Chapter 21
Summary of Mitigation and Monitoring Measures

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21. SUMMARY OF MITIGATIONS AND MONITORING MEASURES

21.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) presents a summary of the mitigation and monitoring measures which shall be implemented during the construction and operational phase of the proposed West Clare Railway Greenway project (the 'proposed development' hereafter).

Mitigation measures are the measures proposed in order to avoid, reduce or, where possible, remedy the negative environmental effects of a proposed development.

This chapter reiterates the mitigation measures set out in Chapters 4 – 20 of this Environmental Impact Assessment Report for the proposed development. It does not discuss in any level of detail the corresponding impacts – either in the absence of mitigation or residual (i.e. post-mitigation). For an account of the predicted impacts, please refer to the relevant chapter of the EIAR.

This chapter also deals only with mitigation measures and standard features to be applied to the proposed development which go beyond 'mitigation by design', i.e. the inherent features of the design of the proposed development or construction methodology which also mitigate adverse environmental effects. 'Mitigation by design' is regarded as part of the development as proposed (and assessed) and is not the subject of this chapter.

An Environmental Operating Plan (EOP) for the proposed development will be prepared in accordance with the NRA (2007) Guidelines on the Creation, Implementation and Maintenance of an Environmental Operating Plan. The EOP contains all of the mitigation measures as detailed in this EIAR and also the NIS. The contractor will be required to take ownership of the EOP and implement the measures outlined. The contractor will set out their approach to managing environmental issues associated with the construction of the Proposed Scheme and for delivering on the mitigation measures. During the operational and maintenance phase, Clare County Council (CCC) will implement the mitigation measures outlined under 'Operational Phase Mitigation' as part of their operational controls and procedures, including monitoring. These include measures relating to, inter alia, maintenance of landscaping, noise barriers etc.

21.2 General Mitigation and Monitoring Measures

The table below details the general mitigation and monitoring measures identified in Chapter 4, Description of the Proposed Development.

Table 21-1 General Mitigation and Monitoring Measures

No.	Description
Mitigation Measures – Construction Phase	
1.1	Construction works will be limited to standard working hours as set out below: • 07:00 - 19:00 Monday to Friday, with works from 08:00 – 16:30 Saturdays • No construction works are permitted on Sundays or Bank Holidays (without the written permission of the relevant Authority).
1.2	A preliminary Construction Environmental Management Plan (hereinafter referred to as CEMP) is available in Volume 4 of this EIAR. It has been prepared by ROD in conjunction with CCC. It presents the approach and application of environmental management and

No.	Description
	mitigation for the construction of the proposed development as part of the application for development consent. Prior to any demolition, excavation or construction, a Construction Environmental Management Plan (CEMP) will be produced by the successful contractor. The CEMP will set out the Contractor's methodology in relation to the overall management and administration of the construction project. It will be prepared by the Contractor during the pre-construction phase to ensure commitments included in the statutory approvals are adhered to and that it integrates the requirements of the CEMP, Environmental Operating Plan (EOP) and the Resource Waste Management Plan (RWMP). The Contractor will be required to include details under the following headings: 1) Details of working hours and days. 2) Details of emergency plan - in the event of fire, chemical spillage, cement spillage, collapse of structures, failure of equipment or road traffic incident within an area of traffic management. The plan must include contact names and telephone numbers for: Local Authority (all sections/departments); Ambulance; Gardaí and Fire Services. 3) Details of chemical/fuel storage areas (including location and bunding to contain runoff of spillages and leakages). 4) Details of construction plant storage, temporary offices and WC facilities. 5) Traffic management plan (to be developed in conjunction with the Local Authority Roads Section) including details of routing of network traffic; temporary road closures; temporary signal strategy; routing of construction traffic; programme of vehicular arrivals; on-site parking for vehicles and workers; road cleaning and other traffic management requirements. 6) Truck wheel wash details (including measures to reduce and treat runoff). 7) Dust management to prevent nuisance (during demolition & construction). 8) Site run-off management. 9) Noise and vibration management to prevent nuisance (demolition & construction). 10) Management of environmental screening and monitoring 11) Measures for complying with the direction of the Ecological Clerk of Works 12) Measures for securing the site from animal ingress 13) Landscape management. 14) Management of contaminated land and assessment of risks for same by suitably qualified, trained and licenced personnel. 15) Management of stockpiles. 16) Minimisation of artificial lighting and shading. 17) Management of risk from invasive alien species. 18) Management of waste arising from construction and demolition. 19) Project procedures and method statements for: a) Site clearance, site investigations, excavations; b) Diversion of services. c) Excavation (through peat, soils & bedrock). d) Piling. e) Temporary hoarding & lighting. f) Storage and Treatment of peat and soft soils. g) Disposal of surplus geological material (peat, soils, rock etc.). h) Earthworks material improvement. i) Protection of watercourses from contamination and silting during construction. 20) Site compounds. 21) Temporary construction zones.

No.	Description
	22) Environmental constraints and commitments. 23) Monitoring, inspection and auditing of the Contractor's compliance with his/her environmental commitments. 24) Training for site staff regarding environmental constraints. The production of the CEMP will also set out measures or practices that will be put in place to ensure health and safety is maintained for the workforce and the public, and any environmental constraints are managed during the construction phase. Adoption of good management practices on-site during the construction and operation phases will also contribute to reducing environmental impacts. Prior to the CEMP being accepted and implemented, it shall be submitted to both the NPWS and IFI to ensure that all requirements of those bodies are satisfied. The CEMP is a preliminary document, which will be updated and finalised by the successful Contractor. Appended to the preliminary CEMP are the following constituent plans, also to be finalised by the Contractor: Appendix A: Schedule of Environmental Commitments Appendix B: Natura Impact Statement – Mitigation Measures Appendix C: Environmental Operating Plan Appendix D: Resource Waste Management Plan Appendix E: Incident Response Plan Each of these plans are discussed in the following sections. The obligation to develop, maintain and implement the CEMP and all of the above-listed plans will form part of the contract documents for the construction phase, and subject to any further Conditions as may be imposed by the Competent Authority.
1.3	The CEMP document in its current form will be finalised by the successful Contractor prior to the commencement of the construction phase of the proposed development, and subject to any further Conditions as may be imposed by the Competent Authority.
1.4	A Schedule of Environmental Commitments will be included as Appendix A to the preliminary CEMP in Volume 4 of this EIAR. This presents a summary of the mitigation and monitoring measures identified as a result of undertaking the environmental impact assessments carried out in the relevant chapters of this EIAR, and subject to any further Conditions as may be imposed by the Competent Authority.
1.5	Mitigation Measures from the Natura Impact Statement will be included in the preliminary CEMP in Volume 4 of this EIAR. These mitigations were identified as appropriate measures to eliminate, beyond reasonable scientific doubt, the risk of any effects occurring upon one or more European Sites, as identified through Appropriate Assessment (AA), and subject to any further Conditions as may be imposed by the Competent Authority.
1.6	An Environmental Operating Plan (EOP) is a project management tool and will be prepared as Appendix C to the preliminary CEMP in Volume 4 of this EIAR. It outlines procedures for the delivery of environmental mitigation measures and for addressing general day-to-day environmental issues that can arise during the construction phase of developments, and subject to any further Conditions as may be imposed by the Competent Authority. The EOP, will be further developed and adopted by the Contractor during the project construction stage. Before any works commence on site, the Contractor(s) will be required to prepare an EOP in accordance with the TII/National Roads Authority (NRA) Guidelines for the Creation and Maintenance of an Environmental Operating Plan. The EOP will set out the Contractor's approach to managing environmental issues associated with the construction of the scheme and provide a documented account of the implementation of the environmental commitments set out in the EIAR and measures stipulated in the planning conditions. Details within the plan will include:

No.	Description
	1) All environmental commitments and mitigation measures included as part of the planning approval process and any requirements of statutory bodies such as the NPWS and IFI as well as a method documenting compliance with the measures. 2) A list of all applicable environmental legislation requirements and a method of documenting compliance with these requirements. 3) Outline methods by which construction work will be managed to avoid, reduce or remedy potential adverse impacts on the environment. To oversee the implementation of the EOP, the Contractor will be required to appoint a suitably competent Site Environmental Manager (SEM) to ensure that the mitigation measures included in the EIAR, the EOP and the statutory approvals are executed in the construction of the works and to monitor that that mitigation measures employed are functioning properly.
1.7	A Resource Waste Management Plan (RWMP) will be included as Appendix D to the CEMP in Volume 4 of this EIAR. It sets out the Contractor's proposals regarding the treatment, storage and disposal of waste. The plan will be a live document that will be amended and updated to reflect current conditions on-site as the project progresses. The obligation to develop, maintain and operate a RWMP will form part of the contract documents for the project. The RWMP will include details such as: 1) Details of waste storage to be provided for different waste types on site. 2) Details of where and how materials are to be disposed of - landfill or other appropriately licensed waste management facility. 3) Details of storage areas on site for waste materials and containers. 4) Details of how unsuitable excess materials will be disposed of where necessary. Details of how and where hazardous wastes such as oils, diesel and other hydrocarbon or other chemical waste are to be stored and disposed of in a suitable manner.
1.8	The Incident Response Plan (IRP) will be included as Appendix E to the CEMP in Volume 4 of this EIAR. It describes the procedures, lines of authority and processes that will be followed to ensure that incident response efforts during the construction stage of the proposed development are prompt, efficient, and appropriate to particular circumstances. The Contractor will finalise the IRP prior to the commencement of the proposed works to include the following information, at a minimum: 1) Contact names and telephone numbers for the local authority, i.e. CCC (all sections and departments), An Garda Síochána and ambulance and fire services. 2) Method statements for weather forecasting and continuous monitoring of water levels in the River Eske and River Finn. The plan must outline how the Contractor will respond to forecasted flood events, including but not limited to, details of removal of site materials, fuels, tools, vehicles and persons from flood zones. 3) The measures to be taken to avoid or reduce the incident risk potential. 4) Reference to the method statement and management plans for construction activities, insofar as they are relevant for the purposes of mitigating against health and safety and pollution incidents. 5) Procedures to be adopted to contain, limit and mitigate any adverse effects, as far as reasonably practicable, in the event of a health and safety or pollution incident. 6) Persons responsible for dealing with incidents and their contact details. 7) Procedures for alerting key staff, appropriate emergency services, authorities, the Employer's Representative and clean-up companies, where required, and contact details of same. 8) Procedures for notifying relevant statutory bodies, environmental regulatory bodies, local authorities and local water and sewer providers of pollution incidents, where required, and contact details of same. 9) Standby / rota systems.

No.	Description
	10) The types and location of emergency response equipment available and appropriate personal protective equipment to be worn.

21.3 Mitigation and Monitoring Measures for Traffic and Transportation

The table below details the mitigation and monitoring measures identified in Chapter 5, Traffic and Transportation.

Table 21-2 Mitigation and Monitoring Measures relating to Traffic and Transportation

No.	Description
Mitigation Measures – Construction Phase	
2.1	The successful contractor shall prepare a comprehensive Construction Traffic Management Plan (CTMP) in consultation with Clare County Council, TII, and An Garda Síochána before the commencement of the construction phase. The CTMP will be reviewed throughout the construction phase and revised on a needs basis as works progress. The purpose of such a plan is to outline the measures which will be employed to manage the expected construction traffic during the construction period. It will detail how facilities for existing road users will be maintained whilst construction operations are proceeding. The CTMP will ensure the safe movement of pedestrians and cyclists around the work areas, including pedestrians with mobility impairments.
2.2	A dedicated competent Traffic Management Coordinator will be appointed for the duration of the project and this person will be the main point of contact for all matters relating to traffic management on the project.
2.3	The CTMP will clearly identify those roads that will be used to access this project and those roads that are not to be used. In some cases, An Garda Síochána and the roads authority may direct/agree that certain roads cannot be used for laden HGV's but can be used for LGV's or unladen HGV's.
2.4	HGV restrictions – HGV movements to facilitate construction of the proposed development will be restricted during school hours. The exact timings will be determined in consultation with Clare County Council based on the proposed HGV routes.
2.5	A pre-condition survey will be carried out on all public roads that will be used in connection with the works to record the condition of the road before the works commence. A post construction survey will also be carried out after the works are completed.
2.6	Upon completion of the construction works all roads will be expeditiously reinstated to their pre-works condition or better and to the satisfaction of the relevant road's authority. If during the construction works, some of the roads used in connection with the development are damaged then these roads will be made good to the satisfaction of the road's authority.
2.7	Site Inductions - All workers will receive a comprehensive site induction which will include, as appropriate, a section on traffic management and clear guidance on the routes to be used/not used.
2.8	24 Hour Emergency Phone Number - A 24-hour emergency phone number will be maintained for the duration of the construction works and the number will be noted on temporary signage at each site compound.
2.9	Orderly Traffic Management - All necessary temporary traffic management will be planned and executed in accordance with best practice, including Chapter 8 of the Traffic Signs Manual as published by the TII/Department of Transport.

No.	Description
2.10	Letter Drops - Subject to agreement with the planning authority, a letter drop will be carried out to notify members of the public living near the proposed site / route / roadworks where necessary, to advise them of any particularly significant upcoming traffic related matters.
2.11	Clear Signage - A system of clear signage relating to the construction works will be agreed with the planning authority. These signs will identify those roads to be used (and not to be used) for accessing the site in line with the objectives of the CTMP.
Mitigation Measures - Operational Phase	
2.12	Monitoring of the proposed development, once it is operational, is recommended to determine the actual trip generation.

21.4 Mitigation and Monitoring Measures for Population

The table below details the mitigation and monitoring measures identified in Chapter 6, Population.

Table 21-3 Mitigation and Monitoring Measures relating to Population

No.	Description
Mitigation Measures – Construction Phase	
3.1	Implementation of the Construction Strategy and all mitigation measures pertaining to Population which are set out in Chapters 5 (Traffic & Transportation), 12 (Air Quality), 14 (Noise and Vibration), 15 (Landscape and Visual Assessment), 18 (Material Assets & Land Non-Agriculture).
3.2	A Construction Traffic Management Plan (CTMP) shall be developed and implemented by the Contractor(s) to address all modes of transport during the construction stage and will be agreed with Clare County Council prior to the commencement of the construction phase. With regard to the CEMP, the following will apply: a) The CTMP will be required to maximise the safety of the workforce and the public and to minimise traffic delays, disruption and maintain access to properties. b) The CTMP will be required to minimise disruption to economic operators, including marine operations and users, residential properties and will ensure access is maintained throughout the works, including along haulage routes and in vicinity of the construction site(s) for vehicles, pedestrians, cyclists, and economic operators at all times.
3.3	Prior to the commencement of construction phase, the Contractor will develop and implement all mitigation measures detailed in Chapter 4 (Description of the Proposed Development); this is to include development of Construction Environmental Management Plan (CEMP) and associated traffic management proposals to address all modes of transport and will be required to be agreed with Clare County Council prior to construction stage. • The CEMP will be required to maximise the safety of the workforce and the public and minimise traffic delays, disruption and maintain access to properties. • The CEMP will also address temporary disruption to traffic signals, footpath access and the management of pedestrian crossing points. • The contractor shall provide an appropriate information campaign for the duration of the construction works. • The CEMP shall minimise disruption to economic operators, marine users and residential amenities.
3.4	Prior to the commencement of the construction phase, the Project Supervisor Construction Stage (PSCS) will prepare a Construction Health and Safety Plan, which addresses all

No.	Description
	relevant construction phase health risks, including potential exposure to contaminated land, risks associated with working at heights and adjacent to / over water.
3.5	Pedestrian access will be maintained during the construction works where the proposed development is online of the existing Public Rights of Way.
Mitigation Measures - Operational Phase	
3.6	All mitigation measures set out in specialist chapters of this EIAR will be fully implemented – particularly Chapter 5 Traffic and Transportation, Chapter 15 Landscape and Visual, Chapter 18 Material Assets and Land (Non-Agriculture) of this EIAR, no likely significant negative impacts are predicted during operational stage. All mitigation measures are summarised in Chapter 21 of this EIAR.

21.5 Mitigation and Monitoring Measures for Human Health

The table below details the mitigation and monitoring measures identified in Chapter 7, Human Health.

Table 21-4 Mitigation and Monitoring Measures relating to Human Health

No.	Description
Mitigation Measures – Construction Phase	
4.1	All mitigation measures pertaining to Human Health set out in the other specialist chapters of this EIAR – particularly Chapters 5 (Traffic and Transportation), 6 (Population), 9 (Land and Soils), 10 (Hydrology), 11 (Hydrogeology), 12 (Air Quality), 13 (Climate), 14 (Noise and Vibration), and 19 (Major Accidents & Disasters) – will be fully implemented by the responsible parties.
4.2	A Construction Traffic Management Plan (CTMP) will be developed and implemented by the Contractor(s) to address all modes of transport during the construction stage and will be agreed with Clare County Council prior to the commencement of the construction phase. a) The CTMP will be required to maximise the safety of the workforce and the public and to minimise traffic delays, disruption and maintain access to properties. b) The CTMP will be required to minimise disruption to economic operators, including marine operations and users, residential properties and will ensure access is maintained throughout the works, including along haulage routes and in vicinity of the construction site(s) for vehicles, pedestrians, cyclists, and economic operators at all times.
4.3	Prior to the commencement of construction phase, the contractor will develop and implement all mitigation measures detailed in Chapter 4 (Description of the Proposed Development); this is to include development of Construction Environmental Management Plan (CEMP) and associated traffic management proposals to address all modes of transport and will be required to be agreed with Clare County Council prior to construction stage. • The CEMP will be required to maximise the safety of the workforce and the public and minimise traffic delays, disruption and maintain access to properties. • The CEMP will also address temporary disruption to traffic signals, footpath access and the management of pedestrian crossing points. • The contractor shall provide an appropriate information campaign for the duration of the construction works.
4.4	Prior to the commencement of the construction phase, the Project Supervisor Construction Stage (PSCS) will prepare a Construction Health and Safety Plan, which addresses all relevant construction phase health risks, including potential exposure to contaminated land, risks associated with working at heights and adjacent to / over water.

No.	Description
4.5	All construction works will be short-term in nature and will be carried out in line with the relevant legislation and standard best practice measures, thereby minimising the impact to human health. The contractor will work within stringent construction limits and guidelines to protect surrounding populations and amenities.
Mitigation Measures – Operational Phase	
4.6	The mitigation measures identified in this section along with those specific mitigation measures described in EIAR Chapter 5 Traffic and Transportation, Chapter 6 Population, Chapter 12 Air Quality, Chapter 13 Climate, Chapter 14 Noise and Vibration, and Chapter 15 Landscape and Visual Amenity will be fully implemented.
4.7	In the event of hazardous weather conditions which may cause flooding, Clare County Council shall adhere to the measures contained in the latest Clare Major Emergency Plan to warn users of flood risk along section(s) of the greenway.

21.6 Mitigation and Monitoring Measures for Biodiversity

The table below details the mitigation and monitoring measures identified in Chapter 8, Biodiversity.

Table 21-5 Mitigation and Monitoring Measures relating to Biodiversity

No.	Description
Mitigation Measures – Construction Phase	
5.1	An Ecological Clerk of Works (ECoW) shall be appointed by Clare County Council prior to the commencement of works. It shall be their responsibility to supervise and provide recommendations on the execution of all works which have the potential to give rise to negative or positive effects on biodiversity. The ECoW will have NFQ Level 8 qualification or equivalent or other acceptable qualification in an ecological discipline and demonstrable appropriate practical experience as an ECoW in the protection of biodiversity.
5.2	Prior to any site clearance, excavation, or construction, a Construction Environmental Management Plan (CEMP) will be produced by the successful contractor(s). The CEMP will set out the Contractor's overall management and administration of the construction phase. The CEMP will be developed by the Contractor during the pre-construction phase, to ensure commitments included in the statutory approvals are adhered to.
5.3	The Contractor will prepare site-specific Method Statements detailing how the works will be carried out. Each Site Foreman shall read, sign and abide by each site-specific Method Statement. A 'toolbox talk' will be conducted to induct the Works Team on the ecological considerations listed in the site-specific Method Statement by the Site Foremen.
5.4	The Contractor will appoint a Site Environmental Manager (SEM) prior to the commencement of works. This person shall be responsible for carrying out environmental monitoring of the works and ensuring that the mitigation measures proposed in this report (as well as the CEMP and site-specific Method Statements) are adhered to.
5.5	Site clearance for the construction of the proposed development and tree and shrub maintenance during the operational phase will generally only take place outside the nesting bird season (1st March – 31st August inclusive).
5.6	In the sensitive bird areas listed in Table 8-12, removal of vegetation suitable for nesting will be programmed to take place in September which will avoid risks to nesting and wintering birds.
5.7	If site clearance cannot be avoided during the nesting bird season, the area will be checked by a suitably qualified ecologist within 36 hours of the works. If nesting birds are found to be

No.	Description
	present, the site clearance works will cease until the chicks have fledged, or, until the NPWS has been consulted to determine the course of action.
5.8	The construction envelopes for the compounds will be temporarily fenced off at the outset of the construction to avoid unnecessary loss of habitat outside of the construction footprint.
5.9	The fencing for the compounds will be set so as to avoid existing hedgerow and treeline boundaries to avoid habitat loss. The set-back distance will be signed-off by the ECoW.
5.10	The mitigation measures presented in other chapters of this EIAR (Volume 2), including, but not limited to Chapter 10 'Hydrology' and Chapter 15 'Landscape and Visual Amenity' will be implemented in full.
5.11	Any excavations deeper than 1m will be either covered or have ramps fitted outside of working hours, which will allow Badgers and other wildlife to escape. Similarly, any temporarily exposed open pipe system will be capped to prevent species such as Otter from gaining access when contractors are off site
5.12	A pre-construction survey will be carried out by a suitably qualified ecologist two to three weeks prior to the commencement of any works to ensure that protected species such as Otter and Badger have not taken up residence within the construction envelope and to record invasive species extent and distribution.
5.13	If previously unidentified resting or breeding places of Otter, Badger, or any other protected mammal species are found in the vicinity of the proposed development prior to or during construction, the works at this location will cease immediately. In the case of European protected species which includes Otter and bats, a licence will be required should any works be required that could disturb these species. In the case of species protected under the Wildlife Acts only, any works that could disturb these species will be carried out in accordance with the relevant TII guidance and under the supervision of the ECoW.
5.14	Construction is limited to the hours of 07:00-19:00 Monday to Friday, 08:00 – 16:30 Saturdays thereby reducing noise, vibration and lighting during the hours when Otters or other nocturnal species are active.
5.15	Construction phase lighting will only illuminate work areas when necessary and will avoid illuminating any areas outside of the works area. There will be no lighting outside of working hours (07:00 – 19:00 Monday to Friday, 08:00 – 16:30 Saturdays). Construction works during hours of darkness will only occur during the winter months when works are restricted to outside of sensitive bird areas. The ECoW will ensure that lights are directed into the construction area and that there is minimal light spill into the surrounding habitat.
5.16	Construction works (other than vegetation clearance works mentioned above) across Moyasta Bridge, approach embankments and other sensitive bird areas will only take place over the summer months (April – September inclusive) – to avoid impacting on wintering birds. The only works to take place during the winter months will be short term, minor disturbance works for the installation of planting required to screen the greenway.
5.17	Japanese Knotweed treatment will be delivered in accordance with TII's IAPS standard and technical guidance.
5.18	Vegetation clearance will be minimised along the length of the greenway itself, and will only be undertaken within the footprint of the greenway, 1m verges and earthworks zones. The only work that will take place outside the fence line is the proposed landscape planting.
5.19	Fencing and landscape planting is proposed along the route of the proposed development to ensure greenway users and dogs stay on the greenway and to prevent damage and disturbance to areas outside the greenway.
5.20	The greenway will have a stock proof fence and hedgerow planting to segregate the proposed development from agricultural lands and the avian sensitivities at Poulnasherry Bay and along the coast. The purpose of the fence is to prevent access by people and dogs to sensitive areas outside the greenway.

No.	Description
5.21	The fencing will include a continuous 100mm gap at ground level, designed to allow the movement of small mammals, including otter, while preventing access by dogs
5.22	Mesh screening material (privacy netting) will be attached to the fencing in the sensitive bird areas no.'s 3, 4, 5, 6, 8, 9 and part of no. 2, where no existing screening is present.
5.23	Landscape planting and fencing on the bay-side of the sensitive bird areas will be the first works undertaken following site clearance. The works will be overseen by the ECoW. This will ensure that the planted screening for wintering birds has as much time as possible to established prior to opening of the greenway.
5.24	The fencing on Moyasta Bridge will be a solid barrier of 1.1m high with an additional 0.3m section of low permeability perforated fence to a total height of 1.4m.
5.25	During the wintering bird season, the hedges will be maintained at a minimum height of approximately 1.4m where screening is required in the sensitive bird areas
5.26	The supplementary planting will use the same species and ratios as the general planting specification and achieve the same nine plants per linear meter density where gaps in the vegetation exist.
5.27	Public lighting will only be provided at the trail heads in Kilrush and Moyasta. The public lighting installed will have the lowest low lux level permitted for health and safety and be a warm-white colour of 2700K or less. The lighting will use LED luminaires and will have no upward light spill and a sharp horizontal cut off. Where light spill cannot be avoided, louvres, cowls or shields will be fitted to luminaries Lighting will be in compliance with the Institute of Lighting Professionals ILP Guidance Notes 08, Bats and Artificial Lighting at Night (2023).
5.28	Signage will be included at trailheads and at regular intervals along the route. Signage will inform greenway users of the importance of the general area to wintering birds and request responsible behaviour for all those using the amenity. To avoid an excessive amount of signage being installed and potentially ignored by users, the final locations of signs will be coordinated by Clare County Council.
5.29	**Mitigations specific to KER 1: Poulnasherry Bay** The construction phase non-specific mitigation measures described above will avoid or minimise the potential effects of the proposed development of KER 1 Poulnasherry Bay.
5.30	**Mitigations specific to KER 2: Wintering Waterbirds** • Unless signed off by the ECoW, no construction works are permitted in the sensitive bird areas during the wintering bird season (October – March inclusive). The sensitive bird areas are listed in Table 8-12 and shown in Appendix 8.3. The exception to this is landscape planting which must be carried out during the winter months when plants are dormant. The ECoW must sign off on any works in the sensitive birds areas in situations such as where they consider enough screening to be present for the type of work / tracking involved, or where access is required to reach areas where construction is permitted. • A single or double strand of steel wire will be installed along the parapet tops of Moyasta Bridge to deter raptors from perching. The number of strands applied will be determined by the parapet width. All wire installations will be securely fixed and designed to withstand interference from members of the public
5.31	**Mitigations specific to KER 3: Breeding Waders** A minimum of 5 nest boxes suitable for breeding shelduck will be provided. The construction phase and non-specific mitigation measures described above will avoid or minimise the potential effects of the proposed development of KER 3 Breeding Waders. There are no other mitigation measures required for KER 3 Breeding Waders.
5.32	**Mitigations specific to KER 4: Birds of Prey and Kingfisher** The construction phase and non-specific mitigation measures are described above will avoid or minimise the potential effects of the proposed development of KER 4 Birds of prey and

No.	Description
	Kingfisher. There are no other mitigation measures required for KER 4 Birds of prey and Kingfisher.
5.33	**Mitigations specific to KER 5: Otter** The construction phase and non-specific mitigation measures are described above will avoid or minimise the potential effects of the proposed development of KER 5 Otter. There are no other mitigation measures required for KER 5 Otter.
5.34	**Mitigations specific to KER 6: Bats** • No potential roost features were identified during the surveys. The proposed development will result in the loss of the former railway line, agricultural grassland, scrub and hedgerows which do not have potential for bats to roost. • A pre-construction bat survey will be undertaken no more than 3 weeks prior to the works to confirm roost absence at the structures and trees. The preconstruction survey will adhere to Guidelines for the Treatment of Bats during the Construction of National Road Schemes (TII, 2006). Felling of trees and alterations to structures with bat potential will only take place in September and October to avoid maternity roosts and hibernating bats. Trees classified as having low suitability including the treelines at the depot will be soft felled in the presence of an Ecologist who will be licensed to handle bats. Should bats be found during the soft felling, the bats will be taken into care and released at dusk.
5.35	**Mitigations specific to KER 7: Wildlife Corridors** • A total of 4.2km of linear scrub and hedgerow habitat will be cleared to facilitate construction of the proposed development. A total of 16.4 km of linear habitats will be planted. The landscape design is presented in Chapter 15 of this EIAR. • The 1m verges along the greenway will be allowed to revegetate naturally with locally occurring native species.
5.36	**Mitigations specific to KER 8: Badger** The construction phase and non-specific mitigation measures are described above will avoid or minimise the potential effects of the proposed development of KER 8 Badger. There are no other mitigation measures required for KER 8 Badger.
5.37	**Mitigations specific to KER 9: Invasive Species** Japanese Knotweed was recorded at various locations along the route of the proposed development. The following measures will be implemented with regards to invasive species. • The control and management procedures outlined in the Invasive Species Management Plan, presented in Appendix 8.5, will be adhered to during the construction of the proposed development. • The Contractor shall prepare a detailed Biosecurity Protocol describing their proposed approach to ensuring that invasive species are not imported or spread during the construction of the proposed development. The Contractor's Biosecurity Protocol shall be in accordance with The Management of Invasive Alien Plant Species on National Roads – Standard (TII, 2020a) and The Management of Invasive Alien Plant Species on National Roads – Technical Guidance (TII, 2020b). The Biosecurity Protocol shall include, as a minimum, the following measures to prevent the spread of invasive species: • Good construction site hygiene will be employed to prevent the introduction and spread of problematic IAPS (e.g., Japanese knotweed and Himalayan Balsam) by thoroughly washing vehicles prior to leaving any site. • All plant and equipment employed on the construction site (e.g., excavators, etc.) will be thoroughly cleaned down in designated areas only using a power washer unit prior to arrival on site to prevent the spread of IAPS. • Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any IAPS and where it is confirmed that none are present. • Landscaping of the proposed development shall use native species of plants unless in exceptional circumstances, and, insofar as possible, soil reused from on-site

No.	Description
	excavations. If soil/substrate needs to be imported to the site for the purposes of the proposed development, the Contractor shall ensure that the imported soil/substrate is free from invasive species.
Mitigation Measures – Operational Phase	
5.38	A qualified ecologist with relevant experience will be appointed to monitor birds and bird behaviour in the sensitive bird areas for two winter seasons following the opening of greenway to the public, to confirm the effectiveness of the mitigation
5.39	The planted screening and privacy mesh in the sensitive birds areas will be monitored by the ECoW every September and January for three years following the opening of the Greenway.

21.7 Mitigation and Monitoring Measures for Land and Soils

The table below details the mitigation and monitoring measures identified in Chapter 9, Land and Soils.

Table 21-6 Mitigation and Monitoring Measures relating to Land and Soils

No.	Description
Mitigation Measures – Construction Phase	
6.1	Reuse of excavated topsoil will be implemented wherever possible. Surplus topsoil will be stored temporarily at a construction compound before being transported to an authorised waste facility.
6.2	The Contractor will be incentivised to source imported fill material from the nearest and most economic locations.
6.3	The excavated soil arising on-site will be screened for contaminants and re-used during construction where possible.
6.4	Whenever the excavated / potentially treated soils do not meet the requirements, they will have to be disposed of by the Contractor who will ensure that all subsurface materials excavated during the construction phase of the proposed development are managed in accordance with the relevant waste management legislation, including the Waste Management Act 1996 (as amended).
6.5	The Contractor will have to ensure that all unsuitable materials are removed from the site and sent to authorised waste management facilities (e.g., those which hold all relevant, valid permits / licences) which accept the corresponding types of waste.
6.6	Temporary and permanent stock-proof fencing will be installed to define the site boundaries, and machinery will stay within this working area to protect surrounding soil and peat.
6.7	To prevent soil erosion, excavations will be completed and promptly backfilled. Work will not continue during heavy rainfall to avoid soil erosion risks.
6.8	A Construction Environmental Management Plan (CEMP) will be implemented prior to any ground disturbance. This plan will incorporate protective measures including the installation of sediment traps, swales and ditches before any significant site earthworks take place. Vegetation clearance operations will be phased with respect to seasonality.
6.9	As part of the detailed design prior to construction, detailed peat surveys shall be carried out to map the extent and depths of peat deposits. In these areas, a floating construction technique will be implemented as much as possible leaving the peat in place.
6.10	All plant movement in these areas will be restricted to designated routes protected by temporary timber matting, with bog master plant machinery having lower ground pressure.

No.	Description
6.11	Where peat excavation is unavoidable, the material will be reused on-site for habitat restoration where possible, with any surplus being transported to licensed disposal facilities in accordance with EPA guidelines.
6.12	The successful contractor will produce a Resource and Waste Management Plan (RWMP) detailing how construction and demolition waste will be prevented, minimised, reused, recycled, transported and disposed of in compliance with Waste Management Act 1996–2023, Resource and Waste Management Plan requirements under the National Waste Management Plan for a Circular Economy (2023–2029), EPA Best Practice Guidelines for C&D Waste Management and EU Waste Framework Directive (2008/98/EC).
6.13	A soil testing program shall be implemented prior to excavation in areas of known or suspected contamination, particularly along the abandoned railway corridor or where former buildings were previously located. Any excavated contaminated materials will be segregated and disposed of at licensed facilities.
6.14	All construction compounds will be equipped with spill containment kits and designated refuelling areas located far enough from watercourses to prevent hydrocarbon contamination.
6.15	To prevent soil contamination, excavations will be completed and promptly backfilled and work will not continue during heavy rainfall. Refuelling of machinery will be restricted to designated areas with spill containment measures.
Mitigation Measures – Operational Phase	
6.16	Pesticide application for managing invasive species will adhere to the guidance of the Department of Agriculture, Food and the Marine, with herbicides used exclusively by trained personnel, under appropriate weather conditions, and at the lowest effective dosage. When possible, non-chemical control techniques like manual removal will be given priority. Collectively, these actions will diminish the likelihood of soil, surface water, and groundwater contamination throughout the project's operational period.

21.8 Mitigation and Monitoring Measures for Hydrology

The table below details the mitigation and monitoring measures identified in Chapter 10, Hydrology.

Table 21-7 Mitigation and Monitoring Measures relating to Hydrology

No.	Description
Mitigation Measures – Construction Phase	
7.1	During construction, the following guidance documents for construction work on, over or near water will be adhered to: • C532 Control of water pollution from construction sites: guidance for consultants and contractors (CIRIA, 2001) • Central Fisheries Board Channels and Challenges – The enhancement of Salmonid Rivers. • CIRIA C648 Control of water pollution from linear construction projects: technical guidance (CIRIA, 2006) • Construction, Replacement or Alteration of Bridges and Culverts: A Guide to Applying for Consent under Section 50 of the Arterial Drainage Act, 1945 (OPW, 2019) • Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes (TII, 2006b) • Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (IFI, 2016)

No.	Description
	• Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites (Eastern Regional Fisheries Board)
The following mitigation measures relating to the protection of water quality will apply during the construction of the proposed development:	
7.2	Double silt fences will be installed along the watercourses in the vicinity of the works to contain any potential silt or sediment run-off, with particular attention to watercourses where instream works are required. Silt fences will be erected in accordance with the manufacturer's recommendations.
7.3	Stockpiling of construction material or topsoil will be prohibited within 10m of the watercourse, in order to minimize sources of sediment runoff.
7.4	Storage tanks will be bunded to capture any oil leakage. Bund specification will conform to the current best practice for oil storage (Enterprise Ireland, BPGCS005).
7.5	Storage tanks, bunding, and machinery will be maintained and checked regularly for leakage.
7.6	There are no instream works proposed to watercourses other than ditches, so the normal restriction of in-stream works to the months of June and September is not required for the proposed development.
The following measures prescribed regarding surface water run-off will also minimise the risk of any input of cementitious material into watercourses during the construction of the proposed development:	
7.7	When working in or near the surface water and the application of in-situ materials cannot be avoided, the use of alternative materials such as biodegradable shutter oils shall be used.
7.8	Any plant operating close to the water will require special consideration on the transport of concrete from the point of discharge from the mixer to final discharge into the delivery pipe (tremie). Care will be exercised when slewing concrete skips or mobile concrete pumps over or near the watercourses.
7.9	Placing of concrete in or near the watercourses will be carried out only under the supervision of a suitably qualified Environmental Manager;.
7.10	There will be no hosing into surface water drains of spills of concrete, cement, grout or similar materials. Such spills shall be contained immediately, and runoff prevented from entering watercourses.
7.11	Concrete waste and wash-down water will be contained and managed on site to prevent pollution of the watercourses.
7.12	On-site concrete batching and mixing activities will only be allowed at the identified construction compounds.
7.13	Washout from concrete lorries, with the exception of the chute, will not be permitted on site and will only take place at the construction compound (or other appropriate facility designated by the supplier).
7.14	Chute washout will be carried out at designated locations only. These locations will be signposted. The concrete plant and all delivery drivers will be informed of their location with the order information and on arrival on site; and.
7.15	Chute washout locations will be provided with appropriate designated, contained impermeable area and treatment facilities including adequately sized settlement tanks. The clear water from the settlement tanks shall be pH corrected prior to discharge (which shall be by means of one of the construction stage settlement facilities) or alternatively disposed of as waste in accordance with the Contractor's Waste Management Plan.
The measures prescribed regarding surface water run-off will also remove the risk of any input of hydrocarbons and other chemicals into the watercourses. However, the following additional measures shall also apply:	

No.	Description
7.16	Fuel storage tanks shall have secondary containment provided by means of an above ground bund to capture any oil leakage.
7.17	Storage tanks and associated provision, including bunds, will conform to the current best practice for oil storage and will be undertaken in accordance with Best Practice Guide BPGCS005 – Oil Storage Guidelines (Enterprise Ireland).
7.18	Spill kits shall be available on-site. Spill kits shall be provided at all refuelling points and fuel/chemical storage areas. Staff shall be trained in the use of spill kits.
The following mitigation measures relating to sediment control and water quality during the installation of the culverts:	
7.19	Culverts will be installed in ditches by placing a suitably sized pipe or section of box culvert in the existing channel.
7.20	It is expected that the ditches will be dry, but if flow is present, the works area will be over pumped which the culvert is installed. The pump inlet and outlet will be fitted with a silt sock to prevent sediment being released into the ditch. A hay bale, silt fence or similar silt trap will be installed downstream of the works area.
7.21	The pipe will be laid inside the existing channel and covered with crushed stone to the level required. The silt trap will be removed once the sediment has settled.
7.22	No machinery is permitted in the watercourses.
The following mitigation measures relating to the repair of structures are as follows:	
7.23	Repointing and concrete repairs will be undertaken on foot, from a ladder, using scaffolding or using a bridge inspection unit.
7.24	A catch net will be placed flush with the bridge to catch any spilled mortar or concrete. The catch net will be made of Visqueen heavy duty plastic sheeting or similar and will cover the entire area underneath the works.
7.25	Repointing and concrete repairs will take place in dry weather and will not take place if rain is forecast in the following 12 hours. The commencement of the works will be approved by the Employer's Representative.
7.26	Mortar and concrete will be mixed in a watertight container at least 20m from the watercourse.
7.27	Vegetation will be removed mechanically. No herbicide will be used to remove vegetation from bridges.
The following mitigation measures relating to sediment control and water quality during the construction of the bridges as follows:	
7.28	The new bridges will be clear span, with abutments set back from the riverbanks as far as possible, and the decks and parapets will be prefabricated.
7.29	Where watercourses are present, silt fences will be installed along the riverbanks to intercept run-off during the construction phase and to protect the riparian vegetation.
7.30	The silt fences will be located as far back from the bank as possible.
7.31	No machinery is permitted in the watercourses.
The following mitigation measures relating to sediment control and water quality during the construction of bridges are:	
7.32	A scaffold structure will be hung on the bridge desk and used to create a frame around the bridge structure.
7.33	Plastic sheeting will be fitting over the scaffolding and tightened by applying heat.
7.34	Any gaps will be sealed using tape.

No.	Description
7.35	The access point will be fitted with a zip to create a fully enclosed working area.
7.36	The encapsulated area will ensure that no dust, frit or paint reaches the watercourse below. The internal temperature will be raised using heaters to create a dry environment and to ensure that the paint cures properly.
7.37	Following the works, any dust, grit and the plastic sheeting will be removed and disposed of appropriately and the scaffolding will be dismantled.
7.38	Wastewater drainage from all site offices and construction facilities will be contained and disposed of in an appropriate manner to prevent water pollution and in accordance with the relevant statutory requirements.
7.39	Method statements that are prepared for the works that could affect biodiversity will be reviewed and approved by the Employer / Employer's Representative and the ECoW in advance of the works beginning. All method statements for works in, near or liable to impact on a waterway must have prior agreement with IFI.
Mitigation Measures – Operational Phase	
7.40	At the trail heads, surface water will be directed to bioretention areas for treatment in line with SUDs principles. The use of permeable pavements will provide sufficient mitigation for hydrocarbon pollution that there are no residual impacts on the waterbodies.

21.9 Mitigation and Monitoring Measures for Hydrogeology

The table below details the mitigation and monitoring measures identified in Chapter 11, Hydrogeology.

Table 21-8 Mitigation and Monitoring Measures relating to Hydrogeology

No.	Description
Mitigation Measures – Construction Phase	
8.1	Following appointment, the contractor will be required to further develop the CEMP to provide detailed construction phasing and methods to manage and prevent any potential emissions to ground with regard to the relevant industry standards (e.g., Guidance for Consultants and Contractors, CIRIA-C532', CIRIA, 2001).
8.2	The CEMP will be implemented for the duration of the Construction Phase, covering construction and waste management activities that will take place during the Construction Phase of the proposed development.
8.3	A project-specific Environmental Operating Plan (EOP) (Outline EOP included in Volume 4 Appendix 4.2 of this EIAR, will also be developed in accordance with the TII/NRA Guidelines for the Creation and Maintenance of an Environmental Operating Plan.
8.4	Best practice control measures have been included to ensure the avoidance of any potential impact on the receiving hydrogeological environment (i.e., groundwater) during the construction phase of the proposed development and will also be presented within the EOP.
8.5	The removal of any residual contamination in soil will be undertaken under supervision of the Project Environmental Consultant as per the CEMP, and validated in accordance with relevant guidelines including EPA 'Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites' (EPA, 2013a) and guidance and standards current at the time of construction works to ensure that a 'clean edge' is reached in the area of excavation.
8.6	The removal of localised hotspots shall be undertaken prior to the bulk excavation works for structures or trailheads, utility infrastructure and other works to reduce the potential risks associated with exposure of soils to rainfall or surface runoff and leaching to groundwater.

No.	Description
8.7	Storage of stockpiled materials pending reuse onsite, where required, will be located away from the location of any sensitive receptors (watercourses and drains).
8.8	For any excavated material identified for removal offsite, appropriate management measures will be implemented in accordance with the CEMP and Resource Waste Management Plan for the site.
8.9	Foul drainage from temporary welfare facilities during the construction phase of the proposed development will either be discharged to temporary holding tank(s), the contents of which will periodically be tankered off site to a licensed facility or discharged to public sewer in accordance with the necessary temporary discharge licences issued by UE.
8.10	There will be no authorised discharge of water to ground during the construction phase. Where dewatering of shallow groundwater is required or where surface water runoff must be pumped from the excavations, water will be managed in accordance with best practice standards (i.e., CIRIA C750), the CEMP and regulatory consents to minimise the potential impact on the local groundwater flow regime within the soil and bedrock.
8.11	The appointed Contractor will ensure that the discharge of water to ground (where required) will be in accordance with the necessary discharge licences issued by the local authority under Section 4 of the Local Government (Water Pollution) Act 1977, as amended in 1990.
8.12	The use of cementitious grout used during the Construction Phase of the proposed development will avoid any contamination of the receiving hydrogeological environment through the use of appropriate design and methods implemented by the appointed contractor and in accordance with the CEMP and relevant industry standards to prevent impact on groundwater quality such as the use of water compatible grout.
8.13	All ready-mixed concrete will be delivered to the construction site by truck. Concrete batching will take place offsite, wash down and wash out of concrete trucks will take place into a container located within a controlled bunded area which will then be emptied into a skip for appropriate compliant removal offsite in accordance with all relevant waste management legislation. Any excess concrete is not to be disposed of onsite.
8.14	Washing of tools or machinery with wet concrete will take place offsite at an appropriate dedicated wash facility that will pose no threat to receiving groundwaters.
8.15	Fuelling and lubrication of equipment will be carried out in accordance with the procedures outlined in the Outline CEMP, in a designated area of the site (where not possible to carry out such activities offsite).
8.16	Fuel will not be stored onsite for the duration of the construction phase. Fuel will only be brought to site via mobile fuel bowser. Any other lubricants, chemicals or hydraulic oils stored onsite will be stored in designated areas. These areas will be bunded on flat ground at the contractor's compound. All tank and drum storage areas will, as a minimum, be bunded to a volume not less than the greater of the following: • 110% of the capacity of the largest tank or drum within the bunded area; or • 25% of the total volume of substance that could be stored within the bunded area.
8.17	The main contractor will maintain an emergency response action plan and emergency procedures will be developed by the appointed contractor in advance of any works commencing. Construction staff will be familiar with the emergency response plan.
8.18	Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised on-site is in good working condition. Site personnel will be responsible for ensuring the regular maintenance of construction plant and equipment, to prevent leaks. Any equipment not meeting the required standard will not be permitted for use within the site.
8.19	Only emergency breakdown maintenance will be carried out on-site. Drip trays and spill kits will be available on-site to ensure that any spills from vehicles are contained and removed off-site.

No.	Description
8.20	Spill kits will be made available onsite and identified with signage for use in the event of an environmental spill or leak. A spill kit will be kept in close proximity to the fuel storage area for use in the event of any incident during refuelling or maintenance works. Heavy machinery used on the site will also be equipped with its own spill kit.
8.21	There may also be the requirement for use of portable generators or similar fuel containing equipment during the construction phase of the proposed development, which will be placed on suitable drip trays. Regular monitoring of drip tray content will be undertaken to ensure sufficient capacity is maintained at all times.
8.22	Emergency procedures will be developed by the appointed Contractor in advance of works commencing and spillage kits will be available onsite including in vehicles operating onsite. Construction staff will be familiar with emergency procedures for in the event of accidental fuel spillages. Remedial action will be immediately implemented to address any potential impacts in accordance with industry standards and legislative requirements
8.23	Any required emergency vehicle or equipment maintenance work will take place in a designated impermeable area within the site
8.24	Emergency response procedures and contingency plans will be put in place, in the unlikely event of emergency accidents (i.e., spillages of fuels or lubricants).
8.25	Spill kits, including oil absorbent material, will be provided and available onsite, so that any spillage of fuels, lubricants or hydraulic oils will be immediately contained.
8.26	In the event of a leak or spill from equipment in the instance of a mechanical breakdown during operation, any contaminated soil will be removed from the proposed development site and compliantly disposed of offsite. Residual soil will be tested to validate that all potentially contaminated material has been removed. This procedure will be undertaken in accordance with industry best practice procedures, standards and EPA guidelines.
8.27	All construction works staff will be familiar with the emergency procedures in the event of accidental fuel spillages.
8.28	All construction works staff onsite will be fully trained on the use of equipment.
8.29	The local authority and / or the EPA will be informed immediately of any spillage or pollution incident that may occur onsite during the construction phase.
8.30	The appointed Contractor will provide method statements for weather and storm surge forecasting and continuous monitoring of water levels in the adjoining water courses. The appointed Contractor will also provide method statements for the removal of site materials, fuels, tools, vehicles, and persons from flood zones in order to minimise the risk to persons working on the site as well as potential input of sediment or construction materials into the waterbodies during flood events.
Mitigation Measures – Operational Phase	
8.31	Ongoing regular operational monitoring and maintenance of drainage measures will be incorporated into the overall management strategy for the proposed development. These measures will ensure that no adverse impacts on water quality or groundwater flow regime arise during the operational phase.

21.10 Mitigation and Monitoring Measures for Air Quality

The table below details the mitigation and monitoring measures identified in Chapter 12, Air Quality.

Table 21-9 Mitigation and Monitoring Measures relating to Air Quality

No.	Description
Mitigation Measures – Construction Phase	
9.1	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
9.2	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
9.3	Display the head or regional office contact information.
9.4	Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
9.5	Make the complaints log available to the local authority when asked.
9.6	Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.
9.7	Hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.
9.8	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
9.9	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
9.10	Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period
9.11	Avoid site runoff of water or mud.
9.12	Keep site fencing, barriers and scaffolding clean using wet methods.
9.13	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
9.14	Cover, seed or fence stockpiles to prevent wind whipping.
9.15	Ensure all vehicles switch off engines when stationary – no idling vehicles.
9.16	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
9.17	Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate)
9.18	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
9.19	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)
9.20	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems
9.21	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate
9.22	Use enclosed chutes and conveyors and covered skips.

No.	Description
9.23	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
9.24	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
9.25	Bonfires and burning of waste materials are legally prohibited.
9.26	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable
9.27	Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as is practicable.
9.28	Only remove the cover in small areas during work and not all at once.
9.29	Avoid scabbling (roughening of concrete surfaces) if possible.
9.30	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
9.31	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
9.32	For smaller supplies of fine powder materials, ensure bags are sealed after use and stored appropriately to prevent dust.
9.33	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
9.34	Avoid dry sweeping of large areas.
9.35	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
9.36	Record all inspections of haul routes and any subsequent action in a site logbook.
9.37	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

21.11 Mitigation and Monitoring Measures for Climate

The table below details the mitigation and monitoring measures identified in Chapter 13, Climate.

Table 21-10 Mitigation and Monitoring Measures relating to Climate

No.	Description
Mitigation Measures – Construction Phase	
10.1	Where possible, existing structures associated with the old railway (bridges, culverts, etc.) will be retained and demolition avoided to negate additional GHG emissions being released.
10.2	The alignment design endeavours to follow the natural topography and utilise existing embankments and ballast associated with the old railway where possible, to minimise waste and reduce imported materials.
10.3	Existing fencing along boundaries will be retained where possible to reduce the need for new fencing.

No.	Description
10.4	Vegetation clearance will be minimised through the retention of vegetation along existing boundaries where possible.
10.5	In areas of peat, floating construction is proposed ('No-dig' solutions).
10.6	Site-won material will be re-used on site, specifically in relation to earthworks, where feasible, excavated materials will be re-used as fill. The GHG assessment calculations have assumed that 50% of excavated material will be reused as fill material on site as an embedded design mitigation measure to reduce GHG emissions.
10.7	Re-use and recycling of materials on site as opposed to disposal and landfill will be prioritised in line with TII's Sustainability Implementation Plan and Circular Economy Guidance.
10.8	As Clare County Council and TII are public bodies, the procurement process will align with the *Green Public Procurement Strategy and Action Plan 2024 – 2027* (Government of Ireland 2024c). This requires public bodies to seek to procure goods, services and works with a reduced environmental impact throughout their life cycle.
10.9	A suitably competent contractor will be appointed who will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled.
10.10	Idling of on-site or delivery vehicles will not be permitted, even over short periods.
10.11	All plant and machinery will be well maintained and inspected regularly.
10.12	Waste of materials due to poor timing or over ordering on site will be minimised and will aid to minimise the embodied carbon footprint of the site.
10.13	Materials will be sourced locally where possible to reduce transport related GHG emissions. Additionally, the use of efficient haul routes will reduce transport-related GHG emissions.
10.14	Material choices and quantities will be reviewed during detailed design, to identify and implement any lower embodied carbon options, where feasible (e.g., recycled aggregates, sustainably sourced timber, low-carbon concrete).
10.15	Lower embodied carbon concrete will be utilised with a carbon intensity equivalent or better than concrete with a 50% granulated blast furnace slag (GGBS) replacement.
10.16	Existing road signage and public lighting will be maintained or re-used where feasible to reduce the need for completely new construction.
10.17	During the construction phase lighting will only illuminate work areas when necessary and lighting will be restricted to working hours.
10.18	A whole-life Carbon Management Plan aligned to PAS 2080 will be implemented to inform the detailed design, build and operation.
Mitigation Measures – Operational Phase	
10.19	Lower carbon maintenance materials will be the preferred choice throughout the lifetime of the development. Routine monitoring of all infrastructure will be undertaken in line with best practice to ensure timely repairs and effective maintenance, thereby maximising the full lifecycle value of all assets.
10.20	The proposed development has been designed to reduce the impact on climate change through the promotion and opportunity for active travel (walking and cycling). Opportunities to integrate the proposed development with public transport hubs, such as bus stops, specifically those at the trailhead in Moyasta and near the trailhead in Kilrush will help to support multimodal journeys and reduce reliance on fossil-fuel vehicles.
10.21	Provide secure bike parking at trailheads and rest areas along the route as well as wayfinding to make cycling more attractive.
10.22	Promote active travel campaigns to shift commuter habits and reduce car dependency.

No.	Description
10.23	Green infrastructure has been incorporated into the proposed development through the inclusion of tree planting and vegetation along the route to capture carbon. Additionally, the proposed SuDS features will manage stormwater naturally which reduces the need for energy-intensive drainage systems.
10.24	Lighting will utilise low emission LEDs during operation and will be limited to trail heads in Kilrush and Moyasta.
10.25	A Management and Maintenance Plan is included in Volume 4 of this EIAR which includes maintenance requirements to be implemented during operation of the greenway, including measures required to ensure drainage infrastructure is kept free of debris.
10.26	To address climate change vulnerability and risk of flooding, the proposed development will incorporate features to slow runoff and promote infiltration.
10.27	The design has accounted for extreme wind events. Bridge structures will be engineered to meet standards for high wind speeds and have been designed in accordance with the Eurocodes EN1991/1/5 and Irish NA. Soil stability measures are included in the design for new embankments.
10.28	The design has accounted for extreme wind events. Bridge structures will be engineered to meet standards for high wind speeds and have been designed in accordance with the Eurocodes EN1991/1/5 and Irish NA. Soil stability measures are included in the design for new embankments.
10.29	Appropriate plant species have been selected that are suitable for the current site conditions with consideration of future climate changes where necessary. The proposed plant species will be able to withstand the climate and conditions of the west coast of Ireland.

21.12 Mitigation and Monitoring Measures for Noise and Vibration

The table below details the mitigation and monitoring measures identified in Chapter 14, Noise and Vibration.

Table 21-11 Mitigation and Monitoring Measures relating to Noise and Vibration

No.	Description
Mitigation Measures – Construction Phase	
11.1	With regard to construction activities, best practice control measures for noise and vibration from construction sites are found within BS 5228 (2009 +A1 2014) *Code of Practice for Noise and Vibration Control on Construction and Open Sites* Parts 1 and 2
11.2	Selection of quiet plant is recommended in relation to static plant such as compressors and generators. It is recommended that these units be supplied with manufacturers' proprietary acoustic enclosures.
11.3	If replacing a noisy item of plant is not a viable or practical option, consideration will be given to noise control "at source". This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier.
11.4	Screening will be provided at locations where predicted construction noise levels exceed the relevant Construction Noise Threshold (CNT), including works in proximity to residential receptors at Lisdeen, Carrowncalla, Moyasta and the Kilrush trailhead. Temporary hoarding or mobile/demountable acoustic screens will be installed around high-noise activities such as breaking or bridge works in the vicinity of sensitive receptors to reduce noise at nearby dwellings and high-amenity areas.

No.	Description
11.5	Piling at areas where bridges will be constructed will be done using augured piling methods. This piling method is less intrusive than other piling methods by minimising vibration at nearby receptors.
11.6	As part of the Construction Environmental Management Plan (CEMP) proposed as part of the project a designated environmental liaison officer will be appointed to site during construction works. The liaison officer will inform the nearest noise sensitive locations of the time and expected duration of the noisy works.
11.7	The phasing programme will be arranged so as to control the amount of disturbance in noise and vibration sensitive areas at times that are considered of greatest sensitivity.
11.8	The appointed contractor will carry out noise monitoring at representative NSLs to evaluate and inform the requirement and / or implementation of noise management measures. Noise monitoring will be conducted in accordance with ISO 1996–1 (ISO 2016) and ISO 1996–2 (ISO 2017). The selection of monitoring locations will be based on the nearest representative NSLs to the working area which will progress along the length of the Proposed Development.

21.13 Mitigation and Monitoring Measures for Landscape and Visual Amenity

The table below details the mitigation and monitoring measures identified in Chapter 15, Landscape and Visual Amenity.

Table 21-12 Mitigation and Monitoring Measures relating to Landscape and Visual Amenity

No.	Description
Mitigation Measures – Landscape Strategy	
12.1	The Landscape Strategy outlined in Chapter 15 of the EIAR and summarised in the mitigation measures below shall be implemented in conjunction with Biodiversity mitigation measures listed herein, and the Greenway Layout Drawings included in Volume 3 of this EIAR (Figures 4.1 – 4.46).
12.2	Existing fencing and hedgerows shall be retained where possible in accordance with the design of the proposed development, and supplemented as required to maintain a suitable boundary and visual screen.
12.3	Continuous timber post and tension mesh fencing (TII standard: CC-SCD-0320) is proposed along the length of the proposed greenway to segregate the proposed development from agricultural lands. Hedgerows will be planted alongside the new fencing. Proposed vegetation planting will be located on the outside of the fence line, which will ensure that there is minimal disturbance to the planting or damage to these habitats by greenway users.
12.4	A number of areas along Poulnasherry Bay have been identified as sensitive bird areas. Visual screening at these locations is required to mitigate impacts to wintering birds, with planting to maintained at a minimum 1.4m height during operation of the greenway.
12.5	Landscape planting and fencing on the bay-side of the sensitive bird areas will be the first works undertaken following site clearance. This will ensure that the planted screening for wintering birds has as much time as possible to become established prior to opening of the greenway.
12.6	Mesh screening material (privacy netting) will be attached to the fencing in these sensitive bird areas, where no existing screening is present. The purpose of the mesh netting is to provide a full level of screening while the landscape planting becomes established. The construction of the greenway is anticipated to take 16-24 months.
12.7	The fencing on Moyasta Bridge will be a solid barrier of 1.1m high with an additional 0.3m section of low permeability perforated fence to a total height of screening of 1.4m. In addition,

No.	Description
	a single or double strand of steel wire will be installed along the parapet tops to deter raptors from perching.
12.8	Where no boundary is present, the standard planting proposal along the greenway will consist of a triple staggered row on each side of the greenway, outside the fence. The hedge will include both evergreen and deciduous species planted to a density of nine plants per linear meter, with a 70:30 ratio of evergreen to deciduous species. The hedges will be made up of species that are fast growing and tolerant to exposure along the coast.
12.9	In areas where some planting is present such a hedge with gaps, supplementary fencing and planting will be undertaken to ensure that adequate screening and stock proofing is provided. The supplementary planting will use the same species and ratios as the general planting specification and achieve the same nine plants per linear meter density where gaps in the vegetation exist.
12.10	The species to be used in hedging shall be native, tolerant to exposure and mostly fast growing (refer to examples in the Landscape Strategy for the proposed development). The final specification can include other species depending on availability and will be signed off by the Ecological Clerk of Works (ECoW) in advance of ordering the plants.
12.11	The causeway leading to Moyasta Bridge may not have space to place three rows of native hedging on each side. If this is confirmed by the landscape contractor, there will be an option to use non-native species such as *Eleagnus* to provide screening.
12.12	Verges will be allowed to revegetate naturally with locally occurring native species. Reseeding with commercially available grass seed or wildflower mixes will be avoided.
Mitigation Measures – Construction Phase	
12.13	Prior to any construction activities including site clearance and excavation works, a Construction Environmental Management Plan (CEMP) will be produced by the successful contractor(s) for each element of the proposed development. The CEMP will set out the Contractor's overall management and administration of the construction project.
12.14	Before any works commence on site, the Contractor will be required to prepare an Environmental Operating Plan (EOP) in accordance with the TII/NRA Guidelines for the Creation and Maintenance of an Environmental Operating Plan. The EOP will set out the Contractors approach to managing environmental issues associated with the construction of the road and provide a documented account to the implementation of the environmental commitments set out in the EIAR and measures stipulated in the planning conditions. Details within the plan will include: • All Environmental commitments and mitigation measures included as part of the planning approval process and any requirements of statutory bodies such as the National Parks and Wildlife Services as well as a method documenting compliance with the measures. • A list of all applicable environmental legislation requirements and a method of documenting compliance with these requirements; and • Outline methods by which construction work will be managed to avoid, reduce or remedy potential adverse impacts on the environment. To oversee the implementation of the EOP, the Contractors will be required to appoint a person to ensure that the mitigation measures included in the EIAR, the EOP and the statutory approvals are executed in the construction of the works and to ensure that those mitigation measures employed are functioning properly throughout the duration of the construction phase.
Mitigation Measures – Operational Phase	
12.15	A detailed Management and Maintenance Plan will be developed and implemented by Clare County Council and will include management and monitoring measures to ensure vegetation is appropriately maintained during operation of the greenway. This will allow for safe usage of the greenway as well as ensuring the effectiveness of the planting as a visual screen. This

No.	Description
	will include maintaining screening vegetation to a minimum height of 1.4m at bird sensitive locations. Boundary treatments will be identified in the plan and included in the schedule of monitoring and maintenance inspections to be developed as part of the plan. This will include inspection and maintenance of fencing along the greenway as required in accordance with the inspection schedule to be developed as part of the plan.
12.16	Monitoring of vegetation screening will be carried out in accordance with the Management and Maintenance Plan.

21.14 Mitigation and Monitoring Measures for Cultural Heritage

The table below details the mitigation and monitoring measures identified in Chapter 16, Cultural Heritage.

Table 21-13 Mitigation and Monitoring Measures relating to Cultural Heritage

No.	Description
Mitigation Measures – Construction Phase	
13.1	A programme of archaeological test trenching will be carried out to the south of AH2 ringfort at Lisdeen, prior to the commencement of construction. This will be carried out in consultation with the TII Project Archaeologist and under licence from the National Monuments Service of the DoHLGH. Subject to the results of test trenching, further mitigation may be required, such as preservation by record or in-situ. Any further agreement will require agreement from the National Monuments Service of the DoHLGH.
13.2	Prior to the commencement of construction, a written and photographic record will be made of the section of the Kilrush ACA to be developed at the eastern trail head. This will be carried out by a suitably qualified heritage specialist, in consultation with the TII Project Archaeologist.
13.3	CH1 West Clare Railway – Substantial excavations within the existing railway will be subject to monitoring by an archaeologist under licence to the National Monuments Service of the DoHLGH. This will be carried out following a review of detailed design and in consultation with the TII Project Archaeologist. The monitoring works will aim to record the method of railway construction.
13.4	A written and photographic record will be made of the following sites, prior to the commencement of construction and following the removal of any vegetation that may be present: CH1.3, CH1.4, CH1.6, CH1.10, CH1.15 and CH1.18. The records will be compiled by a suitably qualified heritage specialist, in consultation with the TII Project Archaeologist.
13.5	A programme of archaeological test trenching will be carried out at the site of Kilrush Trail head prior to the commencement of construction. This will be carried out in consultation with the TII Project Archaeologist and under licence from the National Monuments Service of the DoHLGH. Subject to the results of test trenching, further mitigation may be required, such as preservation by record or in-situ. Any further agreement will require agreement from the National Monuments Service of the DoHLGH.
13.6	A programme of archaeological test trenching will be carried out within the designated AAPs prior to the commencement of construction. This will be carried out in consultation with the TII Project Archaeologist and under licence from the National Monuments Service of the DoHLGH. Subject to the results of test trenching, further mitigation may be required, such as preservation by record or in-situ. Any further agreement will require agreement from the National Monuments Service of the DoHLGH.
13.7	Prior to the removal of the section of TB3, the section of townland boundary to be affected will be subject to a townland boundary survey. Subject to access, this may include the excavation of a test trench in order to record the construction of the boundary. The works

No.	Description
	will be carried out in consultation with the TII Project Archaeologist and under licence from the National Monuments Service of the DoHLGH.
13.8	A programme of archaeological test trenching will be carried out within all greenfield areas prior to the commencement of construction. This will be carried out in consultation with the TII Project Archaeologist and under licence from the National Monuments Service of the DoHLGH. Subject to the results of test trenching, further mitigation may be required, such as preservation by record or in-situ. Any further agreement will require agreement from the National Monuments Service of the DoHLGH.

21.15 Mitigation and Monitoring Measures for Material Assets and Land (Agriculture)

The table below details the mitigation and monitoring measures identified in Chapter 17, Material Assets and Land (Agriculture).

Table 21-14 Mitigation and Monitoring Measures relating to Material Assets and Land (Agriculture)

No.	Description
Mitigation Measures – Construction Phase	
14.1	Following the completion of relevant construction works, lands temporarily acquired will be reinstated to existing agricultural condition.
14.2	Where new access is proposed affecting existing property boundaries these will be reinstated on a like for like basis. This may require storage of stone wall material during construction or replanting of hedgerow / trees, as required.
14.3	Measures to mitigate noise impacts on sensitive receptors are detailed in Chapter 14 Noise and Vibration
14.4	Measures to mitigate air quality impacts on sensitive receptors are detailed in Chapter 12 Air Quality.
14.5	Where farm division has occurred, temporary access across the proposed construction works corridor will need to be maintained on farms until such time as permanent alternative access is provided. Access will be restored, as soon as possible, to lands where it is removed or restricted by the proposed project. The location of such access will be at a suitable location and, where possible, with the agreement of the landowner as part of the statutory process.
14.6	Temporary fencing will be erected as required to delineate the site boundary and to minimise disturbance to adjacent lands.
14.7	In cases where drainage is impeded during construction and causes obvious difficulty to a particular landowner, temporary measures will be considered on a site-specific basis. This may include allowing waters to drain to less critical areas, so as to minimise the impact.
14.8	Where required, an alternative source of water / electricity will be provided to ensure that disruption to farming is minimised during the construction phase.
Mitigation Measures – Operational Phase	
14.9	For landowners with land on either side of the greenway, access crossing points will be provided as required for crossing movements of livestock and machinery. Gates will be hung on opposite piers either side of the greenway, and when opened, will temporarily close off the greenway to allow the landowner to cross. The location of such field access gates will be at a suitable location and, where possible, with the agreement of the landowner as part of the statutory process.

No.	Description
14.10	On impacted agricultural properties, access will be provided via an access accommodation structure to divided lands as per the design.
14.11	Permanent boundary treatment along agricultural lands will consist of a stockproof boundary that is comprised of timber post and tension mesh wire (per TII standard CC-SCD-00320).
14.12	The new drainage system will be designed to ensure that there will be no increased risk of flooding as a consequence of the proposed project.
14.13	Any services that are interfered with as a result of the proposed project will be repaired / replaced without unreasonable delay.
14.14	Ducting for the restoration of water and power supply services will be provided, as necessary.
14.15	Screening will be provided, where required, to mitigate the noise and visual effects of construction works and operational traffic.

21.16 Mitigation and Monitoring Measures for Material Assets and Land (Non-Agriculture)

The table below details the mitigation and monitoring measures identified in Chapter 18, Material Assets and Land (Non-Agriculture).

Table 21-15 Mitigation and Monitoring Measures relating to Material Assets and Land (Non-Agriculture)

No.	Description
Mitigation Measures – Construction Phase	
15.1	Lands temporarily acquired for construction will be reinstated as soon as is practicable.
15.2	Access will be maintained to all affected property as much as possible and if interrupted will be restored without unreasonable delay. Traffic management measures will be put in place during construction where temporary or minor diversions are required.
15.3	Any services that are disturbed during construction of the proposed development will be subject to temporary measures as required to minimise impacts and repaired / replaced without unreasonable delay.
15.4	Ducting for the restoration of water and power supply services will be provided, as necessary, at a suitable location with the agreement of the landowner as part of the statutory process.
15.5	Where 24-hour access is required for the continuation of commercial activities, such as the access to the marina mechanical gates, construction of alternative access routes shall be constructed in the first instance prior to any access restriction on current access routes.
15.6	Where land is severed with no means of alternative access, the proposed access gates shall be installed in the first instance to facilitate continual access to all lands.
Mitigation Measures – Operational Phase	
15.7	Where part of the curtilage of a property is to be permanently acquired, the acquiring authority will hold discussions with the property owner and generally agree to replace boundaries on a like-for-like basis where possible, subject to safety considerations, as part of the statutory process.
15.8	Any services that are interfered with as a result of the proposed development will be repaired / replaced without unreasonable delay.

No.	Description
15.9	Any new drainage system will be designed to ensure that there will be no increased risk of flooding to non-agricultural properties as a consequence of the proposed development.

21.17 Mitigation and Monitoring Measures for Major Accidents and Disasters

The table below details the mitigation and monitoring measures identified in Chapter 19, Major Accidents and Disasters.

Table 21-16 Mitigation and Monitoring Measures relating to Major Accidents and Disasters

No.	Description
Mitigation Measures – Construction Phase	
16.1	**Mitigations in relation to extreme weather events (flooding)** • Monitoring of weather forecasts and tidal forecasts to ensure that necessary actions will be implemented in time at construction sites prior to prolonged / extreme weather events. • Monitoring of water levels in watercourses. • Siting of construction compounds, earthworks and materials will be planned to minimise the potential for surface water runoff or contaminants entering watercourses, particularly during extreme weather events. A CEMP will be prepared detailing the procedures to be undertaken in the event of extreme weather (flooding) events.
16.2	**Mitigations in relation to spillage or long-term seepage of pollutants into a watercourse** • As is normal practice with infrastructure projects, an EOP and CEMP will be prepared for the proposed development which will detail measures to be taken on site, such as secondary containment for storage of fuel. An Incident Response Plan will be prepared as part of the CEMP detailing the procedures to be undertaken in the event of spillage of chemical, fuel or other hazardous wastes, non-compliance with any permit or license, or other such risks that could lead to a pollution incident, including flood risks. • The Environmental Manager will prepare Method Statements for construction works as detailed in the EOP to be undertaken on, over or near water in consultation with Inland Fisheries Ireland (IFI) and other relevant authorities. • Implementation of mitigation measures identified in Chapter 7 Biodiversity, Chapter 8 Soils and Geology, Chapter 9 Hydrology, and Chapter 10 Hydrogeology in EIAR Volume 2. • During construction, cognisance will have to be taken of the following guidance documents for construction work on, over or near water: o Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites (Eastern Regional Fisheries Board) o CD 529 Standards for Highways Design Manual for Roads and Bridges o Standard for Highways: Design of Outfall and Culvert Details o Central Fisheries Board Channels and Challenges – The enhancement of Salmonid Rivers. o CIRIA C532 Control of Water Pollution from Construction Sites Guidance for Consultants and Contractors. o CIRIA C648 Control of Water Pollution from Constructional Sites. o CIRIA C753 The SuDS Manual o CIRIA C698 Site Handbook for the Construction of SuDS

No.	Description
	○ Construction, Replacement or Alteration of Bridges and Culverts: A Guide to Applying for Consent under Section 50 of the Arterial Drainage Act, 1945 ○ Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes ○ Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters
Mitigation Measures – Operational Phase	
16.3	**Mitigations in relation to extreme weather events (flooding)** • Monitoring of weather forecasts by CCC to ensure that necessary actions such as flood warnings, will be implemented in time, prior to prolonged / extreme weather events. • A Maintenance and Management Plan (MMP) will be developed which will include extreme weather management and response procedures prior to and following extreme weather events.