Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Construction Environmental Management Plan for Galway County Council

N59 Kentfield

Road Safety Junction Improvement Scheme

GC/19/18753

Comhairle Chontae na Gaillimhe
Galway County Council

GALWAY NATIONAL ROADS PROJECT OFFICE

Project Ireland 2040
Building Ireland's Future

Bonneagar Iompair Éireann

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Revision	Date	Comments
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Table of Contents

List of Tables

List of Figures

1 Introduction

1.1 Project Overview

Galway County Council are undertaking the realignment of a section of the N59 National Road and upgrade of the existing N59/L-5381 Junction. This Construction Environmental Management Plan (CEMP) has been prepared as supporting documentation for the Planning Application to An Bord Pleanála under section 177AE of the Planning and Development Act 2000, as amended. The section of the N59 and its intersection with local road L-5381 to be improved is located at a bend which contains a hidden dip along the road. The existing road conditions falls well below the standard of the TII Publications (Standards) in terms of horizontal and vertical alignment, visibility, cross-section, and safety on the route is compromised as a result. In addition, the existing N59/L-5381 priority T junction is particularly a contributing factor to the high number of rear end collisions at this location. The existing road on this section of the N59 has a restricted capacity due to its limited cross section and sub-standard alignment. There are also a multitude of hazards within the clear zone of the road resulting in unforgiving roadsides that can significantly increase the level of injury severity should a vehicle leave the road. The section has been assessed under the AM-STY-06044 Road Safety Inspection and was identified as a site having road safety problems needing further assessment to identify if there is a treatable engineering solution. The provision of an improved section of road, designed to contemporary standards and providing safe stopping sight distances, will increase the overall consistency and efficiency of the route and provide safer journeys as well as more reliable and reduced journey times. Access, in terms of Vulnerable Road Users such as pedestrians and cyclists is quite limited, due to the existing road cross section, with little or no verges and no hard shoulders. The provision of an improved section of road, designed to contemporary standards will provide safer access for Vulnerable Road Users (VRUs). In the interest of road safety, the improvement works to the N59/L-5381 Junction at Kentfield are necessary.

1.2 Purpose of this Outline Construction Environmental Management Plan

The purpose of this CEMP is to document and describe the main activities that will be undertaken to facilitate the project and to provide a framework of environmental protection measures that will be implemented prior to commencement of, and throughout the duration of, the proposed road improvement works.

The proposed realignment and upgrade work at N59 / L-5381 Junction will be undertaken by a Contractor appointed by Galway County Council. This CEMP will be provided to the appointed Contractor prior to the commencement of works and will form the basis of the Contractor's CEMP and Method Statements, which the appointed Contractor will be required to develop and prepare for approval by Galway County Council prior to commencement of

any works. The Contractor's CEMP and Method Statements will set out the approach and methodology which they will follow in scheduling and undertaking the work. This CEMP outlines the control measures in relation to environmental protection associated with the activities and disturbance to road users. It is the responsibility of Galway County Council to ensure that the requirements of this CEMP and any requirements associated with the Contractor's Method Statements and CEMP are implemented in full.

1.3 Legislation and Other Requirements

The CEMP summaries the requirements from legislation and Codes of Practice which apply to the works being undertaken. An example non-exhaustive list of such requirements is provided below:

- Safety, Health, and Welfare at Work Act, 2005
- Safety, Health, and Welfare at Work (Construction) Regulations, 2013
- Safety, Health, and Welfare at Work (General Application) Regulations 2007 – 2016, SI No. 229
- Safety, Health, and Welfare at Work (Confined Spaces) Regulations, 2001
- European Union (Drinking Water) Regulations 2014
- European Communities (Surface water) Regulations, 2009 (as amended)
- European Communities (Groundwater) Regulations, 2010 (as amended)
- European Communities (Good Agricultural Practice for Protection of Waters) (Amendment) Regulations, 2022
- Local Government (Water Pollution) Act, 1977 and associated Regulations
- European Communities (Birds and Natural Habitats) Regulations 2011
- Wildlife Act 1976 - 2021
- Best Practice Guidelines on the preparation of resource & waste management plans for construction & demolition projects
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (IFI, 2016)
- CIRIA C648 Control of water pollution from linear construction projects Technical Guidance (CIRIA 2006)

1.4 Roles and Responsibilities

This initial issue of the CEMP identifies the key roles for the construction works. The appointed contractor will update the CEMP ad will set out detailed roles and responsibilities (including named individuals) and an organogram of the team structure.

1.4.1 Galway County Council (Employer)

Galway County Council National Roads Project Office are the Employer for the proposed development and have the following responsibilities following the submission of the Planning Application to An Bord Pleanála:

- Post consent management: manage the process towards construction including liaison with key environmental agencies and stakeholders and the public.
- Engineering function: Ensures that the design is delivered as per the planning drawings and that the delivery of the proposed development meets the required design standards.
- Communication: Continued liaison with the public and local residents on the progress of the proposed development.

1.4.2 Contractor

A Contractor will be appointed following a tendering process and will be responsible for the implementation of all mitigation as set out in Section 4 and the completion of the works to the satisfaction of the Employer.

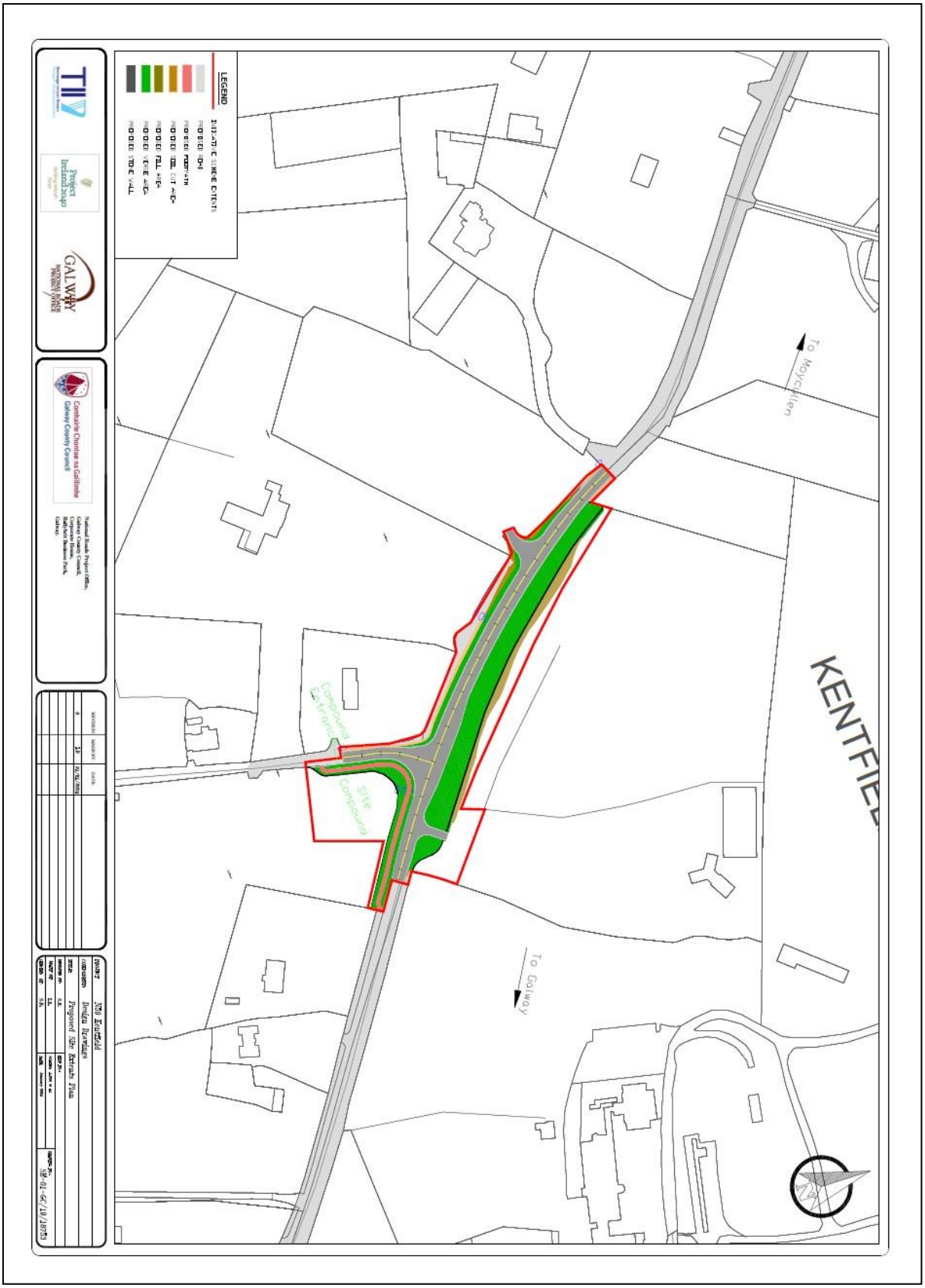
1.4.3 Site Manager

The Site Manager will be responsible for the day to day running of the site and will direct and oversee the activities of contractor staff and any subcontractors under the Contractor's control throughout the works. The Site Manager will be responsible for programming of the works and will consult regularly with the Employer and will maintain site safety.

1.4.4 Contractor Environmental Clerk of Works

The Contractor's Environmental Clerk of Works (EnCoW) will have suitable environmental qualifications and the necessary experience and knowledge appropriate to the role. The EnCoW will be delegated sufficient powers under the construction contract so that they will be able to instruct works to stop and to direct the carrying out of emergency mitigation / clean-up operations. The EnCoW will also manage consultation with environmental bodies/stakeholders. The EnCoW will be responsible for ensuring that all control measures in Section 4 of this report and those within the Contractor's CEMP are fulfilled and are in adherence with applicable standards and legislation.

Figure 1.1: Proposed Scheme



2 Project Description

2.1 Project Description

The works comprise alterations to the existing road alignment of the N59 and L-5381 at Kentfield Co. Galway. There will be no change in traffic levels as a result of the proposed development or other operational phase impacts. The following outlines the planned works required at N59 Kentfield:

- The N59 carriageway will be realigned and upgraded to a Type 2 single carriageway along the 245m section of the N59;
- On approach to the simple priority junction along the N59 a nearside passing of 2m will be provided at the junction.
- The L-5381 carriageway will be realigned and widened for approx. 45m to incorporate a carriageway width of 6.0m and a 2m wide footpath;
- Grass verges will be provided at 3m width along the western length of the N59 with existing hedgerow maintained and varying widths of grass verge between 8 – 12m along the eastern length of the N59 carriageway;
- A 2m wide footpath will be provided along the N59 on the south-western side of the scheme and extended westwards along the L-5381 for approximately 123m
- 1no. Domestic entrance on the N59 will be maintained and upgraded to current standards including resting walls and piers;
- 2no. Field access will be maintained along the N59 and upgraded to current standards.
- 240m of stone wall will be constructed on the eastern side of the scheme, with approx. 60m stone wall to be constructed on the western side of the scheme.
- All existing land drainage and culverts will be maintained with new land drainage connected to existing network;
- Proposed sealed drainage system comprising of kerb and gully system, which discharges through a petrol interceptor and underground tank, where runoff is attenuated and treated before discharged to the local drainage network;
- 220m of vegetation clearance along the eastern side of the N59 and 50m of vegetation clearance will be required on the L-5381 to facilitate the works and to provide for visibility;
- All ancillary works required to deliver the proposed scheme.

The road traffic will remain live with a traffic management plan implemented by the contractor. The Contractor will be responsibly to ensure temporary traffic measures and signs for roadworks are in accordance with chapter 8. The Site compound will be located off the local road L-5381. Galway County Council will have identified an area suitable for a site compound to be used by the Contractor.

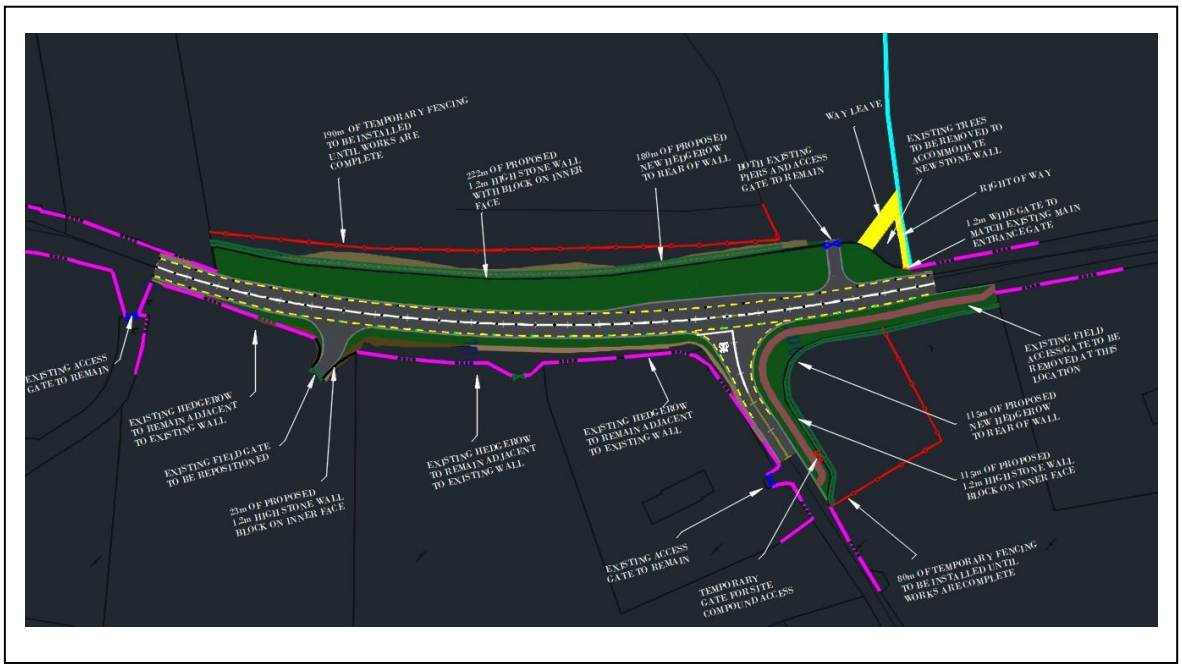
Figure 2.1: Proposed Scheme Looking in Direction of Galway City/East

- Start of the Scheme N59 at Ch 0m.
- Chainage Ch 0m – Ch 245m along N59.
- Local road L-5381 Approx. 45m in length.
- 1No Residential Entrance.
- 2No. Agricultural Accesses.
- Black lines indicate existing boundaries.
- Grey lines indicate proposed walls.

Figure 2.2: Proposed Scheme Looking in Direction of Moycullen/West

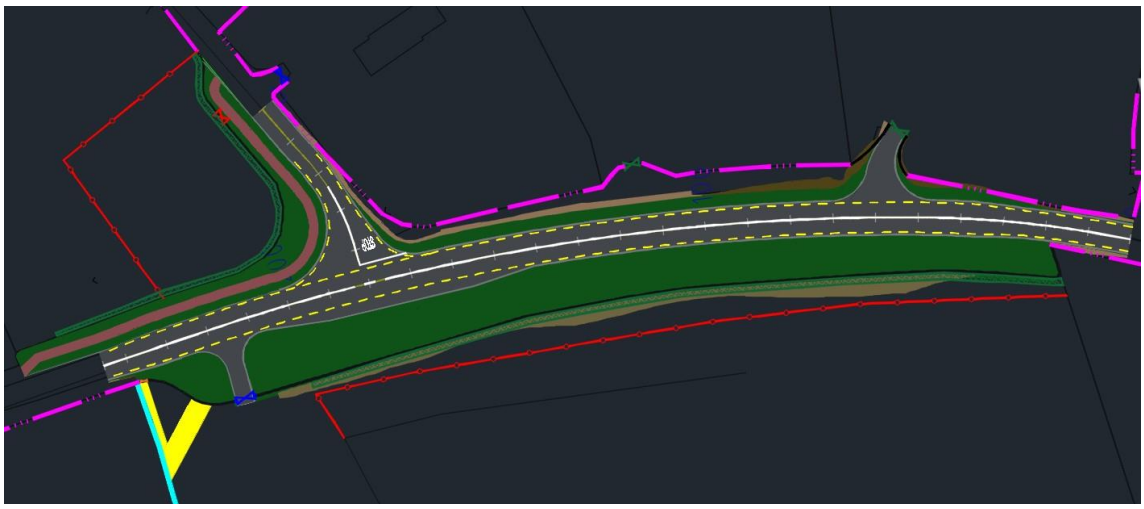
- End of Scheme on N59 at Ch245m
- Chainage Ch 0m – Ch 245m along N59
- Local road L-5381 Approx. 45m in length.
- 1No Residential Entrance.
- 2No. Agricultural Accesses.
- Black lines indicate existing boundaries.
- Grey lines indicate proposed walls.

Figure 2.3: Proposed Scheme Looking North



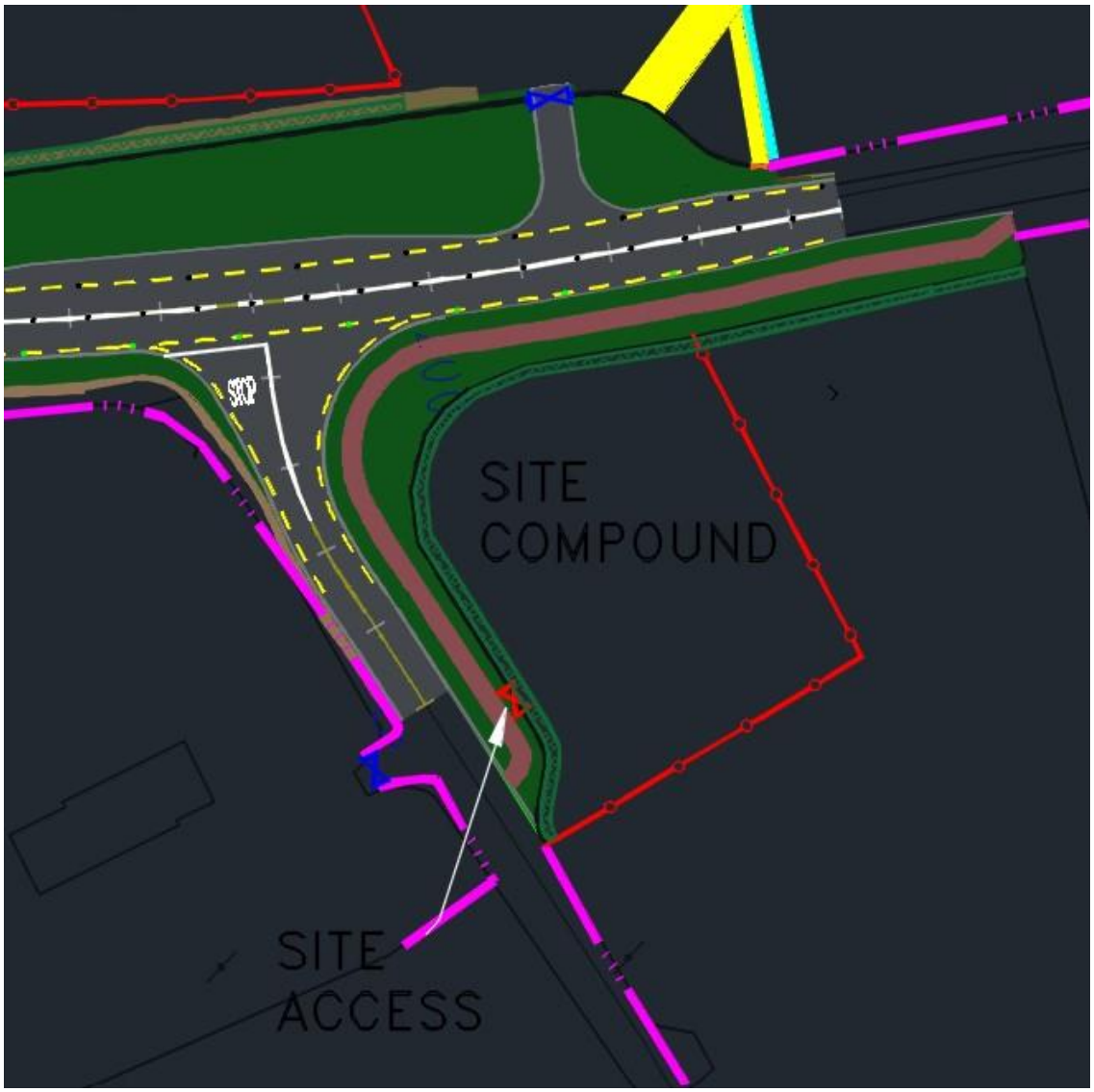
- Extents of the proposed scheme looking North towards the Lough Corrib.
- Red Blocks indicate Residential Buildings/Golf Building

Figure 2.4: Proposed Scheme Looking South



- Extents of the proposed scheme looking South towards Barna.
- Red Blocks indicate Residential Buildings.

Figure 2.5: Proposed Site Compound & Access



- Site Compound located off Local Road L-5381.

3 Proposed Activities

3.1 Construction Programme

The commencement date is subject to approval by Galway County Council and any changes which may occur following resolution by An Bord Pleanála to vary or modify the planning application. The proposed construction works are anticipated to commence in Q3 2024. Table 3.1 details the stages of the 10-week construction programme which is based on experience of similar projects and is meant to be indicative rather than a definitive programme.

Table 3.1: Indicative Construction Programme

Construction Stage	Duration	Description
1 – Site Establishment	1 week	Install site office, Canteen, Welfare/Hygiene facilities, Car Park, Signage, Survey area, Identify Services, Mobilisation of Plant, Temporary Traffic Management
2 - Site Clearance	1 week	Removal of trees, hedgerow and vegetation required for road realignment
3 - Earthworks	4 weeks	Striping Topsoil, Cut & Fill Material, Road Formation Verges, Land Drainage
4 – Pavement Foundation	3 weeks	Compact Subgrade, Subbase Course, Base Course, Binder Course, Surface Course, Kerbing
5 – Accommodation Works	7 weeks	Foundations, Stone wall construction.
6 - Drainage	2 weeks	Excavate trench, lay gully pots & pipes, petrol interceptor, underground tank, pipes, Out fall pipe, Culvert upgrade & Headwall
7 – Ancillary Works	1 week	Road markings, Signage, Construct Footpath

The construction working hours will be restricted to the following:

- Monday to Friday: 07:00 – 19:00
- Saturday: 08:00 – 14:00
- Sunday or Bank Holiday: No construction works programmed

3.2 Site Establishment

The site will be accessed off the existing local road L-5381. Prior to the commencement of any works the site entrance will need to be fully established with all security gates and the provision of a parking for construction worker's vehicles. For the duration of the project all vehicles will be parked within the confines of the site.

An excavator operator will strip the topsoil from the area of ground where the compound will sit. This topsoil will be stockpiled for reuse on site. Terram will be rolled out and rock fill placed and tracked in to provide a sound base for the compound and vehicular traffic within it.

The Contractor shall commence mobilisation of the offices and stores which are to be located onsite and transported by a licensed haulage contractor. The Contractor shall then start positioning the pedestrian fencing to establish safe routes between offices to segregate staff from vehicular traffic. In addition, the Contractor shall delineate designated parking areas for staff vehicles and site works vehicles.

The Contractor shall install an enclosed wastewater storage tank adjacent the toilet facilities which will be emptied on a regular basis. The tank will be decommissioned and removed at the end of the contract. The Contractor shall ensure that water discharge from the office/welfare sinks is discharged separately into a surface water discharge point.

An Electrician shall complete the electrical connections for the compound upon mobilization of the site-based generator; the double bunded generator shall be positioned on an appropriate drip tray for environmental concerns.

Perimeter security fencing will be placed at areas of particular importance around the site as the development progresses, as a barrier to unauthorised public access. The fencing will be well maintained, and appropriate signage will also be put in place to alert drivers of the works

3.3 Site Clearance and Preparation

Tree hedgerow and vegetation removal will be limited to only essential areas. The trees and hedgerow are programmed to be felled outside the bird nesting season (in accordance with the Wildlife Act 1976, as amended). If a change occurs to the planned construction schedule and works occur during the bird nesting season, 1st March to 31st August inclusive, then a bird nesting survey will be required for any trees identified for felling.

Evidence of invasive species listed within Part 1 of the Third Schedule of S.I No. 477 of 2011, European Communities (Birds and Natural Habitats) Regulations 2011 was included in an ecological survey completed In May 2023 by MKO Ecologists. No invasive species were identified. It is considered that the establishment of invasive species is unlikely to occur before the commencement of these works and no pre-construction confirmatory invasive species survey is required (where construction works are not subject to significant delay).

3.4 Construction Works Phasing

3.4.1 Earthworks

Soil Stripping and temporary stockpiling of soils and subsoils will be required around the site as the proposed development progresses. While these works occur, the following will apply:

- The area where excavations are planned will be surveyed and all existing services will be identified.
- All relevant bodies i.e., ESB Networks, Eir, Irish Water, Galway County Council etc. will be contacted and all drawings for all existing services sought.
- All plant operators and general operatives will be inducted and informed as to the location of any services.
- All plant operators and general operatives will be inducted and informed as to the identification of invasive species.
- A tracked 360-degree excavator will be used to strip the topsoil, and a dumper will be used to move the excavated materials to the temporary stockpile location.
- All excavated material will be reused for future landscaping works or for backfill of excavations.
- All stockpiles will be damped down or covered in a sheet of polythene, as required, which will prevent the creation of nuisance dust, and will also prevent sediment runoff in times of heavy precipitation.
- A silt filtration system will be used as appropriate to prevent contamination of any watercourse

3.4.2 Pavement Foundation

The strength of the foundation layer is dependent upon the three factors applicable to all pavement engineering design.

- The support provided by the underlying material, in this case the subgrade.
- The strength of the foundation material itself.
- The thickness of the layer.

A detailed pre-construction geotechnical site investigation will be carried out in order to assess a number of design issues, in particular the stiffness (CBR) of the material, its moisture sensitivity and if necessary, its suitability for earthworks and stabilisation to form capping layer, sub-base or road base material.

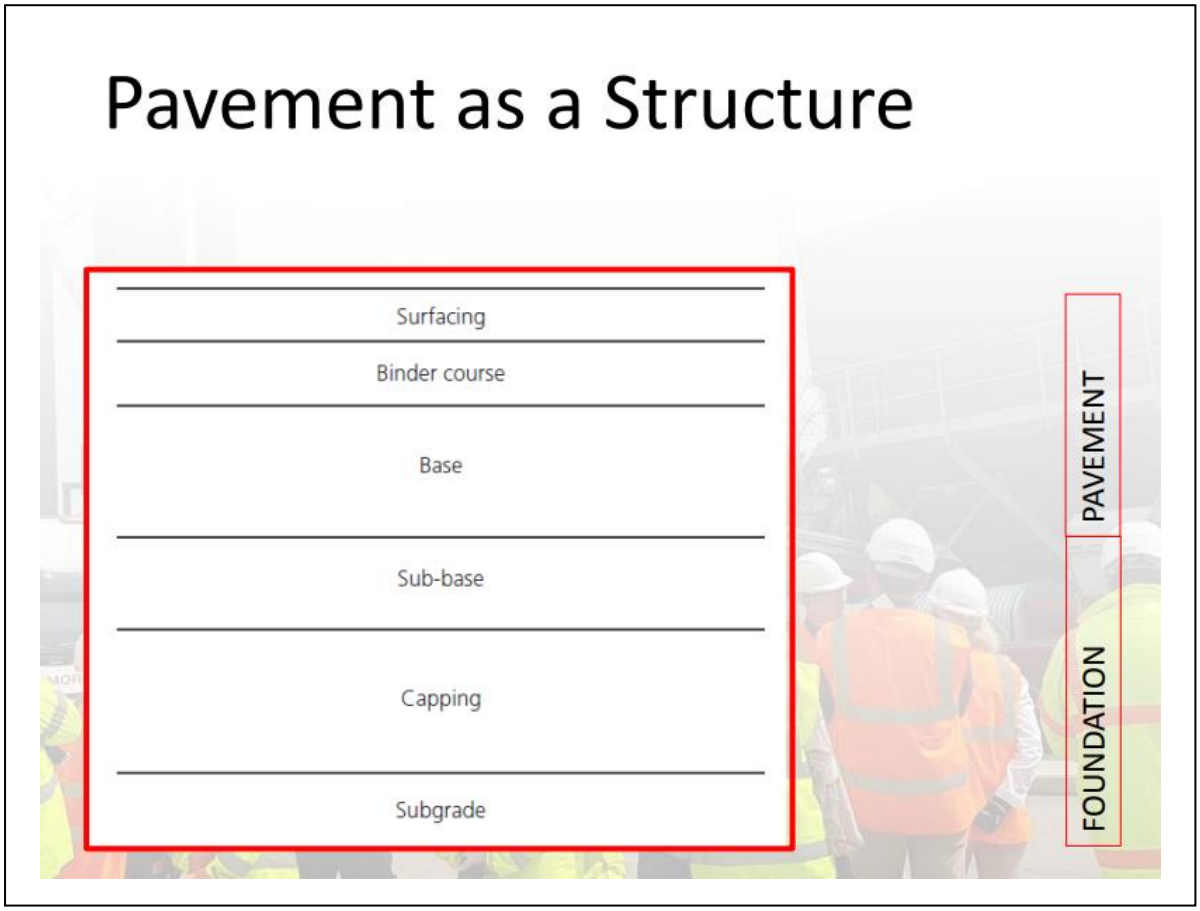
The pavement foundation will be constructed along the realigned section of the N59 for 245m. The extent of the foundation design will be in accordance with a Type 2 Single Carriageway. The Local Road L-5381 will be constructed for approx. 45m in accordance with a Type 3 Single Carriageway.

The Pavement Foundation will consist of the following:

- Subgrade
- Capping
- Sub-base
- Base

- Binder course
- Surfacing

Figure 2.6: Cross Section of Pavement Structure



The N59 Kentfield road safety junction improvement scheme will rely on heavy-duty machinery to successful deliver the project such as:

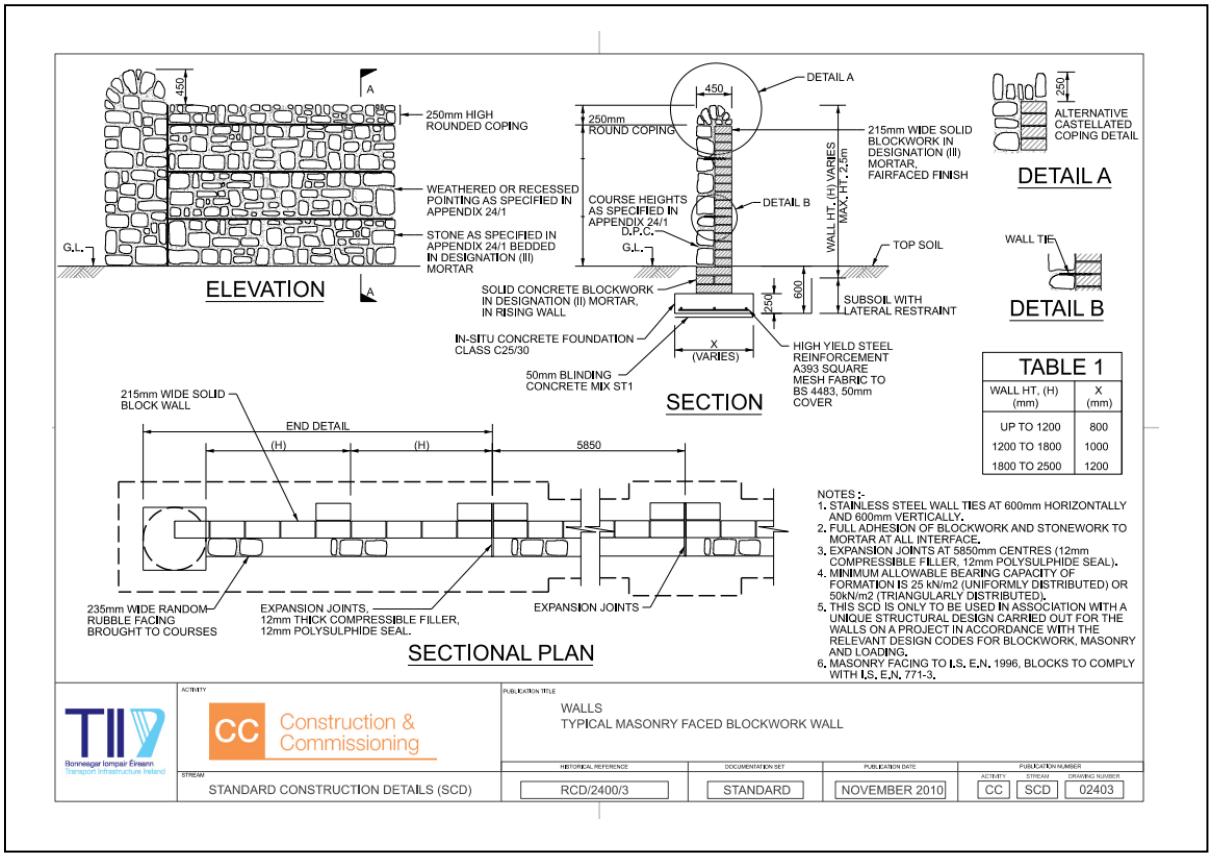
- 360-degree excavators
- Dump trucks
- Rollers
- Pavers

3.4.3 Accommodation Works

Accommodation works to be provided for the scheme:

- Single sided stone wall on the northern section along the N59, consisting of approx. 212.
- Single sided stone wall of approx. 58m connecting the N59 and L-5381

Figure 2.7: Single Sided Stone Wall Detail



3.4.4 Drainage

The proposed carriageway drainage system will consist of a gully and pipe system which will be installed as part of the works. All carriageway runoff is collected along the full proposed scheme from Ch 0m – Ch 245m. The carriageway drainage is kept separate from the land drainage. The carriageway runoff flows through a petrol interceptor before entering an underground storage tank, which allows the runoff to attenuate over a period of time before been discharged to an outfall stream at Ch 245m.

3.4.5 Ancillary Works

Other works to complete the improvement scheme include:

- New footpath on L-5381 to connect with existing N59 footpath.
- Road lining over the new realigned section of road to facilitate the safe passage of vehicles through the realignment scheme.
- Installation new road signage.
- Prior to completion of works on the development site, the landscaping works will be carried out. These works will involve the use of plant and machinery in order to carry out tasks such as earth moving. Materials which have been stockpiled for the task will be used as much as possible, and material will only be imported where it is required. During site preparation works, where topsoil is stripped prior to excavation, this material will be retained on site for use in landscaping

4 Control Measures

4.1 Introduction

The following sections detail the minimum control measures that will be implemented prior to commencement and throughout the duration of the proposed works.

4.2 General Environmental Rules during Construction

- Report any signs of pollution or environmental damage to the site foreman no matter how small;
- Report any spills, incidents or near misses that occur on site immediately to the site foreman;
- Refuel only in designated areas with spill kits available;
- All waste must be stored in the designated site waste management areas;
- Do not throw litter, all waste must be sent to site waste management contractor;
- Do not divert plant or machinery outside the authorised working boundaries of the site;
- The Contractor will ensure ongoing compliance with the recognised Environmental Management System Standard to which it is registered (e.g. EN ISO 14001 or equivalent European Standards);
- The Contractor will develop Environmental Procedures to control the potential impacts from the construction phase of the development. These procedures will be made available in the main site office and at the main Environment, Health and Safety information points on site;
- All personnel will be familiar with the Environmental Policy which will be made available in the main Contractor office;
- An emergency contact list will be prepared and made available to all construction staff employed. The contact list will 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. A 24-hour emergency phone number will be maintained for the duration of the construction works. This number will be noted on temporary signage at each works area for cable works, and at the site entrance, at a minimum.

4.3 Vegetation Clearance

Only essential areas of vegetation removal, hedgerow and tree clearance will be actioned as required to carry out the realignment and junction improvement works. All verges will be landscaped, and areas grass seeded on completion of programmed site works.

4.4 Pollution Control

4.4.1 General

Pollution control measures to prevent impacts to surface waters (the Skanagore stream runs beneath the R605 and is a tributary of the River Bandon) will be designed, installed, and maintained in accordance with CIRIA guidance for 'Environmental Good Practice on Site' (C741) and 'Control of water pollution from linear construction projects. Technical guidance' (C648) and as per the IFI guidance (2016) 'Guidelines on protection of Fisheries During Construction Works in and Adjacent to Waters'. General pollution control measures also including the scheduling of works for dry conditions to reduce the risk of run off. In the event of adverse weather events work will be halted.

Hydrocarbons

All mobile equipment required for the works (e.g. generators), will be housed in the Contractor's compound in a suitably sized bund / plant nappy so that any leaks / spills are contained. Bund specification will conform to the current best practice for oil storage such as 'Best Practice Guide BPGCS005 Oil Storage Guidelines' Enterprise Ireland.

Drip trays will be placed beneath any standing machinery to prevent discharge of oils and fuel. All waste fuels / oils, and other hazardous wastes will be disposed of in accordance with the requirements of the Waste Management Acts 1996, as amended. Spill-kits and hydrocarbon absorbent packs will be stored in the cabin of each vehicle and operators will be fully trained in the use of this equipment. Any contaminated material used to clean a spill will be correctly disposed of as a hazardous waste and brought to a licenced waste handing site by a licenced waste contractor. Welfare / hygiene facilities will be located at the Contractor's compound only. All water from wheel washes will be removed from site and disposed of in line with Waste Legislation.

Bitumen and concrete materials

A description of how bitumen and concrete will be utilised for the proposed development to prevent run-off are summarised below (concrete culvert will be a pre-cast structure delivered to site);

- No on-site batching will be permitted at the proposed works areas. Concrete will be transported to the site by concrete truck.
- Quick setting concrete mixes will be used to reduce the risk of contaminated run-off to the watercourse.
- Concrete trucks will only be washed down in a sealed mortar bin / skip which has been examined in advance for any defects. This requirement will be communicated to each concrete truck driver prior to entering into the works area.
- Where concrete pours are to take place instream (e.g., for blinding for the culvert) they will only take place within an isolated, dry, works area.

- Where the isolated working area requires constant pumping to maintain a dry works area, pumps shall be turned off during the pour, and remain off until concrete has hardening negating a run-off risk; and such that the discharge will not result in a change in pH of +/-0.5 units. This can only take place where it is confirmed that there is no flow of water through the location of the pour, and out into the watercourse downstream
- Where concrete pours are required within the watercourse, the EnCoW will regularly monitor the pH of the watercourse during concrete works. Should any change in pH +/-0.5 be detected concrete works shall immediately be ceased (handheld monitors will have maximum variance of +/- 0.1). The entry point to the watercourse will then be identified and implement appropriate measures to prevent further escape to the environment.
- It will be ensured that covers are available for freshly poured concrete to avoid wash off in the event of rain.
- Waste concrete slurry will be allowed to dry and taken to a licensed waste depot for disposal.
- Concrete works will be scheduled during dry weather conditions to reduce the elevated risk of runoff.
- NPWS and IFI will be notified immediately of any concrete spills into watercourses.

Sediment

- Prior to the works commencing, the measures prescribed in this section shall be installed to prevent the downstream transportation of surface water run off associated with vegetation clearance. This may be through the use of features like straw bales or silt booms. Monitoring of these measures to ensure their continued effectiveness will take place on an on-going basis while the works are proceeding.
- The clearance of riparian vegetation will be kept to the minimum required for the facilitation of the works such that no unnecessary exposure of riverbanks occurs.
- Works to clear vegetation to facilitate the culvert shall take place from the bank with vegetation pulled back towards the land. The vegetation removed shall be transported off site and disposed of appropriately.
- Following the vegetation clearance, a dry works area to allow for the culvert placement shall be established. The measures required to achieve this must be appropriate for the size and flow associated with the watercourse and consider the potential for increased flow due to rainfall events.
- The dry works area may be achieved by isolating the entire watercourse and over pumping the flow.
- Should pumping out of the isolated area be required to maintain the dry works area, it shall be ensured that any discharge is treated appropriately prior to entering the watercourse. This may be achieved by discharging to a treatment system such as a silt buster or similar, discharge to a silt bag, or discharging to an area of the watercourse that is protected by a silt boom. These measures shall be used in combination where ground conditions are such that just one measure is not achieving sufficient

protection. The success of these measures shall be monitored regularly by the Contractor's EnCoW as works proceed.

- Where the implementation of these measures fails, or are found to be inadequate, the Contractor will implement adapted measures (for example replacement sediment treatment system) in agreement with the Contractor's EnCoW and the Employers Representative Team.
- Any diversion or over pumping of watercourses shall be sized such that they will accommodate a 1% AEP flood event over the period in question, so as to prevent the overtopping of work areas.
- Silt fences will be placed along the banks of the stream to prevent surface-water runoff from entering the watercourse

Dust

The proposed works will result in a short-term increase in dust. The following measures will be employed in order to minimise the levels of dust on the site and its potential dispersion:

- Site roads with the potential to give rise to dust as a result of the works will be regularly watered as appropriate.
- All water used for damping of dust will be brought on to site in a tank.
- Material handling systems and material storage areas will be designed to reduce exposure to wind, which will include appropriate placing of hoarding and covering of material.
- Transport of materials with the potential to generate dust will be undertaken in tarpaulin covered vehicles.

4.5 Pollution Control

In advance of enabling works, the Contractor's ECoW will complete pre-construction confirmatory surveys of the following protected species:

1. Otter - A confirmatory otter survey will be undertaken in advance of the commencement of any works. This will incorporate an area within 150m of the works areas as per "Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes". This will allow for the identification of any holts have been established prior to commencement of works.
2. Badger - Surveys will be conducted having regard to Surveying Badgers (Harris et al.1989) and record signs of badgers including tracks, hair, latrines and setts. The extent of survey area will be defined with regard to "Guidelines for the Treatment of Badgers during the Construction of National Road Schemes" (NRA, 2006) as 150m beyond all works areas within suitable habitat.
3. Bats - Prior to felling of any trees, a confirmatory bat survey of trees to be felled will be undertaken, by a licensed qualified specialist, to assess the suitability of the tree to contain bat roosts as per "Bat Surveys for Professional Ecologists: Good Practice Guidelines2.

4. Red Squirrel - Prior to works commencing in areas of suitable habitat (woodland and scrub habitat) a targeted survey for the species will be carried out prior to any works taking place. Surveys may include observation surveys, drey counts and feeding remain searches.
5. Breeding Birds - Pre-construction confirmatory surveys will be carried out for kingfisher and other riparian breeding bird species including dipper and yellow wagtail. These will incorporate a survey area of approximately 100m upstream and downstream of the works where suitable habitat exists, which is an extensive enough survey area to include the possible zone of influence of the project. Features likely to be of note to kingfisher and other breeding riparian bird species will be recorded and watches of suitable nest areas undertaken. If actual nest sites (i.e. confirmed or presumed) are present at the culvert, the NPWS will be consulted regarding the potential requirement to stop works.

Subsequent to the pre-construction confirmatory surveys the protection measures listed in Table 4.1, where applicable, will require to be adhered too.

Table 4.1: Protected Species Protection Measures

Protected Species	Protection Measures
Otter	Should holts be identified within 150m of the proposed development the following will, at a minimum, be employed, unless otherwise agreed with the NPWS: • No works will be undertaken within 150m of holts where breeding females or cubs are present. • Works within 150m of such a holt can only take place following consultation and in agreement with the NPWS • No wheeled or tracked vehicles of any kind will be used within 20m of active but nonbreeding holts • No light work such as digging by hand or scrub will take place within 15m of such holts except under license from NPWS • The identified exclusion zones will be fenced and clearly marked on site prior to any invasive works. • All contractors on site will be made fully aware or the procedures in relation to the holts by the EnCoW
Badger	a. Prior to works commencing, sett activity at any identified setts within 150m will be confirmed. This may be confirmed through the use of camera monitoring, setting of footprint traps, soft blocking of the sett entrance or similar. Any risk of disturbance to badger will be subject to disturbance license requirements. b. A description of the setts i.e. main sett, annex sett, or outlier sett will be provided by the ECoW along with the level of activity at the sett. This will allow for an understanding of the

Badger	importance of the setts in the wider context of the local population. c. As per the Guidelines for the Treatment of Badgers during the Construction of National Road Schemes (NRA, 2006), where setts have been confirmed, no heavy machinery will be used within 30m of badger setts (unless carried out under licence from the NPWS). Lighter machinery (generally wheeled vehicles) will not be used within 20m of a sett entrance; light work, such as digging by hand or scrub clearance will not take place within 10m of sett entrances. d. Unless otherwise agreed, and under license from the NPWS, during the breeding season (December to June inclusive), none of the above works will be undertaken within 50m of active setts nor blasting or pile driving within 150m of active setts. An assumption that the sett is active will apply unless proven otherwise during the course of investigation. e. All identified exclusion zones as outlined above will be clearly marked out on site and communicated to all site staff prior to works commencing.
Bat	a. Trees with suitability for roosting bats will not be felled in advance of surveying for bats, unless in agreement with the ECoW, and NPWS as relevant. Trees identified with potential roost features of a Moderate to High value will be thoroughly examined, under licence from the NPWS, to ascertain the presence or absence of roosting bats. This will be conducted by an experienced bat expert. The trees will be examined for the presence or absence of bats / bat roosts immediately prior to felling. Where timing facilitates it (i.e. when felling is being undertaken during the active season for bats), emergence surveys may be carried out to confirm presence or absence of roosting bats. Where felling does not occur within one day of the examination, the trees will be re-assessed b. Where evidence of a roost, or roosting bats has been determined, a license for destruction of a roost and/or exclusion of bats will be required from the NPWS. The procedures for the exclusion of bats and destruction of roost as detailed in the license document will be obeyed, at all times, by the Contractor. c. Where bat exclusions are required, they will be undertaken in accordance with the requirements of the bat specialist. They will not be carried out unless under license from the NPWS. Where the felling of trees found to be suitable as bat roosts cannot be avoided, appropriate mitigation will be agreed with the NPWS and put in place at least one month in advance of any felling or disturbance.

Red Squirrel	• Any dreys not confirmed or likely (given sightings) to be those of red squirrel will be removed under license from NPWS. These dreys will be replaced using artificial dreys. Any additional measures outlined by the NPWS under the terms of their license will also be incorporated.

4.6 Noise Control Measures

There will be a short-term increase in noise during the construction phase of the proposed works. The immediate area surrounding the proposed works area is considered to be agricultural grassland, however, a number of residential dwellings occur in proximity to proposed development. Noise reduction measures will be implemented during construction. These measures will comply with British Standard 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites, which include but are not limited to:

- Construction works will be restricted to those permissible under planning consent;
- Revving of engines will be avoided and equipment will be switched off when not in use;
- Use of effective exhaust silence systems or acoustic engine covers as appropriate;
- Plant will always be used in accordance with manufacturers' instructions. Care will be taken to site equipment away from noise-sensitive areas. Where possible, loading and unloading will also be carried out away from such areas;
- Regular and effective maintenance by trained personnel will be undertaken to keep plant and equipment working to manufacturers specifications.
- Local screening will be provided where considered necessary;
- Noisy plant will be located as far as possible from noise sensitive receptors;
- Adjacent neighbours will be kept informed on the expected construction works programme;
- A person will be appointed with responsibility for maintaining noise levels within acceptable limits investigating any complaints arising and liaison with the local authority, as appropriate, in relation to noise related issues, and
- Noisy construction works will be limited and will not be undertaken outside of normal working hours.

4.7 Traffic

A Traffic Management Plan will be prepared by the appointed Contractor which conforms fully to Article 9(1) (a) (iii) and (xi) of the Planning and Development Regulations, 2001, as amended.

The Traffic Management Plan will be prepared in consultation with Galway County Council Roads Department and will provide a temporary traffic management system to maintain live traffic during road construction and identify possible road closures with traffic diversions required only for short durations during off peak hours to complete road construction tie ins as required to complete the project.

4.8 Environmental Emergency Preparedness and Response Plan

An Environmental Emergency and Response Plan (EERP) will be completed by the Contractor for inclusion in the Contractor's Method Statement which will outline details of the appropriate prevention and control measures relating to potential accidents or emergency situations. These measures will be conveyed to all staff on site during inductions, toolbox talks and method statement briefings.

These plans will detail the key personnel responsible for responding to an incident so that the relevant parties can be informed in the event of one occurring. The Environmental Incident Register will be updated by the Contractor following any incident or near miss on site and discussed with the Employers Representative at any team meetings.

The Environmental Emergency and Response Plan will address the following:

- Containment measures;
- Emergency discharge routes;
- List of appropriate equipment and clean-up materials;
- Maintenance schedule for equipment;
- Details of trained staff, location, and provision for 24-hour cover;
- Details of staff responsibilities;
- Notification procedures to inform the Employer, Environmental Protection Agency (EPA) or Environmental Department of Cork County Council;
- Audit and review schedule;
- Telephone numbers of statutory water consultees; and
- List of specialist pollution clean-up companies and their telephone numbers.

4.9 Training and Environmental Awareness Induction

The Contractor's Method Statement will detail the environmental awareness training and induction which is required to be undertaken by all staff, including sub-contractors. This will ensure that they are acutely aware of their responsibilities detailed within the CEMP and the associated sub-plans, as well as the Environmental Control Measures in place to ensure that the commitments / requirements are met throughout construction. This will ensure that during construction all personnel will exercise due diligence regarding environmental matters.

- Training of all site staff and personnel will include as a minimum;
- Induction training including environmental requirements of all operatives and subcontractors;
- More detailed training for staff or sub-contractors with specific environmental responsibilities;
- Toolbox talks will reflect the type of works being undertaken and the environmental impacts that may result from these activities e.g., training on water pollution prevention before works near watercourses. Training to be given will include the contents of this CEMP incorporating the following as appropriate:

    - Protected species/habitats;
    - Invasive species;
    - Environmental incidents;
    - Water pollution prevention;
    - Spill control and spill kits;
    - Dust and air quality;
    - Noise;
    - Erosion and sediment control; and
    - Storage and use of petrol, diesel and oils.

- Any contract specific information will be briefed to all staff and displayed on notice boards. Training records regarding any environmental training will be provided on site by the Contractor.
- Any works which require a site-specific method statement will require a toolbox talk to be provided to all personnel involved. This is to ensure that the Environmental Control Measures in place are understood and practiced.

5 Conclusion

5.1 Conclusion

This Construction Environmental Management Plan has been developed to outline the environmental principles to be adopted to ensure that potential environmental impacts associated with the construction processes are effectively prevented, managed, minimised and / or eliminated based on the information available.

This CEMP will be developed and updated by the appointed Contractor prior to the commencement of the works and in agreement with Galway County Council.

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