notwithstanding this, the Employers Representative shall produce and provide the contractor with a copy of each audit report within five working days of the audit. Each audit report will detail the findings from the auditor, specify nonconformances identified and outline the proposed corrective action.

4.4 Incident Response and Corrective Actions

4.4.1 Overview

Corrective actions are measures to be implemented to rectify any nonconformances (i.e. exceedance of criteria or targets) identified during monitoring, inspections and/or audits.

In the first instance, an investigation should be undertaken by the Site Environmental Manager to identify the cause of any non-conformances. Appropriate remedial measures shall be identified and implemented as soon as practicable to prevent further exceedances. If necessary, the appropriate statutory authority and stakeholders will be notified.

Where new or amended measures are proposed, the relevant CEMP(s) will be updated accordingly by the Site Environmental Manager and the Employer's Representative should be informed at the earliest opportunity.

4.4.2 Corrective Action Reports

A Corrective Actions Report is prepared on foot of any non-conformances identified during environmental monitoring, inspections and/or audits on site. The Corrective Actions Report will describe in detail the cause and effect of a non-conformance on site and describe the recommended corrective action that is required to remedy it.

An appropriate timeline for closing out the corrective actions will be identified by the contractor in their detailed CEMP(s) as well as arrangements for the Site Environmental Manager verifying the Corrective Actions Report and informing appropriate authorities and stakeholders in a timely manner.

4.4.3 Emergency Incidents

Emergency incidents are those occurrences that give rise to significant negative environmental effects including but not limited to the following:

- Any malfunctions of any mitigation measure and/or environmental protection system;

- Any emission that does not comply with the contract requirements and relevant licences;
- Any circumstance with the potential for environmental pollution; or
- Any emergency that may give rise to environmental effects.

4.4.4 Accidental Spill Control Measures

Every effort will be made to prevent pollution incidents associated with spills during the construction of the proposed development. The risk of oil/fuel spillages will exist on the site and any such incidents will require an emergency response procedure. The following steps provide the procedure to be followed in the event of an oil/fuel spill occurring on site:

- Identify and stop the source of the spill and alert people working in the vicinity;
- Notify the Site Environmental Manager immediately giving information on the location, type, extent of the spill;
- If applicable and safe to do so, eliminate any sources of ignition in the vicinity of the incident;
- Contain the spill using control materials, spill kits, 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 and or/or sensitive habitats;
- 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;
- The Site Environmental Manager shall inspect the site as soon as practicable and ensure the necessary measures are in place to contain and clean up the spill and prevent further contamination from occurring; and
- The Site Environmental Manager will notify the appropriate stakeholders of the incident.

4.4.5 Emergency Incident Response Plan

A set of standardised emergency response procedures will govern the management of emergency incidents. The contractor will be required to detail emergency incident response procedures in the detailed CEMP(s) and to develop an Emergency Incident Response Plan.

The Emergency Incident Response Plan will contain emergency phone numbers and the method of notifying local authorities, statutory authorities and stakeholders. Contact numbers for key personnel will also be included therein. Contractors will be required to adhere to and implement these procedures and ensure that all staff and personnel on site are familiar with the emergency arrangements.

The contractor will consult with the relevant statutory authorities, stakeholders and relevant parties such as the Health and Safety Authority, the Fire Authority, the Ambulance Service, the EPA, utilities companies and Tipperary County Council when preparing and developing response measures. Further, if any sensitive receptor is impacted, the appropriate environmental specialists will be informed and consulted with accordingly.

Any response measures will be incorporated into an updated Emergency Incident Response Plan that should be disseminated accordingly to construction staff, Tipperary County Council and the Employer's Representative.

4.4.6 Emergency Access

The contractor will be required to maintain emergency access routes throughout construction and identify site access points for each working area. This should be developed in partnership with the emergency services and documented as part of the detailed CEMP(s) and Emergency Incident Response Plan.

4.4.7 Extreme Weather Events

The contractor will consider the impacts of extreme weather events and related conditions during construction. The contractor will use a short to medium range weather forecasting service from Met Eireann or other approved meteorological data and weather forecast provider to inform short to medium term programme management, environmental control and mitigation measures.

The detailed CEMP(s) should consider all measures deemed necessary and appropriate to manage extreme weather events and should specifically cover training of personnel and prevention and monitoring arrangements for staff. As appropriate, method statements should also consider extreme weather events where risks have been identified, e.g. flood risks in the River Suir.

4.4.8 Unexpected Discoveries

The contractor is obliged to put in place appropriate procedures to be employed in the event of encountering unexpected archaeological or cultural heritage assets or subsurface contamination during intrusive ground works.

The contractor will be required to develop appropriate procedures as part of their detail CEMP(s) and the Environmental Manager will ensure that specialists (e.g. archaeologist) are facilitated to ensure management in accordance with industry best practice and effective compliance with the relevant legislation. All unexpected discoveries will be reported to the appropriate authorities and documented in an appropriate manner.

4.5 Reporting

4.5.1 Environmental Compliance Report

The contractor will be required to submit a monthly report to the Employer's Representative for review and approval. The report shall address the following as a minimum:

- Summary of compliance with the CEMP including identification of any non-conformances;
- Interpretation of the results of ongoing monitoring;
- Detailed description of any issues and/or non-compliances identified during inspection and/or audits;
- Record of incidents and corrective actions
- Synopsis of environmental complains received/queries raised by stakeholders; and
- Records of environmental training and/or inductions.

4.5.2 Incident Investigation Reports

The contractor will inform the Employer's Representative of all emergency incidents immediately and prepare an initial report within 24 hours setting out the details of the incident and cause(s) if known. The contractor will be required to complete the Environmental Incident Report and any further documentation requested by the Employer's Representative in relation to the incident within 7 days of the incident occurring. The Contractor will respond to all comments made by the ER on any incident.

The Environmental Incident Report will contain details of the incident including the location, known and suspected causes and weather conditions. It will define the scale and effects (short, medium, long term, temporary/permanent) as well as required corrective actions and mitigation/ remediation/compensation measures (as appropriate).

4.6 Environmental Records

The Contractor shall maintain records of all environmental documentation including monitoring, test results, method statements and plans. All records will be kept up to date and be made available for

audits, inspections and periodical reporting. The Contractor will maintain the following environmental records (as a minimum) that will be made available for inspection to the Employer's Representative and the relevant authorities, if required:

- Management Plans;
- Records of environmental incidents;
- Monthly environmental reports;
- Records of environmental training;
- Register of environmental complaints;
- Corrective Action Reports;
- Environmental inspections and audit reports;
- All monitoring data;
- Waste and chemical inventories; and
- Health and Safety records.

5 General Requirements

5.1 Overview

It is the responsibility of the contractor to ensure compliance and to avoid and/or reduce significant adverse effects that have been identified where practicable. Where the contractor diverts from the methodologies and working areas outlined herein and/or defined in the granted planning consent and associated conditions that may be granted, it would be the responsibility of the contractor to obtain the relevant licenses, permits and consents for such changes.

5.2 Good Housekeeping

The Contractor will employ a “good housekeeping” policy at all times. This will include, but not necessarily be limited to, the following requirements:

- General maintenance of working areas and cleanliness of welfare facilities and storage areas;
- Provision of site layout map showing key areas such as first aid posts, material storage, spill kits, material and waste storage, welfare facilities etc;
- Maintain all plant, material and equipment required to complete the construction work in good order, clean, and tidy;
- Keep construction compounds, access routes and designated parking areas free and clear of excess dirt, rubbish piles, scrap wood, etc. at all times;
- Details of site managers, contact numbers (including out of hours) and public information signs (including warning signs) will be provided at the boundaries of the working areas;
- Provision of adequate welfare facilities for site personnel;
- Installation of appropriate security, lighting, fencing and hoarding at each working area;
- Effective prevention of oil, grease or other objectionable matter being discharged from any working area;
- Provision of appropriate waste management at each working area and regular collections to be arranged;
- Excavated material generated during construction will be reused on site as far as practicable and surplus materials/soil shall be recovered or disposed of to a suitably authorised waste facility site;
- Effective prevention of infestation from pests or vermin including arrangements for regular disposal of food and material attractive to pests will be implemented. If infestation occurs the contractor will take appropriate action to eliminate and prevent further occurrence;
- Maintenance of wheel washing facilities and other contaminant measures as required in each working area;
- No discharge of site runoff or water discharge without agreement of the relevant authorities;
- Open fires will be prohibited at all times;
- The use of less intrusive noise alarms which meet the safety requirements, such as broadband reversing warnings, or proximity sensors to reduce the requirement for traditional reversing alarms;
- Maintenance of public rights of way, diversions and entry/ exit areas around working areas for pedestrians and cyclists where practicable and to achieve inclusive access;
- All loading and unloading of vehicles will take place off the public highway wherever this is practicable; and
- Material handling and/or stockpiling of materials, where permitted, will be appropriately located to minimise exposure to wind. Water misting or sprays shall be used as required if particularly dusty activities are necessary during dry or windy periods.

5.3 Working Hours

5.3.1 Core Working Hours

The timing of construction activities, core working hours and the rate of progress of construction works are a balance between efficiency of construction and minimising nuisance and significant effects. The core construction working hours for the proposed development will be:

- 7am – 7pm: Monday to Friday;
- 8am – 2pm: Saturday (Approval required by Tipperary County Council)

The contractor may require a period of up to one hour before and one hour after core working hours for start-up and shut down activities in working areas. Activities permitted may include deliveries and unloading of materials, movement of staff to their place of work, maintenance and general preparation works. The use of plant or machinery likely to cause disturbance, other than for piling, will not be permitted outside of the core working hours.

The permitted working hours for piling in the SAC as set out by the National Parks and Wildlife Services (NPWS) and Inland Fisheries Ireland (IFI) is as below:

- Mondays to Fridays: 08:00am to 18:00pm
- Saturdays, Sunday and Bank Holidays: Not permitted

5.3.2 Additional Working Hours

It may be necessary in exceptional circumstances to undertake certain activities outside of the construction core working hours. Any construction outside of the construction core working hours will be agreed by the contractor in advance with Tipperary County Council and scheduling of such works shall have regard to nearby sensitive receptors.

In the case of work required in an emergency or which if not completed would be unsafe or harmful to workers, the public or local environment, Tipperary County Council will be informed as soon as reasonably practicable of the reasons and likely duration and timing (outside of the core working hours).

5.4 Security

Security will be the responsibility of the contractor who will provide adequate security to prevent unauthorised entry to or exit from any working areas. The following measures may be used to prevent unauthorised access:

- Install CCTV and alarm systems where required;
- CCTV and security systems will be sited and directed so that they do not intrude into occupied residential properties;
- Provide adequate security guards and patrols;
- When there is no site activity, close and lock site gates and set appropriate site security provisions in motion;
- Consult with neighbouring properties and local crime prevention officers including Tipperary County Council and An Garda Síochána on site security matters as required; and
- Prevent access to restricted areas and neighbouring properties by securing equipment on site such as scaffolding and ladders.

5.5 Hoarding and Fencing

A site boundary in the form of hoarding or fencing will be established around each of the working areas before any significant construction activity commences in that working area. The hoarding/fencing shall

be 2.4m high to provide a secure boundary to what can be a dangerous environment for those that have not received the proper training and are unfamiliar with construction operations.

The erection of hoarding would be of a similar nature to what is carried out on most construction sites. Mounting posts would be erected by using a mini-digger and the posts would be set in concrete. The size and nature of the posts and hoarding would depend on the requirements for any acoustic mitigation as well as preferences that the contractor may have. Where practicable, hoarding and fencing would be retained and re-configured and re-used between working areas as the construction activities progress.

The following measures will be applied in relation to hoarding and fencing:

- Maintenance of adequate fencing and hoardings to an acceptable condition to prevent unwanted access to working areas and provide noise attenuation, screening, and site security where required;
- Appropriate sight lines/visibility splays will be maintained around working areas to ensure safety of both vehicles and pedestrians is preserved;
- Use of different types of fencing and hoarding (e.g. mesh fence or solid hoarding including hoardings used for noise control);
- Temporary fences may be used in certain areas, such as for short term occupation of working areas;
- Display information boards with out of hours contact details, telephone helpline number (for comments/complaints) and information on the works;
- Erect notices on site boundaries to warn of hazards on site such as deep excavations, construction access, etc.;
- Ensure suitable measures for tree protection are implemented as required;
- Keep hoarding and fencing free of graffiti or posters;
- Retain existing walls, fences, hedges and earth banks as far as reasonably practicable; and
- Appropriate positioning of the fencing or hoarding to minimise the noise transmitted to nearby receptors or from plant, equipment and vehicles entering or leaving the working area.

5.6 Services and Facilities

5.6.1 Services and Utilities

Site services shall be installed as part of the enabling works in parallel with the rearrangement and diversion of existing utilities. Working areas will be powered by mains supplies or diesel generators where an electrical supply is not available.

The contractor will be responsible for undertaking their own surveys to establish full extent of underground services prior to the commencement of construction to support any surveys already undertaken as part of early design work and statutory consent applications.

5.6.2 Welfare Facilities

Welfare facilities will be provided, as appropriate, for construction staff and site personnel such as locker rooms, toilets, showers etc. The location of these will be agreed with Tipperary County Council and identified as part of the detailed CEMP(s).

5.7 Reinstatement of Working Areas on Completion

The contractor will reinstate all working areas and access routes as work proceeds during construction. All plant, equipment, materials, temporary infrastructure and vehicles will be removed at the earliest opportunity and the surface of the ground restored as near as practicable to its original condition. Pre-condition and post-condition surveys shall be carried out by the Contractor to ensure reinstatement

conditions and requirements are agreed upon with the Engineers Representative and Tipperary County Council.

5.8 Dewatering of Works Areas

The Contractor shall be required to follow the following dewatering methodology as summarised below:

- For The North Plaza, Suir Island Car Park and Raheen Road, dewatering of any excavation works shall make use of Aska Sykes Ltd Dirt-Box and Dirt-Bags systems (or similar approved) to filter water prior to discharging into the existing surface water systems;
- For Suir Island, Denis Burke Park and any works near the Suir River riverbanks, dewatering of any excavation works shall make use of Aska Sykes Ltd Dirt-Box and Dirt-Bags systems, installed in parallel or in series depending on flow and quality requirements;
 - Water shall be discharged overland via a buffered outfall over vegetated ground;
 - All excavations shall contain suitable sumps for the removal of water; and
 - Pump shall be fitted with suitable screens and/or sieves to reduce the intake of silt.

Indicative layouts and details of the dewatering methodology is shown in Figure 5-1 below and shown on Drawing 20_071-CSE-00-XX-DR-C-1410 included in **Appendix B**.

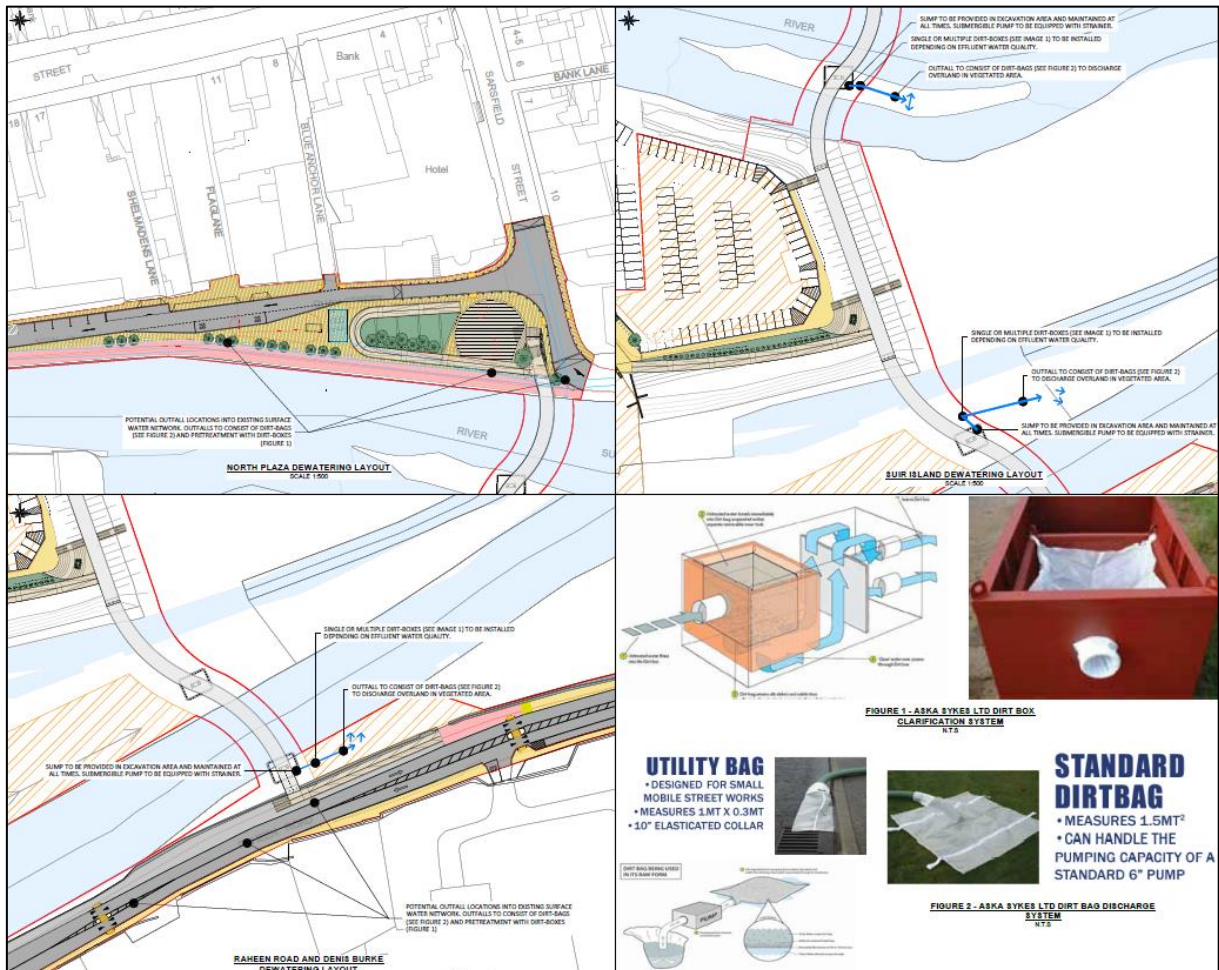


Figure 5-1: Dewatering of excavations

5.9 Health & Safety

The contractor shall be required to ensure all relevant health and safety, fire safety and security requirements are in place prior to the commencement of construction and in accordance with relevant legislative requirements in addition to the specifications of Tipperary County Council.

Relevant Irish and EU health and safety legislation shall be complied with at all times by all construction staff and personnel during construction. Further, contractors shall also have to ensure that all aspects of their works comply with good industry practice and all necessary consents, licences and authorisations that have been put in place for the proposed development.

6 Environmental Management

This section describes the specific environmental requirements identified as part of the specific design and Suir Island Environmental Impact Assessment (EIAR) Chapters, Screening for Appropriate Assessment (AA) and Natura Impact Statement (NIS) that will need to be adhered to by the contractor.

It should be noted that **Sections 6.1 - 6.12** provides a summary of minimum requirements that should be built upon by the contractor when developing the detailed CEMP(s). It is intended that the measures set out herein will be discussed in more detail with relevant stakeholders as required in order to support the identification of any additional measures to be taken account of during construction.

6.1 Traffic and Transportation

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

- All trucks entering and exiting the site will be covered with tarpaulin;
- Adequate parking will be provided near the contractor's compounds to avoid queuing at the site entrances and prevent disruption to neighbouring businesses/roads. Construction vehicles will not be allowed to park on the public road either outside the site or on any of the approach roads leading to the site;
- All trucks entering the site will be restricted to suitable speed limits and will be directed to the relevant area by the Site Manager;
- Trucks required to wait on site will switch off engines to avoid unnecessary fuel usage and noise;
- All trucks exiting the site will be required to pass through a wheel wash. A lance will be provided to clean down the bodies and sides of the truck prior to leaving site;
- Roads outside the site 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 in the area. The CTMP will demonstrate how pedestrians, cyclists and motorised vehicles are prevented from passing through the sites and that measures are in place which ensure traffic is not disrupted;
- The CTMP will include a detailed consultation plan to deal with third party queries from both residents and commercial operators. The CTMP will require agreement with both Tipperary County Council and An Garda Síochána prior to the commencement of construction.
- 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.
- As part of the CTMP a Mobility Management Plan will be prepared to ensure access to the site by sustainable travel modes is encouraged. The following measures will need to be considered within the Mobility Management Plan:
 - The provision of facilities for construction staff;
 - The provision of cycle and parking for construction staff;
 - The promoting of car sharing among staff, including van pooling to travel between different work sections;
 - **Runoff from temporary works areas and access routes shown on Drawing No. 2460 and 2461 shall be managed in accordance with Section 5.8 of this OCEMP.**

6.2 Air Quality and Climate

The contractor is required to implement the following measures in relation to air quality and climate during construction:

- Implementation of 'standard mitigation' measures as stated in the Transport Infrastructure Ireland (TII), (formerly the National Roads Authority (NRA) (2011)), Good Practice Guidance for the Treatment of Air Quality during the Planning and Construction of National Road Schemes:
- Water spraying of exposed earthwork activities and site haul roads during dry weather;
- Provision of wheel washes at exit points;
- Covering of stockpiles;
- Control of vehicle speeds, speed restrictions and vehicle access; and
- Sweeping of hardstand surfaces.
- Erection of the hoarding will be provided around the working areas to minimise the dispersion of dust from working areas as per **Section 5.5** of this OCEMP;
- Generators will be located away from sensitive receptors in so far as practicable;
- Stockpiles will be located as far as possible from sensitive receptors, floodplains and covered/dampened during dry weather conditions;
- Employee awareness shall be promoted by actively training staff on management of operations and dust suppression;
- Where asbestos is uncovered on site, a competent contractor shall remove the ACM? from site and disposed of in accordance with relevant procedures and legislations.

6.3 Odour

No mitigation measures are required during the construction of the proposed development with regards to odour.

6.4 Noise and Vibration

The Noise and Vibration Management Plan (NVMP) will outline how the appointed Contractor(s) will comply with the noise criteria set out in this section, **EIAR Chapter 10 Noise and Vibration, Addendum to EIAR Chapter 10 Noise and Vibration and the Natura Impact Statement** and will deal specifically with construction activities in a strategic manner to remove or reduce significant noise and vibration impacts associated with the construction of the proposed development. The NVMP will detail the provision and installation of localised acoustic screens, the best practice noise measures that the appointed Contractor(s) will be required to adhere to for construction activities and the noise and vibration monitoring programme that the appointed Contractor(s) will be required to undertake during the construction works.

There is no published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project. Local authorities normally control construction activities by imposing limits on the hours of operation and consider noise limits at their discretion. Whist Chapter 10 of the EIAR references Construction Noise Thresholds relating to potential noise effects, the following construction noise levels, taken from Transport Infrastructure Ireland (TII) publication *Guidelines for the Treatment of Noise and Vibration* (2004) are proposed with respect to setting construction noise limits for the purpose of noise monitoring as part of the works. These are outlined in in Table 10-18.

Table 10-18: Maximum Permissible Noise Levels at the Facade of Dwellings During Construction

Days and Times	Noise Levels (dB re. 2x10 ⁻⁵ Pa)	
	L _{Aeq} (1hr)	L _{ASmax}
Monday to Friday 07:00hrs to 19:00hrs	70	80
Monday to Friday 19:00 to 22:00hrs	60*	65

Saturdays 08:00hrs to 14:00hrs	65	75
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Note *: Construction activity at these times, other than that required for emergency works, will normally require the explicit permission of the local authority.

Appropriate construction noise limits for non-residential receptors are presented in Section 10.2.1, i.e.

70 decibels (dBA) in rural, suburban areas away from main road traffic and industrial noise;

75 decibels (dBA) in urban areas near main roads in heavy industrial areas.

Construction noise monitoring will be undertaken at periodic sample periods at the nearest noise sensitive locations to the development works to check compliance with the construction noise criterion.

Noise monitoring should be conducted in accordance with the International Standard ISO 1996: 2017: *Acoustics – Description, measurement and assessment of environmental noise.*

In addition, the appointed Contractor will prepare detailed method statements addressing the likely ground-borne noise and vibration levels that will be generated as a result of the construction activities once the specific details of the proposed plant items and construction methodologies are known.

The contractor is required to implement the following measures in relation to noise and vibration during construction:

- The contractor will take specific noise reduction measures and comply with the recommendations of the standards and the European Communities (Noise Emission by Equipment for Use Outdoors) Regulations, 2001 and 2016 so as to acknowledge the EC (Noise Emission by Equipment for Use Outdoors) (Amendment) Regulations 2006;
- A site representative shall be appointed to be responsible for matters relating to noise and vibration;
- Unnecessary revving of engines should be avoided, and equipment should be switched off when not required;
- Generators will be located away from sensitive receivers and will be enclosed;
- 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;
- Selecting electrically powered plant that is quieter than diesel or petrol-driven plant, if interchangeable;
- Fitting suitable anti-vibration mountings where practicable, to rotating and/or impacting equipment;
- 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;
- Regular and effective maintenance by trained personnel shall be carried out to reduce noise and/or vibration from plant and machinery;
- Ensuring that all plant is maintained regularly to comply with relevant national or international standards and operation of plant and equipment that minimises noise emissions;
- Ensuring that plant is shut down when not in use;
- Ensuring that air lines are maintained and checked regularly to prevent leaks;
- Designing all audible warning systems and alarms to minimise noise. Nonaudible 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 and where practicable use 'white noise' reversing alarms in place of the usual 'siren' style reversing alert;
- A c. 2.4m hoarding shall be provided around construction works;
- 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;

- During construction, regular inspections will be undertaken to ensure that the noise and vibration minimising methods, plant and mitigation identified in the specimen design stage are adopted on site and are working effectively. If applicable, it is proposed that construction method inspections be integrated into any health and safety or quality surveillance regime;
- A Communications Management Plan shall be prepared to provide for effective community liaison to help ensure the smooth running of construction activities and to address any issues that may arise;
- Noise monitoring should be undertaken at the start of each new activity to determine the compliance with limit values. This may involve monitoring on a daily basis initially (for the first three weeks), 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 (piling) are undertaken;
- Continuous noise and vibration monitoring will take place at three of the nearest sensitive receptors Environmental noise monitoring will be undertaken only by suitably trained and experienced staff;
- The use of machinery for lifting bulky items, dropping, and loading of materials within work areas should be restricted to normal working hours.
- For mobile plant items such as dump trucks, excavators and loaders, the installation of an acoustic exhaust and/or maintaining enclosure panels closed during operation can reduce noise levels by up to 10dB. Mobile plant shall be switched off when not in use and not left idling.
- For compressors, generators, and pumps, these can be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation.
- Demountable enclosures will be used to screen operatives using hand tools and will be moved around site, as necessary.
- 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.
- Care will be taken when cleaning augers of piling rigs. Shaking and banging of the auger to loosen earth will be avoided.
- Use of pneumatic hand tools will be avoided at night-time and fixings should be manually tightened where possible.
- Site compounds will be located in excess of 30m from noise sensitive locations within on-the-ground constraints.

6.5 Biodiversity

The biodiversity receptors occurring at and in the vicinity of the project, as identified in the EIAR Biodiversity Chapter 5 and Natura Impact Statement prepared for the project are:

- The Lower River Suir SAC and the following qualifying features of interest of the SAC that have been identified as occurring within the zone of influence of the project:
 - Alluvial woodland;
 - Vegetation of flowing waters;
 - Hydrophilous tall herb fringe;
 - White-clawed crayfish;
 - Migratory fishes in the form of sea lamprey; brook lamprey; river lamprey; Atlantic salmon and twaite shad;
 - Freshwater pearl mussel;
 - Otter
- The following habitats that occur at and in the vicinity of the project site:
 - Eroding river;
 - Reed and large sedge swamp;
 - Dry meadows and grassy verges;
 - Mixed broad-leaved woodland;
 - Riparian woodland.

- The following species, aside from those that are qualifying species of the Lower River Suir SAC and already listed under the first bullet point above, that occur at and in the vicinity of the project site:
 - Bats;
 - Other mammals;
 - Birds;
 - Herpetofauna.

All mitigation measures outlined in the Suir Island Environmental Impact Assessment (EIAR) Report, Screening for Appropriate Assessment (AA) and Natura Impact Statement (NIS) that pertain to the construction stage of the proposed development will be implemented by the Contractor.

These measures are outlined under the following broad category headings.

6.5.1 Implementation of Best Practice Guidelines

All construction works, relating to the activities and construction works outlined in **Section 2.1** above, will be undertaken in accordance with the following:

- Inland Fisheries Ireland's Requirements for the Protection of Fisheries Habitat during Construction and Development Works.
- CIRIA (Construction Industry Research and Information Association) Guidance Documents:
 - Control of water pollution from construction sites (C532);
 - Control of water pollution from linear construction projects: Technical Guidance (C648);
 - Control of water pollution from linear construction projects: Site Guide (C649);
 - Environmental Good Practice on Site (C692);
- TII Guidance Documents;
 - Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes
 - Guidelines for the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads
 - Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, during and Post Construction of National Road Schemes.
 - Guidance for the Treatment of Otters during the construction of national road schemes.
 - Guidance for the Treatment of Badgers during the construction of national road schemes.
- All work completed should be in compliance with the Wildlife Act, 1976 – 2012:
- Section 7.15 Evaluation of Mitigation Measures of Natura Impact Statement which lists Best Management Practice documents shall be given due consideration.

An Ecological Clerk of Works (ECoW) will be appointed to oversee the construction phase. The roles and responsibilities of the ECoW are outlined in **Appendix A**.

6.5.2 Pre-construction Surveys

Pre-construction surveys are required in advance of the construction phase and will include as a minimum:

- Otter surveys along the River Suir and Suir Island. Surveys to be completed will pay particular attention to identifying the presence/absence of otter holts/couches within 150m of piling locations.
- Non-native invasive plant species surveys: An up-to-date non-native invasive plant species survey of the project site and adjacent areas will be completed during the growing season immediately prior to the commencement of construction works. An Invasive Species Management Plan has been prepared for the proposed development and is provided as

Appendix 4 of the Natura Impact Statement. During the pre-construction and construction phase the ECoW will be required to supervise the implementation of all measures set out in this Invasive Species Management Plan.

6.5.3 Protected Species Licencing

In the preparation of the NIS, no requirement for protected species derogation licences have been identified for biodiversity receptors that may require such licences to permit disturbance to breeding or resting sites.

The ECoW will be required to complete pre-construction surveys in advance of the commencement of construction works and based upon the results of these surveys the ECoW will establish whether or not there is a need, at that stage, for protected species licences.

6.5.4 Earthworks

- Excavated soils will be disposed off-site to a licenced facility by a licenced contractor. Contractors shall be required to submit and adhere to a method statement indicating the extent of areas likely to be affected and demonstrating that this is the minimum disturbance necessary to achieve the required works.
- Temporary storage of soil will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment and the material will be stored within the temporary site compound on Suir Island, away from any open surface water drains and a minimum distance of 50m away from the River Suir.
- Movement of material will be minimised in order to reduce degradation of soil structure and generation of dust. All excavated material will be temporarily stored adjacent to the trench prior to disposal off-site.
- Stockpiles have the potential to cause negative impacts on air and water quality. The effects of soil stripping and stockpiling will be mitigated against through the implementation of an earthworks handling protocol during construction. Any stockpiles will be formed within the boundary of the site and there will be no direct link or pathway from this area to any surface water body. Overburden material will be protected from exposure to wind by storing the material in sheltered parts of the site, where possible.

6.5.5 Release of Hydrocarbons

- To control and contain any potential hydrocarbon and other harmful substances spillage by vehicles during construction, it is proposed to refuel plant equipment off the development site, thus mitigating this potential impact by avoidance. If fuelling must occur on site, then a discrete “fuel station” will be designated for the purpose of safe fuel storage and fuel transfer to vehicles. This fuel station will be bunded to 110% volume capacity of fuels stored at the site.
- A suitably qualified management company will take responsibility for management and maintenance of the oil interceptor installed in bunded refuelling areas and associated drainage on a regular basis, including decommissioning following construction.
- The plant equipment used on site will require regular mechanical checks and audits to prevent spillage of hydrocarbons on the exposed ground (during construction).
- Soils contaminated with hydrocarbons will be removed and stored in a temporary bund before being disposed of offsite in an appropriate manner. Oily or impacted runoff will be contained and pumped through a treatment tanks / settlement tank within line GAC filters before treated water is discharged.
- In the event of an accidental spill during the construction or operational phase of the Development, contamination occurrences will be addressed immediately, including the cessation of works in the area of the spillage until the issue is resolved. Spill kits will be kept in

each vehicle associated with the Development i.e. spill kits will be readily available to all operators.

- Spill kits will contain a minimum of; oil absorbent granules, oil absorbent pads, oil absorbent booms, and heavy-duty refuse bags (for collection and appropriate disposal of contaminated matter).

6.5.6 Control of Water During Construction

- Soil material excavated on site will be transferred directly to a dumper truck. The excavated material will be stored temporarily on site within the main temporary site compound on Suir Island.
- The storage of excavated material will be positioned within the temporary site compound a minimum of 50m from the River Suir. Excavated made ground will be stored separately from soil material.
- All excavations and sheet-piled working areas will contain suitable sumps for the collection and removal of water.
- The surface water will be pre-treated by passing the surface water through a mobile settlement and clarification treatment tank (e.g. Aska Sykes Ltd Dirt-Box and Dirt-Bags systems or similar approved).
- The treated surface water will then be conveyed from the mobile silt tank via a lay flat hose that will be connected to the foul sewer system.
- On Suir Island any surface water pooling within excavations or sheet piled areas will be pumped from these areas, via a lay flat hose to a mobile settlement and clarification treatment tank.
- The treated water will then be conveyed from the treatment tank, via a lay flat hose and discharged over level vegetated ground on Suir Island to the east of the flood berm.
- This will provide for the dispersal and attenuation of surface water over vegetated ground cover and will avoid the discharge of surface water from these working areas on Suir Island directly to the River Suir.
- The dewatering methodology is further detailed in Section 5.8 of this OCEMP. The Contractor shall prepare his method statement to showcase compliance with the OCEMP, Appendix B Dewatering Drawing and Section 7.4 of the Natura Impact Statement.
- Extensive monitoring will be adopted to ensure that the water is of sufficient quality to discharge to the foul sewer network and vegetated ground on Suir Island.

6.5.7 Release of Sewage (Contractor's Compound)

- A self-contained port-a-loo system with an integrated waste holding tank will be used on site for toilet facilities.
- This will be maintained by the service contractor as required and will be removed from the site on completion of the construction phase.

6.5.8 Management of Cementitious Materials and Pollutants

- No batching of wet-cement products will occur on site. Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place;
- Where possible, pre-cast elements for culverts and concrete works will be used;
- No washing out of any plant used in concrete transport or concreting operations will be allowed on-site;
- Where concrete is delivered on site, only the chute need be cleaned, using the smallest volume of water possible. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Chute cleaning water is to be tanked and removed from the site to a suitable, non-polluting, discharge location;

- Use weather forecasting to plan dry days for pouring concrete;
- Ensure pour site is free of standing water, and plastic covers will be ready in case of sudden rainfall events.
- Disposal of raw or uncured waste concrete will be controlled to ensure that watercourses or other sensitive areas will not be impacted.
- No cement will be required for works associated with horizontal directional drilling under watercourses and no cement will be stored in the vicinity of watercourses during such works.

6.5.9 Release of Other Pollutants

The following measures are proposed to prevent contamination of watercourses:

- No refuelling of construction vehicles or plant will take place within the 50m surface water buffer zone.
- Refuelling of plant, equipment and vehicles will only be undertaken on impermeable surfaces.
- No maintenance of construction vehicles or plan will take place along the proposed route, except in a case of emergency.
- All potentially hazardous chemicals, fuel, hydraulic oils and lubricants will be stored in bunded areas (in accordance with established best practice guidelines) at the Contractor's Temporary Compound.
- In order to reduce the risk of contamination arising as a result of spills or leakages, all fuels, chemicals, liquid and solid waste will be stored on impermeable surfaces.
- If there is a requirement to store hazardous chemicals on site, they will be stored within a bunded, locked COSHH container, with upkeep and security ensured by the contractor.
- All tanks and drums are to be bunded in accordance with established best practice guidelines.
- Re-fuelling of construction equipment and the addition of hydraulic oil or lubricants to vehicles / equipment will take place in designated bunded areas within the main construction compound and not on-site, where reasonably practicable. If it is not possible to bring machinery to the refuelling point, fuel will be brought to site by a 4x4 in a double skinned bowser with drip trays. The bowser/4x4 will be fully stocked with spill kits and absorbent material, with delivery personnel being fully trained to deal with any accidental spills. The bowser will be bunded appropriately for the fuel usage volume for the time period of the construction.
- Plant and machinery used will be regularly inspected for leaks and fitness for purpose.
- Spill kits will be readily available to deal with accidental spillage at all times.
- A segregated waste storage will be available at the substation construction site.
- An inventory of all chemicals on site will be kept. It will include:
 - Procedures for storage of all materials listed
 - Location details of all materials listed
 - Volume and description of all substances stored on-site
 - Waste disposal records, including copies of all Waste Transfer Notes (WTN) detailing disposal routes and waste carriers used. Where waste is being shipped abroad, a copy of the Trans Frontier Shipping (TFS) document must be obtained from National TFS Office and kept on site along with details of the final destination and any relevant permits, licences or other relevant documentation.
- Chemical storage details will be part of routine site audits.
- Only where absolutely necessary should any hazardous waste be stored on site. If so, Hazardous Waste should be stored in a COSHH store. Only trained operatives should handle hazardous substances. Please note that COSHH data sheets are NOT risk assessments and all risk assessment should be carried out separately. All stored hazardous waste will be

clearly labelled. All of these will be regularly inspected for visual signs of leaks or something that would impact on their capacity – e.g. where a drip tray is full of rainwater.

6.5.10 Piling Works (Bridge Foundation and sheet piling)

- In order to minimise the potential for adverse impacts to instream habitats, spawning locations of sea lamprey, river lamprey, Atlantic salmon and other fish species and white-clawed crayfish during the operation phase the method of piling to be implemented will be based on rotary bored piling techniques for bridge foundations and hydraulic methods for temporary sheet piling.
- No noise or vibration associated with the piling will have the potential to cause injury to fish (i.e. will not exceed the low guide value of the 183 dB within adjacent waters) within the river channel adjacent to the piling locations.
- All piling works will be timed to occur outside the most sensitive time of the year when Atlantic salmon and lamprey species spawn along the section of the River Suir at Suir Island as highlighted in Section 7.8 of the NIS.
- To minimise the potential for riverbank instability and collapse, the sheet piling to be used will consist of interlocking steel panels, which will be driven through the overbank materials prior to any excavations occurring near the riverbanks.

6.5.11 Artificial Lighting during the Construction Phase

- All working hours will occur within daylight hours between the months of April to October.
- From late October to mid-March working hours will include hours of darkness between 7am and 8am and between 5pm and 7pm.
- Outside of working hours all artificial lighting that has the potential to cast light on the river will be turned off.
- In addition, during the months of late Mid-October to mid-March artificial lighting that casts light onto the river channel will not be used and will be turned off.
- Preconstruction surveys highlighted in Section 6.5.2 will inform the contractor of specific areas which will be protected from artificial light spills during the works.

6.5.12 Measures to Minimise Construction Phase Impacts to Habitats

- The construction corridor will be marked out prior to the commencement of construction.
- All construction work will be confined strictly to the construction corridor. Any construction works required outside the construction corridor will require prior approval from the Employer.
- Excavation and infilling will be carried out in small progressive stages;
- Any topsoil that is of use for landscaping will be stored on the site. Where this is required during the construction phase, it will be stored suitably far away from the River Suir and other surface water features and covered to avoid excessive sediment run-off or wind blow;
- Considering the proposed construction methodology for the construction phase, it is not anticipated to result in significant levels of silt laden run off, . Nevertheless, the site will be regularly monitored by construction staff for signs of run-off such as silt in surrounding vegetation and measures will be put in place to prevent this where necessary;
- Excavations will be carried out using a suitably sized excavator;
- Any excavated soil that is not re-used will be disposed of to a Tipperary County Council approved waste disposal facility;
- In all circumstances, excavation depths and volumes will be minimised to the depths in accordance with the design of the cable trenches and excavated material will be re-used where possible.
- Habitat rehabilitation will be carried out in accordance with NIS Section 7.13.
- Habitat enhancement will be carried out in accordance with NIS Section 7.14.

6.5.13 Measures to Protect Water Quality and Surface Water Bodies

To prevent the ingress of any surface water or dust emissions to watercourses during the construction phase, temporary silt trap and impermeable barrier will be placed along the edge of the works.

Suitable prevention measures should be put in place at all times to prevent the release of sediment to the River Suir and other drainage channels associated with construction areas and migration to adjacent watercourses.

Excavated material will not be stored immediately adjacent to locations in close proximity to watercourses and the River Suir floodplain. No construction activities should be undertaken at watercourses in wet weather conditions.

Any refuelling or lubrication of machinery will only be undertaken at construction compounds at suitably bunded areas on the North Plaza and Suir Island contractor's compound. Refuelling in Raheen Road and Denis Burke Park will not be permitted.

A method statement in compliance with Section 5.8 of this OCEMP for dewatering of excavations will be prepared by the appointed contractor in liaison with the ECoW.

6.5.14 Non-native and Undesirable Species

- The appointed contractor shall prepare a Non-Native and Undesirable Species Removal Plan in accordance with TII Publication "The Management of Invasive Alien Plant species on National Roads – Technical Guidance – GE-ENV-01105 (Dec. 2020) and Appendix 4 of the NIS in liaison with the ECoW.
- Any vegetation clearance or construction works to be undertaken in the vicinity of areas identified as supporting non-native species will be undertaken in accordance with the Transport Infrastructure Ireland (TII) (formerly the National Roads Authority (NRA)) guidance measures for the control and management of noxious weeds and non-native invasive species (see NRA, 2010). Sites of known infestation shall be clearly marked prior to works and avoided during construction. The importance of preventing the spread of these species will form part of a tool box talk to all personnel prior to construction commencing.
- In the event that additional topsoil and quarried stone is required on the site, it will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present.
- Sites of known infestation shall be clearly marked prior to works and avoided during construction. The importance of preventing the spread of these species will form part of a tool box talk to all personnel prior to construction stage.
- All contractors should incorporate strict biosecurity protocols into their Construction Environmental Management Plans. This should include the thorough cleaning and disinfection of all machinery prior to arrival and departure from the site, to prevent the spread of invasive species.
- In the event that additional topsoil and quarried stone is required on the site, it will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present.

Non-native invasive plant species are known to occur to the west and outside the boundary of the project site. These species include Japanese Knotweed and Giant Hogweed both of which are categorised as high-impact invasive species. Winter heliotrope, ranked as a low-impact invasive species and traveller's joy and Himalayan honeysuckle, both of which are ranked as medium-invasive species are present on the island and within the footprint of the garden. Tipperary County Council have implemented a non-native invasive plant species eradication programme and treatment of these stands was recorded during 2021 and will continue throughout the 2022 growing season.

6.5.15 Site hygiene and cleaning of vehicles and equipment

- Prior to arrival on site, the Contractor's vehicles and equipment must be thoroughly cleaned.
- High-pressure steam cleaning, with water > 40 degrees C, is recommended for vehicles and equipment where reasonably feasible.
- Cleaning should not be undertaken on the site or near watercourses. Each field vehicle must carry a 'disinfection box'. This should contain Virkon Aquatic or another proprietary disinfectant, a spraying mechanism, cloths or sponges, a scrubbing brush and protective gloves. Protective gloves must be worn when using any disinfectant solution.
- Footwear should be dipped in or scrubbed with a disinfectant solution (e.g. 1% solution of Virkon Aquatic or another proprietary disinfection product) and thoroughly dried afterwards if used in streams or rivers.
- Disinfectants must be used strictly in accordance with the manufacturer's instructions. They must be disposed of safely and never close to open waters such as drains etc.
- Vehicles and equipment shall be cleaned in accordance with NIS Section 1.1.1.9.

6.6 Archaeology, Architecture and Cultural Heritage

The contractor is required to implement the following measures in relation to archaeology, architectural and cultural heritage during construction:

- The Contractor shall appoint a site representative to be responsible for matters relating to Archaeology, Architectural and Cultural Heritage;
- The contractor will be required to develop appropriate procedures as part of their detail CEMP(s) and the Environmental Manager will ensure that specialists (e.g. archaeologist) are facilitated to ensure management in accordance with industry best practice and effective compliance with the relevant legislation. All unexpected discoveries will be reported to the appropriate authorities and documented in an appropriate manner.
- The contractor shall monitor excavation for continuously throughout the construction duration;
- A c. 2.4m hoarding shall be provided around protected structures with appropriate signage;
- Site staff shall undergo regular training and be made cognisant of the requirements set out in the CEMP.
- Archaeological monitoring will be carried out under licence to the Department of Housing Local Government and Heritage (DHLGH) and the National Museum of Ireland (NMI).
- All archaeological issues will have to be resolved to the satisfaction of the DHLGH and the NMI.
- A preconstruction underwater archaeological assessment/survey will be carried out in accordance with Department of Housing, Local Government and Heritage Development Applications Unit requirements.
- Archaeological excavation techniques shall be employed on archaeological soils, features, finds and deposits so that they are systematically and accurately recorded, drawn and photographed, providing a paper and digital archive and adding to the archaeological knowledge of a specified area (i.e. preservation by record). Post-excavation analysis, reporting and the creation of datasets is a critical component of preservation by record.

6.7 Hydrology and Water Quality

All construction works, relating to the activities and construction sequence outlined in Section 2.1 above, will be undertaken in accordance with the following:

- Inland Fisheries Ireland's Requirements for the Protection of Fisheries Habitat during Construction and Development Works.
- CIRIA (Construction Industry Research and Information Association) Guidance Documents
 - Control of water pollution from construction sites (C532);
 - Control of water pollution from linear construction projects: Technical Guidance (C648);
 - Control of water pollution from linear construction projects: Site Guide (C649);

- Environmental Good Practice on Site (C692);
 - CIRIA Handbook C650 Environmental good practice on site;
 - CIRIA Handbook C651 Environmental good practice on site checklist;
 - TII/NRA Guidance Document:
 - Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes;
- Management of any discharges to surface water must meet S.I. No. 272 of 2009 and amendments (2015 and 2019) European Communities Environmental Objectives (Surface Waters) Regulations;

In general, all works will be subject to a specific method statement agreed in advance. The method statement will be specific to each construction area and activity but will incorporate the following points:

- To avoid water laden with silt discharging to the river, toe boards will be required around all sites;
- To avoid excessive silt runoff, site clearance is not to be undertaken during wet conditions, when rainfall of more than 0.5 mm/hour is forecast within the next 24 hours or rainfall of more than 3mm/hour is forecast within the next five days in the catchment.
- No long-term soil storing will be allowed within 30 m of the open water bodies or within floodplains where sufficient working areas are available within the site boundaries, which is in line with Inland Fisheries Ireland guidelines. Temporary daily soil stores are allowable to facilitate works, however soil mounds to be removed daily to a safe distance or covered.
- Fuels, lubricants and hydraulic fluids for equipment used, as well as any solvents and oils etc. are to be carefully handled to avoid spillage. Properly secured against unauthorised access or vandalism, and provided with spill containment. All staff to be trained in management of chemicals and spill response.
- As far as reasonably practicable, fuelling and lubrication of equipment is not to be carried out within 100 m to the open water where sufficient working areas are available within the site boundaries. Fuelling should only be undertaken in compounds with spill control measures in place. All fuel storage areas should be bunded with 110 % containment volume and should be located on hardstand areas. These measures are in line with the Inland Fisheries Ireland guidelines.
- Weedkillers are not to be used.
- Any spillage of fuels, lubricants or hydraulic oils is to be immediately contained and the contaminated soil removed from the site and properly disposed off.
- The washing of any plant equipment will be carried out in designated areas to prevent potentially polluting material from contaminating aquifers and soils/subsoils.
- Excavations will be backfilled (daily preferably) as soon as possible to prevent any infiltration of potentially polluting compounds.
- Where feasible precast concrete should be used. Where necessary to pour concrete, a dry working area will be created for pouring of any concrete. Raw or uncured waste concrete is not to be disposed of within 50m of the river. No washing out of concrete tankers will be allowed on any of the construction areas.
- All vehicles will be regularly checked for oil leaks and ruptured hose pipes.

6.8 Land and Soils

In addition to the items listed under **Section 6.7 above** the following measures should apply:

Soil Storage

Temporary storage of soil will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment and the material will be stored away from any open water bodies and floodplains and any adjacent channels. Movement of material will be minimised in order to reduce degradation of soil structure and generation of dust. Where temporary storage of soil is required, it will

be covered and moved as quickly as possible. No long-term storage within 30m of water bodies will be permitted.

Soil Contamination

Although there is no evidence of historical contamination in the proposed development area, all excavated materials will be visually assessed for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of possible contaminants in order to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be disposed of by a licensed waste disposal contractor.

Infill materials

All aggregate or soil imported should be from a reputable source. Certification shall be provided.

6.9 Resource and Waste Management

The contractor is required to implement the following in relation to resource and waste management during construction:

- The contractor is required to prepare, implement and maintain a Construction and Demolition Waste Management Plan throughout construction that addresses the following as a minimum:
 - Description of the proposed development;
 - Wastes arising including procedures for minimisation/reuse/recycling;
 - Estimated cost of waste management;
 - Roles including training and responsibilities for construction and demolition waste;
 - Procedures for education of workforce and plan dissemination programme;
 - Record keeping procedures;
 - Waste collectors, recycling and disposal sites including copies of relevant permits or licences; and
 - Waste auditing protocols.
- The Contractor will minimise waste disposal so far as is reasonably practicable;
- Waste from the proposed development will be transported by authorised waste collectors in accordance with the Waste Management (Collection Permit) Regulations 2007 to 2016 to take into account the Waste Management (Collection Permit) (Amendment) Regulations 2016.
- Waste from the proposed development will be delivered to authorised waste facilities in accordance with the Waste Management Acts 1996-2011 and the Waste Management (Collection Permit) (Amendment) Regulations 2016;
- Source segregation: Where possible metal, timber, glass and other recyclable material will be segregated during construction works and removed off site to a permitted/licensed facility for recycling. Waste stream colour coding, and photographs of wastes to be placed in each container as required, will be used to facilitate segregation. Where waste generation cannot be avoided this will maximise the quantity and quality of waste delivered for recycling and facilitate its movement up the waste hierarchy away from landfill disposal and reduce its environmental impact;
- Material management: 'Just-in-time' delivery will be used so far as is reasonably practicable to minimise material wastage;
- Supply chain partners: The contractor will engage with the supply chain to supply products and materials that use minimal packaging, and segregate packaging for reuse;
- Waste Auditing: The contractor will record the quantity in tonnes and types of waste and materials leaving site during the construction phase;
- Waste fuels/oils may be generated from equipment used on-site during construction and may be classified as hazardous waste. Such wastes will be stored in a secure, bunded area on-site prior to collection by a contractor who holds the appropriate waste collection permit;
- Possibilities for re-use of clean non-hazardous excavation material as fill on the site or in landscaping works will be considered following appropriate testing to ensure material is suitable for its proposed end use. Where excavation material may not be re-used within the proposed

works the contractor will endeavour to send material for recovery or recycling so far as is reasonably practicable;

- The name, address and authorisation details of all facilities and locations to which waste and materials are delivered will be recorded along with the quantity of waste in tonnes delivered to each facility. Records will show material which is recovered, and which is disposed of; and
- The contractor(s) will ensure that any off-site interim storage or waste management facilities for excavated material have the appropriate waste licences or waste facility permits in place.

6.10 Population and Human Health

The contractor is required to implement the following measures in relation to population and human health during construction:

- Provide for safe pedestrian access at all times;
- Stagger works wherever possible and remove hoarding as soon as it is no longer needed to mitigate against severance;
- Avoid works that could involve high noise or visual intrusion;
- Provide temporary traffic/pedestrian signalling at all sites;
- Maintain regular proactive consultation with local residents and businesses.

The appointed contractor shall include a site-specific risk and mitigation register for the works specific to the protection of Population and Human Health in liaison with the project ECoW and relevant guideline documents as well as the Suir Island Environmental Impact Assessment (EIAR) Chapters, Screening for Appropriate Assessment (AA) and Natura Impact Statement (NIS).

6.11 Material Assets

The contractor is required to implement the following measures in relation to material assets during construction:

- A Property Protection Scheme will be put in place by Tipperary County Council prior to works commencing on site. This will involve advance condition surveys prior to construction for all properties within the zone of influence of the proposed development. If it is determined that any reported minor cosmetic damage has been caused by construction of the proposed development, suitable remedial works will be undertaken to repair the damage to the properties with the use of the appropriate conservation technique.
- Access to all existing properties will be maintained at all times during the construction of the proposed development.

6.12 Major Accidents and Natural Disasters

The contractor is required to implement the following measures in relation to major accidents and natural disasters during construction:

- A detailed CEMP would be prepared prior to the commencement of any works and implemented during the works. The CEMP will be a live document maintained by the contractor that would work to ensure that potential risks of major accident and/or disaster are identified, avoided and mitigated, as necessary.

Project Number: 20_071

Project: Suir Island Infrastructure Links

Title: Outline Construction Environmental Management Plan



Appendix A - Ecological Clerk of Works Specification

Appendix A - Ecological Clerk of Works (ECoW)

Background

An appropriately qualified Environmental/Ecological Clerk of Works (ECoW) will be employed for the duration of the Civil Works Contract. The ECoW must be a member of the Chartered Institute of Ecology and Environmental Management (CIEEM) or equivalent body. The ecologist performing the ECoW role will attend the site on a weekly basis to check that all works are being completed to the appropriate standards.

As the delivery of the environmental protection measures outlined in this Appendix is highly dependent on the roles and responsibilities of the ECoW some detail is provided here regarding this position.

Term of Appointment

The ECoW will be on site for minimum 1 day per week during the construction works, provision will be made for an initial briefing to all contractors, and a final visit to report on the ecological aspects of construction. Some office time is also required for weekly reporting.

ECoW Tasks

Overview

The provision of an ECoW helps to monitor, control, and direct the ecological and environmental protection aspects of the Ecological Impact Assessment and EIA Screening documentation, Construction Environmental Management Plan and Construction Method Statements (CMS) to ensure that all measures are fully adhered to during construction. It also allows any issues arising to be dealt with in an appropriate manner.

Taking account of the requirements set out in the list of measures outlined above and also in the EIAR and the EIA Screening documentation, the following are deemed to be required services under the ECoW.

- a) Construction surveys.
- b) Visual inspection of construction safeguards such as temporary construction boundary fencing.
- c) Monitoring environmental controls (including briefing of digger drivers).
- d) Monitoring of construction activity in the vicinity of badger setts.
- e) Monitoring of construction activity in the vicinity of Vertigo habitat.
- f) Maintaining records of checks and issues.
- g) Providing a report detailing the implementation of all ecological and environmental protection measures during the construction phase.
- h) Survey the site for sensitive and protected species prior to construction (due diligence survey).

Pollution Prevention Plan

- a) Review, agreement and approval of Contractor's pollution prevention plan prior to commencement of work.
- b) Conduct weekly inspection of site pollution prevention measures (silt traps boards, etc.) and visually assess their effectiveness. This will include inspection of water management measures installed by Contractor such as excavation pumping and diversion channels, as well as containment of silt away from watercourses and advice on micro-siting of mitigation measures.

- c) Maintain a Pollution Prevention Measures Register of the weekly inspections, to include an inventory of all measures on the site, their effectiveness, as well as any advice provided.
- d) Suspension of work where potential risk from pollution is identified, or where construction methods and mitigation measures are not specified in construction method statements and/or plans as agreed at commencement of works.
- e) Provide advice and recommendations to the contractors regarding the above.

Waste Management

- a) Review, agreement and approval of the Contractor's Site Waste Management Plan.
- b) Review of the Contractor's records for all inspections of fuel, oil or chemical storage areas, including the integrity of storage facilities.

Drainage Management

- a) Review, agreement and approval of the Contractor's Site Drainage Management Plan.
- b) Inspection of drainage management works.
- c) Liaison with Planning / NPWS / IFI.
- d) Agreement of monitoring standards to be applied by Contractor's personnel.
- e) Assessment in advance of habitats and species for ground to be affected by drainage management.
- f) Review of Contractor's records for plant inspections, evidence of contamination and checks made after extreme weather conditions.

Water Quality Monitoring

- a) Review, agreement and approval of the Contractor's and independent Site Water Quality Monitoring Plans where undertaken.
- b) Inspection of Contractor's records for water environmental monitoring and comparison of those records with independent records.
- c) Presentation of independent water environmental monitoring results at weekly site meetings.

Excavated Materials and Reinstatement

- a) Review, agreement and approval of the Contractor's Spoil Management and Reinstatement Plan.
- b) Marking working areas and route corridors, in consultation with the Geo-technical/Civil Designer and/or Archaeologist as necessary.
- c) Granting permission to work outside the temporary construction corridor, in the event that such a requirement arises. No works will be undertaken outside this corridor until permission is received from the ECoW. Where necessary the ECoW will liaise with the Planning Authority and the NPWS prior to deciding on the acceptability of any works outside this corridor.
- d) Agreeing proposals for temporary storage areas as development proceeds.
- e) Agreeing timing of restoration and reinstatement of path surfaces.
- f) Monitoring the condition of stored materials/spoil.

- g) Issuing instruction to cease work if unexpected risks arise, until an agreed alternative solution is identified, and risks are avoided or minimised.

Recording

The ECoW will keep a record of the following:

- a) notable animal sightings and signs (including birds, in addition to other site ornithological monitoring);
- b) The Pollution Prevention Measures Register (as detailed above);
- c) The habitats and soil of ground to be developed via survey at least a week in advance of construction work;
- d) record of tasks carried out;
- e) written record of all oral advice given.

The ECoW will maintain a GIS database of key recordings made during the construction period. ECoW weekly site visit notes will be made available for all personnel on site to consult and incorporate the following:

- Monitoring of requirements listed under Ecological Impact Assessment and EIA Screening documentation.
- Pollution Prevention Measures Register.

On-Site Communication

The success of ECoW appointment is largely dependent on well-defined lines of communication. In theory, robust construction method statements will incorporate many of the areas of ECoW concern into the daily activities of construction personnel. However, the ECoW will always inform the Civil Contractor and their Designer of areas of particular concern, who will then make a decision as to the subsequent action.

The ECoW will be involved in the delivery of biodiversity-related Toolbox Talks as part of the site induction process. Toolbox talks will be given to the work force at regular intervals to highlight the environmental issues that are unique to the proposed development. All staff will know of the circumstances when the ECoW will be contacted, and the relevant phone numbers.

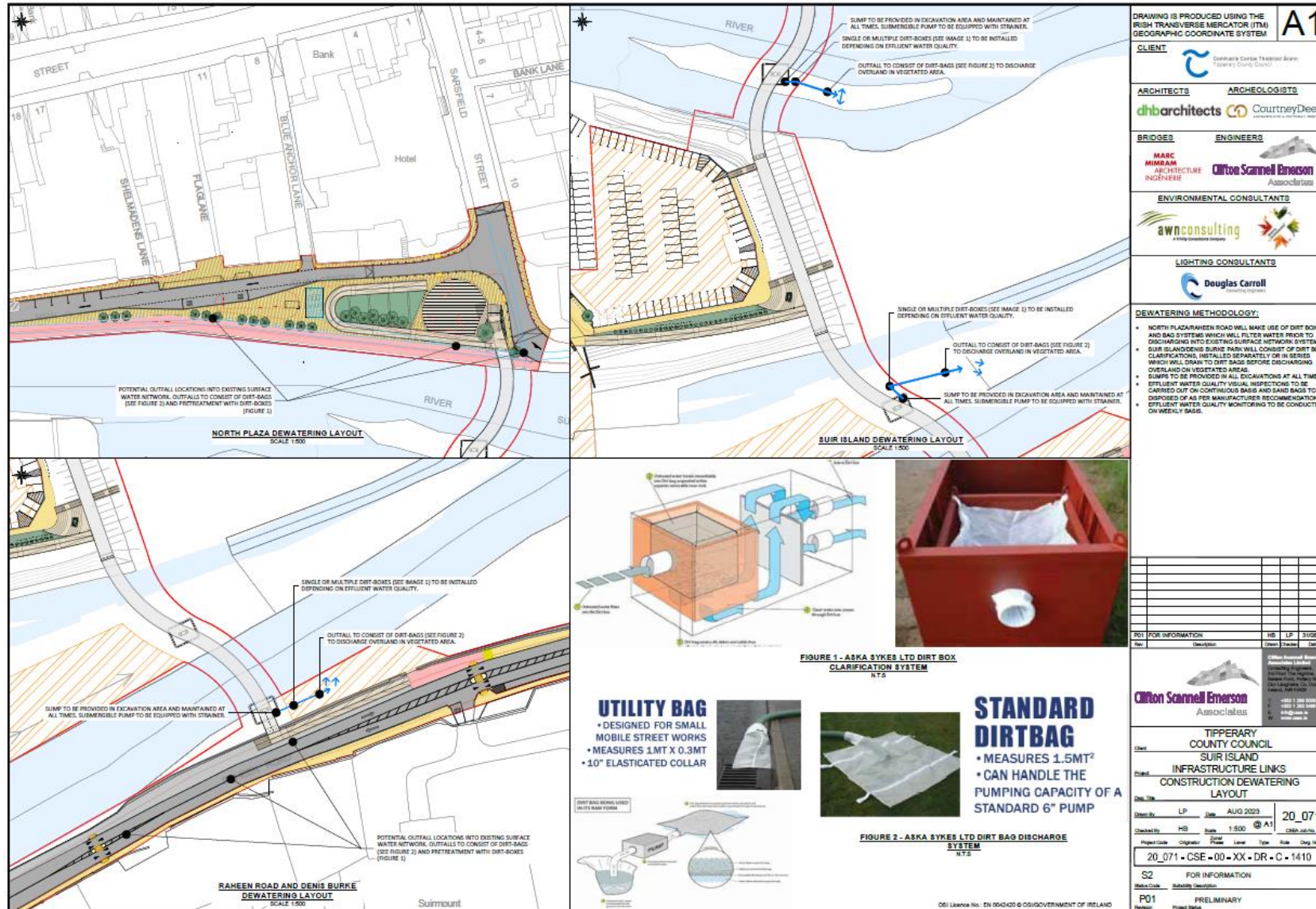
Liaison with Consultees

The ECoW will provide a liaison between the Planning Authority, NPWS and the IFI.

Final Report

The ECoW will produce a final report documenting the environmental and ecological effects of the construction period. The evidence for effects will be based on findings included in the minutes of weekly meetings, together with other recording information maintained by the ECoW. The report will be made available to the Contractor, the Planning Authority, NPWS, IFI and other external agencies where appropriate.

Appendix B - Dewatering Methodology Drawing



DRAWING IS PRODUCED USING THE IRISH TRANSVERSE MERCATOR (ITM) GEOGRAPHIC COORDINATE SYSTEM		A1
CLIENT	Tipperary County Council	
ARCHITECTS	dhbarchitects	ARCHAEOLOGISTS Courtney Deery
BRIDGES		ENGINEERS Clifton Scannell Emerson Associates
ENVIRONMENTAL CONSULTANTS awnconsulting		
LIGHTING CONSULTANTS Douglas Carroll		
DEWATERING METHODOLOGY:		
<ul style="list-style-type: none"> NORTH PLAZA/RAHEEN ROAD WILL MAKE USE OF DIRT BOX AND BAG SYSTEMS WHICH WILL FILTER WATER PRIOR TO DISCHARGING INTO EXISTING SURFACE NETWORK SYSTEM. SUIR ISLAND/DENIS BURKE PARK WILL CONSIST OF DIRT BOX CLARIFICATION, INSTALLED SEPARATELY OR IN SERIES WHICH WILL ORAN TO DIRT BAGS BEFORE DISCHARGING OVERLAND ON VEGETATED AREAS. SUMPS TO BE PROVIDED IN ALL EXCAVATIONS AT ALL TIMES. EFFLUENT WATER QUALITY VISUAL INSPECTIONS TO BE CARRIED OUT ON CONTINUOUS BASIS AND SAND BAGS TO BE DISPOSED OF AS PER MANUFACTURER RECOMMENDATIONS. EFFLUENT WATER QUALITY MONITORING TO BE CONDUCTED ON WEEKLY BASIS. 		
PREP FOR INFORMATION	HS LP 310522	
DATE	2023	
CLIENT	Tipperary County Council	
PROJECT	SUIR ISLAND INFRASTRUCTURE LINKS CONSTRUCTION DEWATERING LAYOUT	
DATE	20_071	
SCALE	1:500	
PROJECT CODE	20_071 - CSE - 00 - XX - DR - C - 1410	
STATUS	FOR INFORMATION	
PROJECT	PRELIMINARY	

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