

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

TEN-T Priority Route Improvement Project, Donegal

Chapter 21: Schedule of Environmental Commitments



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EIAR

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21 SCHEDULE OF ENVIROMENTAL COMMITMENTS

This chapter of the EIAR collates all the mitigation and monitoring commitments (environmental commitments) provided within Chapters 6 to 20 of the Environmental Impact Assessment Report (EIAR) for the TEN-T Priority Route Improvement Project, Donegal (TEN-T PRIPD), hereafter referred to as the “Proposed Development.”

Full details of the various commitments should be obtained by reference to the individual chapters. All mitigation measures, controls, procedures, monitoring and other requirements described in the EIAR and Natura Impact Statement (NIS) and any other conditions attached to approvals granted by An Coimisiún Pleanála will be implemented in full.

Within the tables, “C” denotes the construction phase and “O” denotes the operational phase.

21.1 Construction Stage Commitments and Responsibilities

An overview of the environmental commitments provided in Table 21-1 are considered responsibilities of the appointed contractor(s) and are an integral element of the application for approval.

Table 21-1: Construction Stage Commitments and Responsibilities from the Environmental Operating Plan

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
Project Manager	All	C	<p>The Project Manager is required to have the following responsibilities during the construction phase:</p> <ol style="list-style-type: none"> 1. Liaising with the project team in assigning duties and responsibilities to individual members of the Contractor's project staff in relation to the Environmental Operating Plan (EOP). 2. Approve key personnel required for employment on the project. The Project Manager will liaise with the Site Environmental Manager. 3. Lead the works on site. This person will be responsible for the management and control of the activities and will have overall responsibility for the implementation of the EOP. They will be assisted by the Site Environmental Manager who will act as their deputy.
Site Environmental Manager	All	C	<p>A Site Environmental Manager will be appointed by the Contractor(s) for each section of the Proposed Development. The Site Environmental Manager must possess sufficient training, experience and knowledge appropriate to the nature of the task to be undertaken, and hold a Level 8 qualification on the National Framework of Qualifications (NFQ) as recognised by Quality and Qualifications Ireland (QQI), or other recognised qualification from the National Academic Recognition Information Centre (NARIC Ireland), in Environmental Science or Environmental Management, Engineering or other relevant qualification acceptable to the Employer. Responsibilities of a Site Environmental Manager are detailed in the (NRA) Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan (NRA, 2007).</p> <p>The responsibilities of the Site Environmental Manager include:</p> <ol style="list-style-type: none"> 1. Managing task-specific Risk Assessment and Method Statements. 2. Oversee third-party consultations. 3. Oversee the acquiring and management of all environmental licenses, permits, derogation, etc. 4. Management of all waste management documentation. 5. Keep up to date with changes in environmental legislation that may affect environmental management during the construction phase and advise the Project Manager of these changes. Reviewing and amending the EOP in light of these changes and bringing the changes to the attention of the main contractor's senior management and subcontractors.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ol style="list-style-type: none"> 6. Carry out regular documented inspections of the site to ensure that work is being carried out in accordance with the environmental control measures and relevant task-specific risk assessments and method statements, etc. Append copies of the inspection reports to the EOP. 7. A schedule of monitoring shall be prepared by the Site Environmental Manager. They will also ensure that all the monitoring is carried out by appropriately qualified and competent personnel. Where the monitoring results fall outside the range contractually required, the Site Environmental Manager is responsible for initiating and reporting on corrective action. This may require the alteration of relevant Environmental Control Measures. An example template of a monitoring schedule is provided in Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan (NRA, 2007). 8. Identifying requirements for procuring and ensuring competency and coordination of specialist environmental contractors. 9. Conduct Environmental Induction Training and Environmental Toolbox Talks. 10. The Site Environmental Manager shall: <ol style="list-style-type: none"> a. Be notified of all incidents: where there has been a breach of agreed environmental management procedures; where there has been a spillage of a potentially environmentally harmful substance; where there has been an unauthorised discharge to ground, water or air; where there has been damage to a protected habitat; etc. b. Prepare and be in readiness to implement at all times an Emergency Response Plan. c. Notify the relevant statutory authority/ authorities of environmental incidents. d. Carry out an investigation and producing a report on each environmental incident. The report of the incident and details of remedial actions taken should be made available to the Employer, the Employer's Representative and the Project Manager.
Contractor's Environmental Clerk of Works	All	C	<p>The Contractor shall appoint a suitably qualified person(s), to the role of Environmental Clerk of Works (ECoW) for each section. The appointed ECoW must hold a relevant Level 8 qualification on the NFQ as recognised by QQI, or other recognised qualification from NARIC Ireland, (e.g., in Environmental Science, Ecology, or a related discipline) and demonstrate significant relevant experience, typically a minimum of 2-5 years in an ECoW or similar role. The role of the Contractor's ECoW will be to monitor the construction works, appoint the relevant specialists required and to ensure compliance with relevant legislation, and planning conditions, to ensure the implementation of the mitigation measures in the planning approval as may be granted.</p> <p>The Contractor's ECoW decides on elements that require direct supervision and instructs actions as appropriate and monitors the implementation of the mitigation measures in the planning approval as may be granted.</p> <p>Where the Contractor's ECoW encounters a non-conformance on-site they shall immediately notify the personnel carrying out/ managing the work, the Contractor's Project Manager and the Employer.</p>

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<p>The Contractor's ECoW shall have the authority to advise the Contractors and all site staff to ensure that all personnel working on site are trained in pollution incident control response. A regular review of weather forecasts of heavy rainfall is required, and the Contractor is required to prepare a contingency plan for before and after such events.</p> <p>The Contractor's ECoW is required to have the following responsibilities during the construction phase:</p> <ol style="list-style-type: none"> 1. Be present on the site as required 2. Liaise with the Contractor's Project Manager, Site Environmental Manager and Site Supervisor. 3. Work closely with the Contractor's personnel to monitor activities and ensure that all relevant environmental legislation is complied with and that the requirements of the EOP are implemented. 4. Ensure that the mitigation measures outlined in this document (including any updates to this document following consent) are implemented in full and to supervise works in sensitive locations. 5. Have the authority to oversee works and instruct action where there is a risk of environmental pollution or non-conformance with the requirements of the EOP, as appropriate.
Employer's Environmental Clerk of Works	All	C	<p>The Employer shall appoint a suitably qualified person(s), to the role of Environmental Clerk of Works (ECoW) for each section. The appointed ECoW must hold a relevant Level 8 qualification on the NFQ as recognised by QQI, or other recognised qualification from NARIC Ireland, (e.g., in Environmental Science, Ecology, or a related discipline) and demonstrate significant relevant experience, typically a minimum of 2-5 years in an ECoW or similar role. The role of the Employer's ECoW will be to monitor the construction works on behalf of the Employer and report on environmental compliance with the mitigation and monitoring requirements.</p> <p>Where the Employer's ECoW encounters a non-conformance on-site they shall immediately notify the personnel carrying out/ managing the work, the Contractor's Project Manager, Contractor's ECoW and the Employer.</p>
Contractor's Project Ecologist	All	C	<p>The Contractor shall appoint their Project Ecologist(s) before the commencement of works. The Contractor's Project Ecologist must hold a relevant Level 8 qualification on the NFQ as recognised by QQI, or other recognised qualification from NARIC Ireland. The Contractor's Project Ecologist will be suitably experienced and have the required surveying skills for the ecological feature (e.g. bats, badger, otters, birds). Contractor's Project Ecologist will have the following responsibilities during pre-construction and construction phases:</p> <ol style="list-style-type: none"> 1. Supervise pre-construction ecological surveys, implementation and overseeing of ecological mitigation measures and ensuring that activities on-site are conducted in accordance with the planning permission as they pertain to ecological matters. 2. Have due regard for works required in, adjacent to or connected to any protected site, including Natura 2000 site. This shall extend to consideration of any likely significant effects on the qualifying interests of Special Areas of Conservation (SAC)s and Special Protection Areas (SPA)s.
Employer's Project Ecologist	All	C	<p>Donegal County Council (DCC) shall appoint the Employer's Project Ecologist before the commencement of works. The Employer's Project Ecologist must hold a relevant Level 8 qualification on the NFQ as recognised by QQI, or</p>

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			other recognised qualification from NARIC Ireland. The Employer's Project Ecologist will be suitably experienced and have the required surveying skills for the ecological feature (e.g. bats, badger, otters, birds). The Employer's Project Ecologist will act on behalf of DCC and liaise directly with the Contactor's Project Ecologist, review reporting deliverables, and supervise site activities as required.
Contractor's Project Archaeologist	All	C	<p>The Contractor's Project Archaeologist must hold a relevant Level 8 qualification on the NFQ as recognised by QQI, or other recognised qualification from NARIC Ireland in archaeology and/or a related discipline. Such persons shall have professional knowledge and experience of the monumental and portable heritage and related assessment and regulatory processes. Where archaeological test excavations, monitoring, geophysical surveys, metal detection and/or underwater archaeological assessments are required during construction, the Contractor's Project Archaeologist undertaking such work shall be suitably qualified and experienced and eligible to hold the relevant excavation or survey licence(s). The appropriate licences/consents shall be obtained prior to commencement of such work, and the Contractor's Project Archaeologist shall ensure compliance with all licensing requirements and conditions. The Contractor's Project Archaeologist is required to have the following responsibilities during the construction phase:</p> <ol style="list-style-type: none"> 1. Supervise the necessary archaeological mitigation, testing, and monitoring throughout. This includes overseeing the conduct of any excavations and ensuring they are performed in accordance with any license conditions attached. 2. Work closely with contractor's personnel to monitor excavations etc. for archaeological potential, especially during topsoil stripping.
Employer's Project Archaeologist	All	C	DCC shall appoint the Employer's Project Archaeologist before the commencement of works. The Employer's Project Archaeologist must hold a relevant Level 8 qualification on the NFQ as recognised by QQI, or other recognised qualification from NARIC Ireland in archaeology and/or a related discipline. Such persons shall have professional knowledge and experience of the monumental and portable heritage and related assessment and regulatory processes. The Employer's Project Archaeologist shall act on behalf of DCC and liaise directly with the Contactor in relation to cultural heritage mitigation and monitoring measures, and to ensure that any works involving cultural heritage features are carried out in accordance with the relevant licences, permits and permissions.
Contractor's Landowner Liaison Officers (LLO)	All	C	<p>The Contractor shall appoint a suitably qualified person(s), to the role of Landowner Liaison Officers (LLO). The LLO is required to work closely with the Contractor to communicate with landowners potentially affected by:</p> <ol style="list-style-type: none"> 1. The advance works contracts, including archaeology, ground investigations, pre-construction surveys (including condition surveys), etc. 2. The construction works. 3. Post-construction works and surveys, including condition surveys.
Employer's Landowner Liaison Officers (LLO)	All	C	DCC shall appoint the Employer's LLO before the commencement of works. During the construction phase, the Employer's LLO will work closely with the Contractor's LLO to communicate with landowners likely to be affected by the proposed works. The LLO will act as the interface between the landowners and the Contractor/Local Authority.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
All Site Personnel	All	C	<p>All site personnel shall attend environmental induction training before commencing work on site.</p> <ol style="list-style-type: none"> 1. Personnel shall adhere to the relevant environmental control measures and relevant task-specific risk assessment and method statements including those set out in the EOP. 2. Reporting immediately to the Site Environmental Manager and Project Manager any incidents where there has been a breach of agreed procedures including: a spillage of a potentially environmentally harmful substance; an unauthorised discharge to ground, water or air, and damage to a protected habitat, etc. Depending on circumstances it may be appropriate for general operatives and machinery operators to report directly to their Foreperson who will then report to the Site Environmental Manager and Project Manager.
Staff training of environmental mitigation and monitoring	All	C	<p>The contractor will be required to provide appropriate staff training in the implementation of the environmental protection measures, mitigation measures, monitoring and audit requirements, procedures, and the emergency response as set out above, in the EIAR and the NIS. General training will include:</p> <ol style="list-style-type: none"> 1. Overview of the environmental policy and EOP, goals and objectives. 2. Awareness in relation to risk, consequence and methods of avoiding environmental risks as identified within the register of aspects and with the planning conditions. 3. Awareness of roles and individual environmental responsibilities and environmental constraints to specific jobs. 4. Location of and sensitivity of SAC, SPA, other designated sites, protected monuments, structures etc. 5. Location of habitats and species to be protected during construction, how activities may affect them and methods necessary to avoid impacts. 6. Location of flood zones. 7. Oil/diesel spill prevention and safe refuelling practice. 8. Storage of materials including oil/diesels and cement. 9. Emergency response processes used to deal with spills. 10. Minimising disturbance to wildlife. 11. Emergency response to include water pollution hotline to the relevant regulatory body (e.g. EPA, Inland Fisheries Ireland (IFI), Loughs Agency) for regulator response. Identification of registered / accredited spill clean-up company for oil etc. 12. Consideration of importance of containment of vehicle washing, containments of concrete /cement / grout washout etc, bank protection using hessian to prevent excessive scour and mobilisation of suspended solids (SS), maintenance of vegetation corridors etc.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			The Contractor will produce a specific training plan, and appropriate training will be provided by the Contractor to ensure that all site personnel have sufficient understanding of environmental issues and management requirements prior to commencing construction work. A register of completed training is to be kept by the Site Environmental Manager. The Project Manager will ensure that environmental emergency plans are drawn up, and the Site Environmental Manager will conduct the necessary training/inductions.
Internal Communication	All	C	It is essential that all the meetings including site management, site safety should address environmental issues on the agenda. These issues should be reported by the Site Environmental Manager in all such meetings.
Communication with statutory agencies and other third parties	All	C	A protocol for regular communication with statutory agencies and other third parties shall be established by the contractor. The Contractor will prepare a communications plan for external stakeholders as specified in the EIAR mitigation.
Creation of Environmental Operating Plan (EOP)	All	C	<p>Prior to the commencement of works the contractor shall update and finalise the EOP prepared as part of the EIAR (Appendix C4.01). The contractor shall incorporate all environmental protection, mitigation and monitoring measures required as directed by any consent granted for the Proposed Development.</p> <p>The Contractor's EOP shall be submitted by the Contractor to the Employer's Representative prior to construction works commencing for review/ comment. There may be a number of iterations of the EOP before the Employer's Representative will accept a version that meets the full requirements of the Contract.</p> <p>Once this EOP has been accepted, it will be reviewed and updated by the Contractor as necessary. The updated EOP will be submitted to the Employer's Representative following each update. The EOP will be maintained by the Contractor until completion of the Defects Notification Period.</p>
Guidance documents	All	C	The works shall be carried out by the contractor in compliance with the most recent versions of guidelines and best practice documents relevant to the works being undertaken whilst also ensuring compliance with the requirements of the environmental protection, mitigation and monitoring measures required as part of any consent granted for the Proposed Development.
Site Inspections	All	C	The appointed Site Environmental Manager will carry out environmental inspections at appropriate intervals. The Site Environmental Manager will be accompanied by a qualified and accredited environmental specialist (ecologists, landscape architects and noise specialists etc.) when appropriate and where required during inspections.
Monitoring	All	C	<p>The Proposed Development may require certain types of monitoring e.g., related to water quality, vibration, noise levels, etc. Monitoring requirements are stipulated in the EIAR and NIS.</p> <p>A schedule of monitoring shall be prepared by the Contractor and included in the EOP. The Contractor will also ensure that all the monitoring is carried out by appropriately qualified and competent personnel. Where the monitoring results fall outside the range contractually required, the Site Environmental Manager is responsible for initiating and reporting on corrective action. This may require the alteration of relevant Environmental Control Measures.</p>

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
Auditing	All	C	<p>For successful implementation of the EOP by the Contractor, the Site Environmental Manager along with the Project Manager shall ensure that an annual audit is undertaken. The reports of these audits shall be annexed to the EOP. The EOP may also be revised between annual audits as deemed appropriate particularly where there are updates to environmental control measures or environmental legislation.</p> <p>The Employer's Representative shall ensure that an audit of the EOP is carried out at regular intervals as agreed with the Employer to ensure the Contractor is complying with the environmental provisions of the contract.</p>
Non-Conformance, Corrective and Prevention Action Plan	All	C	<p>In the event of non-conformance, the following must be investigated:</p> <ul style="list-style-type: none"> ▪ Cause of the non-conformance: a Non-Conformance Report (NCR) will be prepared to record any environmental incident and work that has not been carried out in accordance with the EOP or Method Statement(s). ▪ Develop a plan for correction of the non-conformance: a Corrective Action Report (CAR) will be prepared where a non-conformance is identified as a result of monitoring, inspection, surveillance and valid complaints. ▪ Determine preventive measures and ensure they are effective: any actions identified shall nominate an owner to follow through the action to be taken, along with a specified timescale for it to be closed out. ▪ Verify the effectiveness of the correction of the non-conformance. ▪ Ensure that any procedures affected by the corrective action taken are revised accordingly. <p>Responsibility must be designated for the investigation, correction, mitigation and prevention of non-conformance. The Contractor and the Employer's site supervisory teams will monitor and investigate non-conformances relating to environmental issues.</p>
Requirements for detailed programme of works	All	C	<p>Once appointed the main contractor shall provide a detailed programme prior to commencement of the works. This programme shall set out:</p> <ul style="list-style-type: none"> ▪ The overall programme of construction. ▪ Programming of the key elements and phases of construction. ▪ Programming of environmental protection, mitigation and monitoring. ▪ The duration of each element and phase. ▪ The programme will be regularly updated to reflect any changes in programmed activities.
Site drainage, erosion, and sediment control measures	All	C	<p>All on site drainage, erosion and sediment control measures for the construction works shall be in place and functioning prior to the commencement of earthworks/ site clearance.</p>
Temporary Construction Compounds	All	C	<p>The contractor will be required to adhere to appropriate measures for all temporary construction compounds to reduce risk of effects to environmental receptors.</p>

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
Environmental Emergency Response Plan/ Contingency Plan	All	C	Prior to commencing works, the appointed contractor shall prepare an Environmental Emergency Response Plan/ Contingency Plan. The plan will detail the procedures to be undertaken in the event of the release of sediment into a watercourse, a serious spillage of chemical, fuel or hazardous wastes (e.g., concrete) or other such risks that could lead to a pollution incident during the construction phase of the Proposed Development. This document shall also include measures in the event of severe weather events, including flood risks.
Night working	All	C	Any approval for night working will only be undertaken with the prior written agreement of the DCC and/or their appointed representative(s). This excludes works that are required for reasons of emergency or where there is an immediate risk to safety and/or environmental pollution.
Use of material from quarries	All	C	In the event that material from quarries is used, the construction phase haulage of material from the quarries will access the Land Made Available (LMA) and avoid using local roads where possible. Where the proposed route crosses existing National, Regional or Local Roads, 'crossing points' will be formed to ensure that construction vehicles can cross safely from one side to the other. These 'crossing points' will be within the LMA and priority will be given to vehicles on the public road network.
Construction Traffic Management Plan (CTMP)	All	C	The Contractor shall update and finalise the Construction Traffic Management Plan (CTMP) included as Appendix C4.02 of the EIAR. This CTMP shall be agreed with DCC and/or their appointed representative(s) as well as the appropriate emergency services, e.g., An Garda Síochána, ambulance services and fire services, in order that potential road closures and restrictions and diversions are carried out safely and efficiently and to the satisfaction of the relevant stakeholders.
Road closures	All	C	The Contractor shall where reasonably practicable limit road closures to critical works only and in accordance with the road closure approval process.
Management of deliveries	All	C	<p>The contractor shall manage all deliveries in accordance with the CTMP included as Appendix C4.02 and as updated and finalised by the appointed Contractor(s) so that:</p> <ul style="list-style-type: none"> ▪ Material will be transported along haul routes through the site as much as possible. ▪ All construction related traffic/ vehicles use approved access and egress points to the site(s)/ compounds. ▪ All construction related traffic/ vehicles use approved roads to travel to/ from the site(s)/ compounds. ▪ Where use of public roads is required, all construction related traffic/ vehicles will be scheduled to avoid peak traffic periods. <p>Specific details of deliveries management are to be defined by the appointed contractor prior to the commencement of works as part of the detailed EOP.</p>

21.2 Traffic and Transportation Assessment

The environmental commitments provided in Chapter 6: Traffic & Transportation, are summarised below.

Table 21-2: Traffic & Transportation Assessment Environmental Commitments

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
Increased traffic due to importing of supplies, workers' commute.	All	C	Dedicated haulage routes will be implemented. Cycle lanes and pedestrian crossings will be facilitated.
Inconvenience to commuters due to diversions, stop/go system and road closures.	All	C	Undertaking construction offline wherever possible from existing road network. Install appropriate traffic management and reduce impacts during peak hours where possible.
Access to properties may be impacted.	All	C	Egress routes and site access location will be supplied. Relevant residents/ property owners will be notified in advance.
Traffic management plans	All	C	During construction, detailed traffic management plans will be prepared by the appointed contractor, developed from the CTMP contained in Appendix C4.02 in Volume C: Technical Appendices. The CTMP details measures to ensure that construction traffic impacts are minimised through the control of site access/ egress routes, site access locations, pedestrian/cyclist provisions, traffic management including temporary diversions, temporary signage, deliveries to site and road cleaning. See Table 21-1 above regarding CTMP.

21.3 Population

The following environmental commitments associated with Chapter 7: Population are summarised below.

Table 21-3: Population Environmental Commitments

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
Residential and Commercial Receptors (Common Effects):	All	C	<ol style="list-style-type: none"> Avoidance of as many sensitive receptors as possible and use of good practice construction standards and methods (e.g. working hours restrictions, noise minimisation measures, road sweeping etc). As required, the CTMP should provide alternative access arrangements. EOP to be updated and finalised to set out environmental construction management measures for the construction period. CTMP and Construction and Demolition Resource and Waste Management Plan (CDRWMP) to be updated and finalised. CTMP to be implemented in accordance with relevant guidance and standards. Prior to the commencement of Works in any location the Contractor's Representative shall liaise with DCC's Representative and landowners / stakeholders, that may be impacted, to ensure the Works are planned and phased so as to minimise disturbance. Stakeholder Communication Plan (SCP) to be prepared and implemented. Where temporary works are carried out, land will be reinstated post construction on a like for like basis unless otherwise agreed between the landowner and DCC. Relevant monitoring measures as recommended by emissions specialists to be included in the EOP, e.g. dust, water quality, vibration, road conditions. Landscaping to be monitored where reinstatement has occurred and replacement seeding and planting carried out within current or next planting season. This should be repeated until seeding and planting is successfully established.
Employment / economic activity:	All	C	<ol style="list-style-type: none"> Temporary Traffic Management (TTM) measures will be in place to minimise disruption.
Community Lands & Assets:	All	C	<ol style="list-style-type: none"> TTMP to be in place. Access to all community lands to be retained throughout the construction period. Where necessary, temporary signage shall be erected.
Community facilities: disturbance from works near St. Patrick's NS, Archview Lodge	2	C	<ol style="list-style-type: none"> TTMP to be in place. See Table 21-2, Table 21-9 and Table 21-11 for more mitigation measures relevant for this receptor.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
Nursing Home and Indian Community Centre			
Community facilities: disruption to 'lifeline route' to key community facilities in Letterkenny during construction works at the junction between the N56 and the N13 at Dry-Arch roundabout and surrounding roads.	2	C	1. TTMP measures will be put in place throughout construction to ensure that the 'lifeline' route remains open and accessible until the proposed new Swilly bridge crossing is constructed.
Community facilities: disturbance from works to facilities at Murlog and Drumoghill and to Ray NS	3	C	1. TTMP will be in place. 2. See Table 21-2, Table 21-9 and Table 21-11 for more mitigation measures relevant for this receptor.
Community facilities: general access	All	C	1. TTMP to be in place. 2. Access to all community lands to be retained throughout the construction period. Where necessary, temporary signage shall be erected.
Tourism Impacts	All	C	1. Access provision to facilities during works. 2. Arrangements for continued use to be put in place where construction works intersect accesses or routes, including temporary signage provision, following liaison with Fáilte Ireland. 3. Strict adherence to working hours near accommodation. 4. Temporary signage and TTMP. 5. See Table 21-2, Table 21-9 and Table 21-11 for more mitigation measures relevant for this receptor.
Non-motorised User (NMU)	All	C	1. TTMP including pedestrian and cycle routes. Ensuring access remains to local facilities. Phasing of works to facilitate. 2. Community Liaison Officers to inform stakeholders of impending closures and alternative arrangements. Temporary access works to be in place from outset of relevant works. Temporary routes to consider needs of pedestrians (including mobility-impaired), cyclists, private and public vehicle users. e continued access. 3. Arrangements for continued use to be put in place where construction works intersect cycle routes, including temporary signage provision, following liaison with Fáilte Ireland.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
Private Property & Housing	All	O	<ol style="list-style-type: none"> The scheme shall be measured pre- and post-construction against KPIs that include journey time, safety, and queueing. Pre-construction measurements shall be taken a minimum of one month prior to construction commencement. Post construction measurements shall be taken a minimum of 6 months and a maximum of 5 years following scheme opening to ensure traffic flows have adjusted and the sampling timeline is appropriate. For example, safety is best measured over an extended period. Demolition of existing house avoided where possible. Compensation to be provided via CPO process. See Table 21-13 for measures associated with accommodation works for when land take arises. See Table 21-11 and Table 21-15 for more mitigation measures relevant for these receptors.
Development land & Businesses (including Socio-economics)	All	O	<ol style="list-style-type: none"> Monetary compensation will be available through the Compulsory Purchase Order (CPO) process. Roads will remain operational and local traffic will remain. Accessibility and amenity likely to be enhanced by reduction of traffic volume. Settlements to be bypassed, including the services that may be availed of therein, shall be provided with suitable directional signage in line with Transport Infrastructure Ireland (TII) and DCC policies.
Community lands: accessibility and amenity	1	O	<ol style="list-style-type: none"> Active travel links to Holy Well and Dromboe Woods (Section 1).
Community Assets:	All	O	<ol style="list-style-type: none"> Strategic traffic will divert to new network. Active travel link to Cappry Rovers (Section 1) and existing facilities in Dry Arch area (Section 2). Recreational and amenity facilities shall also be appropriately signposted where access is amended, or where a junction from the new road network provides more appropriate access. Diversion of traffic volumes from important routes. Second Swilly crossing (Section 2). Improved safety from design proposals. Active travel measures at St. Patrick's National School (Section 2). Western link road in Section 1 will open up the development site.
Tourism: Improved	All	O	<ol style="list-style-type: none"> Substantial new active travel provision. New access arrangements. Active travel link, visitor information and landscaping adjacent to the Dunwiley Ring Fort.
NMU	All	O	<ol style="list-style-type: none"> Significant active travel provision. Options were considered to avoid and minimise severance potential in multiple locations. Maintenance of existing roads or provision of new junctions, underbridges, overbridges etc. Provision of connections to existing routes. Relocated and new directional signage to be provided to ensure clarity for users of routes such as the North West Trail and the Donegal Cycle Route, where necessary, particularly where there is potential linkage from new active travel routes.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ol style="list-style-type: none"> 3. Longer distance however, active travel route to be provided to connect into existing cycle route (Dromore, Section 2). 4. Existing underpass to be retained for walkers and cyclists with vehicles diverted to new overbridge (Trimragh, Section 2). 5. Overpass for Beechwood. Access routes from existing national road to remain in place to Ballindrait, Ray, Drumoghill and Murlog. Active travel link to church and school at Murlog. (Beechwood (Section 3)). 6. Downgrading of existing roads, active travel facilities etc. (Section 1).
Monitoring			<ol style="list-style-type: none"> 1. The scheme shall be measured pre- and post-construction against Key Performance Indicators (KPIs) that include journey time, safety, and queueing. Pre-construction measurements shall be taken a minimum of one month prior to construction commencement. Post construction measurements shall be taken a minimum of six months and a maximum of five years following scheme opening to ensure traffic flows have adjusted and the sampling timeline is appropriate. Safety is best measured over an extended period.

21.4 Human Health

The following environmental commitments associated with Chapter 8: Human Health are summarised below.

Table 21-4: Human Health Environmental Commitments

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
Open space, Leisure and Play	All	C	1. Provide appropriate wayfinding information for diversions such as being advertised online and signposting, including approximate journey times on the routes. Wayfinding to destinations should be clearly signposted.
Safe and Cohesive Communities	All	C	1. Ensure early and ongoing information sharing with road users, and emergency and healthcare services with regards to any temporary road closures, diversions or lane closures. 2. Provide appropriate access mitigation for the Letterkenny Ballyraine Park Health Centre. Details of this mitigation are to be outlined in the CTMP as developed by the Contractor.
Socio-economic Conditions	All	C	1. As far as reasonably practicable (e.g. subject to standards and security checks), provide preferential access to construction apprenticeships and training schemes for young people in the local (Donegal) area who are Not in Education, Employment, or Training (NEET). Young people who are NEET are at a critical intervention point for public health. Targeted support at this stage can have a substantial effect on the health of this group and their future dependants. This is a low-cost measure with a high societal return.
Environmental conditions: Traffic & Transportation, Population, Air Quality and Noise & Vibration.	All	C/O	1. None beyond those set out in the environmental chapters.
Safe and Cohesive Communities	All	O	1. Additional Road Safety Audits (Stage 2) will be carried out Prior to Construction, following construction and prior to road opening and also post opening with live traffic to address any operational issues.

21.5 Terrestrial Biodiversity

The following environmental commitments associated with Chapter 9A: Terrestrial Biodiversity are summarised below.

Table 21-5: Biodiversity – Terrestrial Environmental Commitments

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
General Construction Mitigations	All	C	<ol style="list-style-type: none"> DCC will employ a suitably qualified and experienced Project Ecologist who will form part of the Employer's Site Representative Team and who will oversee the implementation of the mitigation and monitoring measures for the Proposed Development. The Project Ecologist will be appointed prior to the commencement of any construction or enabling works; including any post-consent, pre-construction site investigations. The Project Ecologist shall be responsible for carrying out regular audits of the ecology measures set out in the Contractor's EOP on behalf of the local authority. DCC will ensure that the contract(s) for the construction of the Proposed Development have a requirement that the Contractor(s) appoints a suitably qualified and competent ECoW, and must hold a relevant degree (e.g., in Environmental Science, Ecology, or a related discipline) and demonstrate significant relevant experience, typically a minimum of 2-5 years in an ECoW or similar role. The ECoW will be appointed prior to the commencement of any construction or enabling works, including any post-consent, pre-construction site investigations. The ECoW will be responsible for and oversee the Contractor's environmental management of the construction works. The ECoW will, as necessary, liaise with the relevant environmental stakeholders, e.g. NPWS, IFI, Loughs Agency, and keep the Project Ecologist informed of all liaisons, decisions and agreements. DCC will ensure that the Contract(s) for the construction of the Proposed Development allow for the regular checking of mitigation measures, monitoring and other environmental commitments, the cessation of construction works at any locations where these are not operating as planned, and the undertaking of corrective actions. In addition, the Contract(s) will include provision for the Project Ecologist to review and accept any corrective actions proposed by the Contractor(s) and/or their ECoW prior to their implementation (unless deemed urgent and necessary for the immediate protection of the environment), and monitoring of the efficacy of those corrective actions to ensure the aims and objectives of the environmental protection measures are achieved. In advance of works commencing on site, all personnel will receive on-site induction by the ECoW and Contractor(s) relating to the ecological constraints and mitigation measures associated with the site. It will be the responsibility of the Contractor to ensure that any new personnel who are employed during the construction works also receive the on-site induction. Prior to the commencement of construction works, the scope, programme, and phasing of confirmatory pre-construction habitat and species surveys will be defined by the ECoW in consultation with DCC and appointed Contractors, should they be appointed at this stage. Given the duration of the construction works, these pre-construction habitat and species surveys will be appropriately phased, mindful of the planned work and seasonal constraints. This is to ensure that an up-to-date baseline is maintained to inform decision making. Some of these confirmatory surveys will be completed as part of Enabling Works set out in the Project Description; others will be completed as the phases of construction are progressed along the routes.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<p>6. Mindful of the mobile nature of the species concerned (e.g. bats and otters), changes to the baseline environment may occur between the completion of this EIAR and the commencement of construction of the Proposed Development. Such changes will be identified by the confirmatory pre-construction surveys, and where these surveys identify the establishment of any new bat roosts or otter holts/couching sites that give rise to the requirement for a further derogation licence, any such further derogation licence(s) will be obtained prior to undertaking any construction works that may disturb the species/features concerned. The scope of the confirmatory pre-construction surveys will be sufficient to inform any such future derogation licence application which may be required.</p> <p>7. The ECoW will oversee the implementation of the eradication of invasive alien species. However, the “sign off” of the works required to remove/eradicate invasive alien species will be completed by a specialist contractor specialising in such eradication.</p> <p>8. Construction activities will typically be undertaken during daylight hours. It is proposed that the normal permitted working times will be 07.00 to 19.00 hours. Floodlights will be cowed and angled downwards to minimise light spillage outside of works areas. Lighting will be provided with the minimum luminosity sufficient for safety and security purposes and will be shut off at night when not in use or when works cease at the end of the day to minimise the effects of light pollution and disturbance to fauna.</p> <p>9. It is noted that an EOP will be prepared by the Contractors prior to the commencement of Earthworks. The EOP will include all the mitigation measures set out in the EIAR with respect to the Construction Phase. The EOP will be prepared in consultation with the ECoW. It will be the role of the ECoW to ensure that all the relevant ecological mitigation measures set out below and within the NIS are incorporated into the EOP and implemented thereafter.</p>
General Operational Mitigation Measures	All	O	<p>1. Unless otherwise specified, DCC will be responsible for implementing the operational phase mitigation measures.</p> <p>2. The management of any vegetation in retained land during the operational phase of the Proposed Development will be undertaken in line with the prescriptions set out within the Biodiversity Management Plan (BMP).</p>
Designated Sites	All	Both	<p>River Finn SAC</p> <p>1. Mitigation measures relating to River Finn SAC water quality are outlined in Table 21-6.</p> <p>2. See otter and habitats and flora items in this table for mitigation measures relevant to these Qualifying Interests (QI).</p> <p>River Foyle and Tributaries SAC (UK)</p> <p>1. Mitigation measures relating to River Foyle and Tributaries SAC (UK) aquatic QI are outlined in Table 21-6.</p> <p>2. See otter and habitats and flora items in this table for mitigation measures relevant to these QIs.</p> <p>River Foyle and Tributaries Areas of Special Scientific Interest (ASSI)</p> <p>1. Mitigation measures relating to River Foyle and Tributaries ASSI aquatic receptors are outlined in Table 21-6.</p> <p>2. See otter and habitats and flora items in this table for mitigation measures relevant to these features.</p>

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<p>3. See Invasive Alien Species (IAS) item in this table.</p> <p>River Foyle, Mongavlin to Carrigans Proposed Natural Heritage Area (pNHA)</p> <p>1. Same mitigation measures as those stated above for River Foyle and Tributaries ASSI.</p> <p>Lough Swilly SAC</p> <p>1. Mitigation measures relating to surface water pollution are outlined in Table 21-6.</p> <p>2. See otter and habitats and flora items in this table for mitigation measures relevant to these QIs.</p> <p>Ornithological sites of Lough Swilly and Lough Foyle</p> <p>Construction Phase</p> <p>1. Mitigation measures relating to surface water pollution are outlined in Table 21-6.</p> <p>2. Mitigation measures for habitat loss, fragmentation and alteration are set out below under item Habitats and Flora of this table.</p> <p>3. Construction activities will typically be undertaken during daylight hours. It is proposed that the normal permitted working times will be 07.00 to 19.00 hours. Floodlights will be cowled and angled downwards to minimise light spillage outside of works areas. Lighting will be provided with the minimum luminosity sufficient for safety and security purposes and will be shut off at night when not in use or when works cease at the end of the day to minimise the effects of light pollution and disturbance to birds.</p> <p>4. Mitigation measures for noise and vibration are outlined in Table 21.11.</p> <p>Operational Phase</p> <p>1. See the bats item in this table for mitigation measures for disturbance from noise, vibration, lighting, and human presence .</p> <p>Lough Swilly including Big Isle, Blanket Nook & Inch Lake pNHA</p> <p>1. See mitigation measures set out for the Lough Swilly SAC and ornithological sites of Lough Swilly and Lough Foyle above within this table.</p>
KERs, Habitats and flora	All	C	<p>General Mitigation Measures</p> <p>1. To avoid unintended incursion by personnel, equipment and materials, the construction site boundary will be fenced off and site access/egress points constructed.</p> <p>2. In addition to the fencing of the CPO boundary as part of the enabling works, any other vegetation within the CPO boundary which is capable of being retained during the construction works will be fenced off with suitable protective fencing, to be specified by the ECoW. This includes the retention of trees, hedgerow, woodland, etc. Only site access/egress points will be used by personnel and equipment.</p>

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ol style="list-style-type: none"> 3. Signage will be placed at intervals along the fencing stating, “no access or storage of materials beyond this point” (or similar). The signage will face inwards into the construction site. 4. As part of the on-site induction for construction personnel, the ECoW will state that there will be no access to personnel or equipment and no storage of construction materials beyond the fenced construction boundary. <p>Prevention of Spread of IAS</p> <ol style="list-style-type: none"> 1. An Invasive Species Management Plan (ISMP) has been prepared and set out in Appendix C4.04. The ISMP outlines the measures required to control invasive species. 2. Pre-construction invasive alien species surveys will be completed. This will be part of a suite of pre-construction surveys, the scope, programme, and phasing of which will be defined by the Project Ecologist/ECoW in consultation with DCC and Contractor(s), should they be appointed at this time, prior to the commencement of site clearance and construction works. The Project Ecologist will co-ordinate any advanced works for the Authority. Given the duration of the construction works, the pre-construction surveys will need to be appropriately phased, mindful of the planned work and seasonal constraints. This is to ensure that an up-to-date baseline is maintained to inform decision making. Based on the findings of the pre-construction surveys, the adequacy of the mitigation will be reviewed and, if necessary, adjusted accordingly by the ECoW. Any adjustment to the mitigation measures will be agreed with the Local Authority in advance of them being implemented. The pre-construction surveys will be supplemented by further inspection by the ECoW (as deemed necessary by them) immediately prior to site clearance. The ECoW will update the ISMP following pre-construction surveys and as the construction phase of the Proposed Development progresses, following TII guidance¹. 3. Any invasive plant species identified within the lands made available will be dealt with prior to construction works taking place. An advance works contract may be undertaken to treat and/or remove stands of invasive plant species. Works to eradicate invasive species will be completed and signed off by suitably experienced personnel. 4. No vegetation removal or works resulting in earth disturbance will be completed in any area known to support invasive alien species until the eradication of the invasive alien species has been completed and signed off by suitably experienced personnel. 5. Asian clam (<i>C. fluminea</i>) an invasive alien animal species has been recorded at the downstream end of the Swilly Burn near the proposed bridge (Site W3-14). There are no instream works at this or any other major river crossings in the Foyle catchment (rivers Deelee, Swilly Burn, Finn) but instream works are required on smaller tributaries of the Foyle catchment main channels. To avoid transference of clams or their waterborne juvenile stages, construction personnel are strictly forbidden to enter the water at the major bridge crossing locations. If accidental contact with water occurs in the rivers of Section 3: Swilly Burn, Deelee or Finn and/or Section 2: Swilly

¹ *The Management of Invasive Alien Species on National Roads* (Standard GE-ENV-01104) and *The Management of Invasive Alien Plant Species on National Roads* (Technical Guidance GE-ENV-01105).

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<p>Estuary or Isle Burn (Lesliehill) - before moving to other areas within the catchment or any outside river, lake or estuary catchment the following biosecurity protocol shall be carried out:</p> <ul style="list-style-type: none"> • Check – Remove any visible matter, including any clams you can see, along with plant material or mud. Empty boots or drain all river water from containers. • Clean – Washdown all clothing, equipment and any other gear that was in contact with river water using tap-water onto grass (or a dedicated washdown area within the site compound), at least 50 m away from any watercourse and not into a stormwater drain system. • For any absorbent surfaces of equipment and/or materials that accidentally come into contact with river water use a suitable disinfection method for the item: (1) Hot water - Soak in hot tap water (55°C) for at least 5 minutes; (2) Diluted bleach - Soak in household bleach in a 10% (1 in 10) ratio with water for 1 hour; (3) Virkon® Aquatic – use a spray bottle of solution according to manufacturer’s instructions to douse the equipment; (4) Freezing – overnight until solid. • Dry – Allow gear to dry to touch, inside and out, then leave it to dry for at least 48 hours (2 days) before using again. <p>6. To avoid potential transfer of aquatic alien species or pathogens, there shall be no abstraction from any natural watercourse as part of construction activities. Any construction related water requirements will be served by tanker sourced from a municipal treatment supply.</p>

Air Pollution

1. See Table 21-9 for mitigation measures relating to air quality and habitats.

Globeflower

1. A precautionary pre-construction survey for the presence/absence of globeflower along the affected section of the River Finn (in the vicinity of the new bridge crossing) will be completed at the appropriate time of year. This will be part of a suite of pre-construction surveys, the scope, programme, and phasing of which will be defined by the ECoW in consultation with DCC and Main Contractor prior to the commencement of construction works. Given the duration of the construction works, the update surveys will need to be appropriately phased, mindful of the planned work and seasonal constraints. This is to ensure that an up-to-date baseline is maintained to inform decision making. Based on the findings of the pre-construction surveys, the adequacy of the mitigation for globeflower will be reviewed and, if necessary, adjusted accordingly by the ECoW. Any adjustment to the mitigation measures will be agreed with the Local Authority in advance of them being implemented. The pre-construction surveys will be supplemented by further inspection by the ECoW (as deemed necessary by them) immediately prior to site clearance.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
KERs, Habitats and flora	All	O	<p>General Mitigation Measures</p> <p>Any vegetation in retained land will be managed during the operational phase in line with the BMP.</p> <p>Prevention of Spread of IAS</p> <p>Maintenance of the Proposed Development will be carried out in line with TII guidance (2020b) to mitigate the spread of invasive alien species.</p>
Bat – Roosting	All	C	<p>Roost loss and accidental killing or injury</p> <ol style="list-style-type: none"> Two separate derogation licence applications have been submitted to NPWS in December 2025. These derogation licences have been received and are provided in Appendix C9A.06. One derogation (Derogation Licence Number: DER-BAT-2026-93) covers the roosts lost in both Section 1 and 2 of the Proposed Development and the other (Derogation Licence Number: DER-BAT-2026-94) covers the roosts lost in Section 3 of the Proposed Development. Derogation licences granted by NPWS are published on their Bat Derogations Issued 2026 webpage (see link: https://www.npws.ie/licensesandconsents/disturbance/application-for-derogation/derogations-issued-2026/bat-derogations), along with the application and supporting documents. Mindful of the mobile nature of bats, pre-construction bat surveys will be undertaken, and these will verify if the identified roosts remain in place and will identify any new roosts established. Should the pre-construction surveys identify any additional bat roosts, modified and/or additional bat derogation licence applications will be submitted to NPWS for approval. Applications for any additional derogation licences will be submitted and obtained prior to undertaking construction works that may disturb those bat roosts. The need for derogation licences will need to be kept under review by the ECoW as the works progress; based on the findings of the pre-construction surveys completed. The status, with respect to bat roosting, of any buildings to be demolished (in whole or in part) and any trees to be removed (or subject to significant tree surgery) will be confirmed through the completion of pre-construction surveys at the appropriate time of year (typically May to September) by the ECoW (and appropriately qualified personnel, if required). The surveys will be completed with reference to the following guidance (or relevant guidance at time of survey): NPWS <i>Bat Mitigation Guidelines for Ireland</i> (v.2) and Bat Conservation Trust <i>Bat Surveys for Professional Ecologists: Good Practice Guidelines</i> (4th Ed). Pre-construction bat roosting surveys will be part of a suite of pre-construction surveys; the scope, programme, and phasing of which will be defined by the ECoW in consultation with DCC and Main Contractor prior to the commencement of construction works. Given the duration of the construction works, the update surveys will need to be appropriately phased, mindful of the planned work and seasonal constraints. This is to ensure that an up-to-date baseline is maintained to inform decision making, including with respect to the need for derogation licensing. Some of these surveys will be completed as part of Enabling Works; others will be completed as the phases of construction are progressed along the route, based on the findings of the pre-construction surveys, the adequacy of the mitigation for roosting bats will be reviewed and, if necessary, adjusted accordingly by the ECoW. Any adjustment to the mitigation measures will be agreed with the Local Authority in advance of them being implemented. The pre-construction surveys will be supplemented by further inspection by the ECoW (as deemed necessary by them) immediately prior to site clearance.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<p>4. There will be no demolition of buildings or removal of trees with bat roost potential (potential to be determined by the ECoW) unless the ECoW has confirmed that the buildings or trees do not support roosting bats (confirmed via survey) or unless the demolition/removal is completed under the provisions of a derogation licence. Following the pre-construction survey, bat roosts located within the CPO boundary will be clearly identified to all personnel working in the vicinity of the roost. Temporary boundary tape fencing (or similar) can be used at the discretion of the ECoW to identify such roosts, subject to such measures themselves not impacting on the use of the roost.</p> <p>5. Removal or significant disturbance (wholly or partially) of roosts will be completed in accordance with the necessary derogation licence and with reference to the following guidance: <i>Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes</i> (National Roads Authority (NRA) 2005), <i>Guidelines for the Treatment of Bats during the Construction of National Road Schemes</i> (NRA, 2005), and <i>Bat Mitigation Guidelines for Ireland</i> (Marnell, et al.,2022). The need for licences will be determined by the ECoW. The need for additional mitigation for derogation licensing purposes will be reviewed and determined by the ECoW and relayed, as necessary to the Local Authority.</p> <p>6. All vegetation removal shall be monitored by the ECoW, or appropriately experienced ecologists directed by the ECoW, to ensure there is no disturbance of protected species (e.g. otter, bats, hedgehog, shrew, etc.). If disturbance of roosting bats occurs, the ECoW will contact NPWS.</p> <p>7. By way of enhancement and in addition to any provision of alternative roosting structures which may be required, depending on the findings of pre-construction surveys, with respect to derogation licensing, 10 no. bat boxes per 1 km of new carriageway will be erected in any season in pairs at suitable locations along the route of the proposed road. Suitable locations will be determined by the ECoW based on locations available to erect, proximity to artificial lighting, and connectivity to foraging and commuting habitats. The bat boxes will be Schwegler-type (woodcrete) boxes (or similar) and a range of different types of boxes (e.g. 2f, 1FF, 3FF, 1FW, 1FE, and 1FTH) will be used. In addition, bat tubes (Schwegler) are required to be inserted into suitable bridges and culverts (minimum dimension of 2.5m x 2.5m). Two bat tubes are erected inside culverts while 4-8 bat tubes are inserted into the bridges (e.g. proposed bridge over the Deelee River in Ballindrate and bridge over the River Finn in Lifford).</p> <p>8. In relation to Building 41 (Section 3), this structure was recorded as a maternity roost for soprano pipistrelles. While it is not located within the CPO, it is located within 20 m of the boundary of the CPO, and the proposed road route will be located both south and north of the structure. This is likely to result in disturbance to the roost and therefore, if preconstruction surveys identify that the roost is still present, it is recommended that an alternative bat house is constructed to provide an alternative roosting site. Please see detail of the bat house in Appendix C9A.04.</p> <p>Habitat Loss, Fragmentation and Alteration</p> <p>1. The design of the proposed road includes the following “built in” features which will mitigate the impacts of habitat loss, fragmentation, and alteration for bat roosting:</p> <ul style="list-style-type: none"> ▪ Open-span bridge design over the River Finn, Swilly, Cloghroe, Backlees, Swilly Burn, and Deelee; under which bats can freely pass.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ul style="list-style-type: none"> ▪ Large culverts at watercourse crossings also provide opportunities for use by bats. ▪ The detailed landscaping of the Proposed Development will seek to ensure that habitat connectivity is reinstated in the form of scrub, hedgerows, treelines, and woodland. <p>Construction phase disturbance from noise, vibration, lighting and human presence</p> <ol style="list-style-type: none"> 1. The identified bat roosts which will be retained will be clearly identified to all personnel working in the vicinity of the roost. Temporary boundary tape fencing (or similar) can be used at the discretion of the ECoW to identify such roosts, subject to such measures themselves not impacting on the use of the roost. 2. Construction activities will typically be undertaken during daylight hours. It is proposed that the normal permitted working times will be 07.00 to 19.00 hours. 3. Floodlights will be cowed and angled downwards to minimise light spillage outside of works areas. 4. Lighting will be provided with the minimum luminosity sufficient for safety and security purposes and will be shut off at night when not in use or when works cease at the end of the day in order to minimise the effects of light pollution and disturbance to bats. 5. See Table 21-11 for mitigation measures in place for blasting activities. <p>Operational phase disturbance from noise, vibration, lighting and human presence</p> <ol style="list-style-type: none"> 1. Public lighting is to be provided at roundabouts and mainline junctions, and the design follows best practice in relation to environmental issues, including ecology. In relation to lighting design for ecology, the design will be prepared with reference to <i>Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes</i> (NRA, 2005), <i>Guidelines for the Treatment of Bats during the Construction of National Road Schemes</i> (NRA, 2005), <i>Bat Mitigation Guidelines for Ireland</i> (NPWS, 2022) and <i>Bats and Artificial Lighting at Night</i> (Bat Conservation Trust and Institute of Lighting Professionals, 2023).
Bat – Roosting	All	O	<p>Roost Loss</p> <ol style="list-style-type: none"> 1. All bat boxes (10 boxes per 1km of new carriageway) will be subject to annual inspection and maintenance for up to 30 years. Any damaged or lost boxes will be replaced with same within two months of the annual inspection. 2. If the proposed bat house at building 42 is required, this will need annual inspection, maintenance and monitoring following the guidance listed above, to ensure that the structure is fit for purpose. <p>Disturbance from noise, vibration, lighting, and human presence</p> <ol style="list-style-type: none"> 1. See mitigation measures outlined for operational phase disturbance from noise, vibration, lighting, and human presence above. These mitigation measures, implemented at construction phase, are to be maintained throughout the operational phase of the Proposed Development.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
Bats – commuting and foraging	All	C	<p>Habitat loss, fragmentation, and alteration</p> <ol style="list-style-type: none"> The design of the proposed road includes the following “built in” features which will aid connectivity for commuting and foraging bats across the proposed road corridor. <ul style="list-style-type: none"> Open-span bridge design over the River Finn, Swilly, Cloghroe, Backlees, Swilly Burn, and Deelee; under which bats can freely pass. Large culverts at watercourse crossings also provide commuting opportunities for use by bats. The detailed landscaping of the Proposed Development will seek to ensure that habitat connectivity is reinstated in the form of scrub, hedgerows, treelines, and woodland. <p>Construction and operational phase disturbance from noise, vibration, and lighting</p> <ol style="list-style-type: none"> Mitigation measures for disturbance from noise, vibration, lighting, and human presence on commuting and foraging bats are outlined above for roosting bats.
Bats – commuting and foraging	All	O	<p>Disturbance from noise, vibration, lighting, and human presence</p> <ol style="list-style-type: none"> Mitigation measures for disturbance from noise, vibration, lighting, and human presence on commuting and foraging bats are outlined above for roosting bats.
Badgers	All	C	<p>Loss of setts</p> <ol style="list-style-type: none"> No active badger setts have been identified that show evidence of potential breeding within the footprint of the Proposed Development. Therefore, the need to provide artificial setts has not been identified. However, as badgers are a mobile species and their status and range can change over time, pre-construction surveys will be undertaken to identify if any setts and potential breeding setts are present. If any potential setts are identified, best practice mitigation will be implemented in conjunction with the ECoW to include the following measures. No construction personnel or machinery will be used within 30 m of active badger setts (extended to 50 m for active setts during the breeding season; December–June, inclusive), unless those setts have been adequately closed and excluded with appropriate mitigation provided. During the pre-construction survey, setts located within the CPO boundary or within 50 m of this boundary will be clearly marked with temporary fencing, demarking the exclusions zones within the CPO boundary, and the areas in which vehicles are prohibited will be clearly marked by fencing and signage, until the time that the setts have been excluded. In the event that setts are to be closed (wholly or partially), this will be completed with reference to the <i>Guidelines for the Treatment of Badgers Prior to the Construction of National Road Schemes</i> (NRA, 2005). It is assumed that all active setts at the time of construction and within the CPO boundary will need to be closed. Where required, evacuation and destruction of active badger setts will be carried out under the supervision of an appropriately qualified ecologist. Evacuation and destruction will be undertaken during the period 1 July to 30 November. If a breeding sett or significant numbers of setts within a close proximity require closure, then an artificial sett will be provided and constructed in line with the NRA guidelines. An example of and construction guidance for an artificial sett is provided in Appendix C9A.07, taken as an extract from <i>Guidance for the Creation of Artificial Setts</i>

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			<p>(NatureScot, 2018). The location of an artificial sett will be determined by the location of the active setts to be closed or excluded, following the pre-commencement surveys. However, an exercise has been undertaken to identify appropriate areas within the CPO boundary that artificial setts can be located during the construction period. An appropriate location for an artificial sett in the vicinity of the most active area for badgers is at the north of the Section 1 CPO boundary between approximate mainline chainage 3+100 and 3+300.</p> <p>5. All vegetation removal shall be monitored by the ECoW, or appropriately experienced ecologists directed by the ECoW, to ensure there is no disturbance of protected species (e.g. otter, bats, hedgehog, shrew, etc.). If disturbance of a sett occurs, the ECoW will contact NPWS. Where dense vegetation prevents adequate determination of the presence or absence of setts as part of the pre-construction surveys, these areas will require monitoring during vegetation clearance to ensure that any setts present will be found and treated appropriately, according to <i>Guidelines for the Treatment of Badgers Prior to the Construction of National Road Schemes</i> (NRA, 2005).</p> <p>Habitat loss, fragmentation, and alteration</p> <ol style="list-style-type: none"> The design of the Proposed Development includes the “built in” open-span bridge designs over the River Finn, Cloghroe, Backlees, Swilly Burn, Deelee, and Swilly Estuary and the mammal underpass in Section 1 (mainline chainage 3+200) which will aid connectivity for badger across the proposed road corridor. Box culverts will include mammal ledges where possible and, if not possible, associated dry passes will be included. Dry passes will be included adjacent to pipe culverts where required. The dry passes are included purely to facilitate animal passage. The locations and types of mammal underpasses or other permeability measures are detailed in Chapter 9A: Biodiversity – Terrestrial. Badger fencing, which will tie into the permeability measures discussed above, is described below in relation to the operational phase accidental killing or injury mitigation measures. The boundary fencing of the Proposed Development must not exclude badgers from accessing the permeability measures. If fencing is required that would otherwise block access, it must be permeable for badgers (e.g. timber post and rail fencing without mesh). To maximise badger accessibility to the landscaped habitats within the CPO boundary, where badger fencing is required in the vicinity of setts it is to be installed as close as practicable to the proposed carriageways and any boundary fencing which would otherwise block access to the landscaped habitats is to be permeable for badgers. <p>Accidental Killing or Injury</p> <ol style="list-style-type: none"> Any excavations greater in depth than 30 cm which are left open overnight will either be temporarily covered over or a temporary ramp (e.g. scaffold board at suitable angle) inserted. <p>Operational Phase</p> <p>Accidental Killing or Injury</p> <ol style="list-style-type: none"> Badger fencing, to the specification set out in <i>Guidelines for the Treatment of Badgers Prior to the Construction of National Road Schemes</i> (NRA, 2005), will be provided 50 m either side of each bridge or culvert and on both sides of the carriageway. The fencing to be tied into the bridge abutment or culvert/dry pass headwall, as necessary.

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			<p>2. Where gates are necessary within sections covered by such fencing, they will require concrete sills and mammal resistant mesh attached to the gate to exclude mammals from accessing the proposed road.</p> <p>3. Based on the findings of the pre-construction surveys, badger fencing will be provided along the Proposed Development within a 500 m radius of the outer edge of a sett. Fencing will be mirrored on the opposite side of the carriageway, consistent with the <i>Guidelines for the Treatment of Badgers Prior to the Construction of National Road Schemes</i> (NRA, 2005). Where overlaps occur with the badger fencing of bridges, culverts and dry passes, the fencing will be tied-in to ensure continuity and effectiveness of the fencing to minimise the risk of badgers entering onto the carriageway.</p> <p>Disturbance from noise, vibration, lighting, and human presence</p> <p>1. See the bats item in this table for mitigation measures for disturbance from noise, vibration, lighting, and human presence.</p>
Badgers	All	O	<p>Habitat loss, fragmentation, and alteration and operational phase accidental killing or injury</p> <p>1. The features to allow the continued movement of badgers and otters across the road corridor and prevent them accessing the carriageway (i.e. open-span bridges, box and pipe culverts and ledges, and badger/otter fencing.) will be subject to annual inspection by to ensure their continued functionality for the movement of these species and other protected animal species. The inspections will identify any maintenance required to maintain their functionality and any remedial actions necessary to maintain such functionality.</p>
Otter	All	C	<p>Surface Water Pollution</p> <p>1. Mitigation measures relating to water quality are outlined in Table 21-6.</p> <p>Loss or disturbance of holts and couching sites</p> <p>1. Based on the current baseline, no holts or couching sites will be lost or disturbed, and therefore, no derogation licensing is required with respect to otter. However, mindful of the mobile nature of otter, the need for derogation licensing for any particular phase of works will need to be informed by the findings of the pre-construction surveys. The level of surveying will need to be sufficient to inform any derogation licensing which may be required. The need for derogation licensing will be determined by the ECoW. The acquisition of derogation licences may be completed, in part, during the Enabling Works. The need for derogation licences will need to be kept under review by the ECoW as the works progress; based on the findings of the pre-construction surveys completed.</p> <p>2. The following pre-construction otter surveys will be completed:</p> <ul style="list-style-type: none"> ▪ The sections of the rivers which will be traversed by the new bridges and which will lie adjacent to the CPO boundary will be surveyed for otter holts or resting places (plus any other signs of otter activity) 200 m upstream and downstream of these locations; measured from the outer edge of the construction footprint. ▪ The sections of any other watercourse within the construction footprint or within 200 m of the construction footprint will be surveyed for otter holts or resting places (plus any other signs of otter activity).

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			<ul style="list-style-type: none"> ▪ The otter surveys will be completed with reference to Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes (NRA, 2006). <p>Pre-construction otter surveys will be part of a suite of pre-construction surveys; the scope, programme, and phasing of which will be defined by the ECoW in consultation with DCC and Main Contractor prior to the commencement of construction works. Given the duration of the construction works, the pre-construction surveys will need to be appropriately phased, mindful of the planned work and seasonal constraints. This is to ensure that an up-to-date baseline is maintained to inform decision making, including with respect to the need for derogation licensing. Some of these surveys will be completed as part of Enabling Works; others will be completed as the phases of construction are progressed along the route.</p> <ol style="list-style-type: none"> 3. Based on the findings of the pre-construction surveys, the adequacy of the mitigation for otter will be reviewed and, if necessary, adjusted accordingly by the ECoW. The pre-construction surveys will also inform the need or otherwise for derogation licensing. Any adjustment to the mitigation measures will be agreed with the Local Authority in advance of them being implemented. The pre-construction surveys will be supplemented by further inspection by the ECoW (as deemed necessary by them) immediately prior to site clearance. 4. No construction personnel will be allowed to work, and no machinery will be used within 150 m of otter holts unless subject to the provisions of a derogation licence. The location of otter holts will be determined during the pre-construction survey. During the pre-construction survey, otter holts located within the CPO boundary or within 150 m of this boundary will be clearly identified to all personnel working in the vicinity of the holt. Temporary boundary tape fencing (or similar) can be used at the discretion of the ECoW to identify such holts, subject to such measures themselves not impacting on the use of the holt. Neither blasting nor pile-driving will be undertaken within 150 m of an active holt during breeding, as identified by the ECoW as there is no set breeding season for otters; unless subject to provisions of a derogation licence. 5. In the event that holts are to be closed (wholly or partially), this will be completed in accordance with the necessary derogation licence and with reference to the <i>Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes</i> (NRA, 2006). The need for licences will be determined by the ECoW. The need for additional mitigation for derogation licensing purposes will be reviewed and determined by the ECoW and relayed, as necessary to the Local Authority. It is assumed that all active holts at the time of construction and within the CPO boundary will need to be closed in accordance with a derogation licence. Currently, no active holts are located within the CPO boundary, and no derogation licence is necessary. Where required, evacuation and destruction of holts will be carried out under the supervision of an appropriately qualified ecologist under licence from the NPWS. If derogation licence(s) are required, these could require the loss of holt(s) to be compensated through the construction of artificial holt(s). The locations of such holts will be determined by the ECoW in liaison with the Contractor and the requirement of any derogation licence. The above provisions regarding temporary boundary tape fencing will apply to such artificial holts. 6. All vegetation removal shall be overseen by the ECoW, or appropriately experienced ecologists directed by the ECoW, to ensure there is no disturbance of protected species (e.g. otter, bats, hedgehog, shrew, etc.). If disturbance of an otter holt occurs, the ECoW will contact NPWS. Where dense vegetation prevents adequate determination of the presence or absence of holts as part of the pre-construction surveys, these areas will require monitoring during vegetation clearance to ensure that any holts present will be found and treated appropriately,

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			<p>according to the <i>Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes</i> (NRA, 2006).</p> <p>7. To limit the noise & Vibrations effects onto Otters, the timing of pile driving activities will be confined during construction to daylight hours during winter months. It will also require avoiding light spill from flood lighting onto the riverbanks or channel outside of construction activities. Continued movement of Otter will also need be accommodated along the riverbanks during the construction phase requiring permeable fencing along site boundaries.</p> <p>Habitat loss, fragmentation, and alteration</p> <p>1. The design of the Proposed Development includes the “built in” open-span bridge designs over the River Finn, Cloghroe, Backlees, Swilly Burn, Deelee, and Swilly Estuary which will aid connectivity for otter across the proposed road corridor.</p> <p>2. Box culverts will include mammal ledges were possible and, if not possible, associated dry passes will be included. Dry passes will be included adjacent to pipe culverts where required. The dry passes are included purely to facilitate animal passage. The locations and types of mammal underpasses or other permeability measures detailed in Chapter 9A: Biodiversity – Terrestrial.</p> <p>Construction phase accidental killing or injury</p> <p>1. Any excavations greater in depth than 30 cm which are left open overnight will either be temporarily covered over or a temporary ramp (e.g. scaffold board at suitable angle) inserted.</p> <p>Operational phase accidental killing or injury</p> <p>1. Otter fencing, to the specification set out in <i>Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes</i> (NRA, 2006), will be provided 50 m either side of each bridge or culvert and on both sides of the carriageway.</p> <p>2. The fencing will be tied into the bridge abutment or culvert/dry pass headwall, as necessary. Where gates are necessary within sections covered by such fencing, they will require concrete sills and mammal resistant mesh attached to the gate to exclude mammals from accessing the proposed road.</p>
Otters	All	O	<p>Surface water pollution</p> <p>1. Mitigation measures relating to water quality are outlined in Table 21-6.</p> <p>Habitat loss, fragmentation, and alteration and operational phase accidental killing or injury</p> <p>1. The features to allow the continued movement or badgers and otters across the road corridor and prevent them accessing the carriageway (i.e. open-span bridges, box and pipe culverts and ledges, and badger/otter fencing.) will be subject to annual inspection to ensure their continued functionality for the movement of these species and other protected animal species. The inspections will identify any maintenance required to maintain their functionality and any remedial actions necessary to maintain such functionality.</p>

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Other protected mammals (hedgehog, pygmy shrew, red squirrel, pine marten, Irish stoat, Irish hare, deer species)	All	C	<p>Habitat loss, fragmentation, and alteration</p> <ol style="list-style-type: none"> The design of the Proposed Development includes the “built in” open-span bridge designs over the River Finn, Cloghroe, Backlees, Swilly Burn, Deelee, and Swilly Estuary, the mammal underpass in Section 1 (mainline chainage 3+200), and the Section 3 deer underpass (mainline chainage 4+500 (N14A045) which will aid connectivity for mammals across the proposed road corridor. Box culverts will include mammal ledges where possible and, if not possible, associated dry passes will be included. Dry passes will be included adjacent to pipe culverts where required. The dry passes are included purely to facilitate animal passage. The locations and types of mammal underpasses or other permeability measures detailed in Chapter 9A: Biodiversity – Terrestrial. <p>Construction phase accidental killing or injury</p> <ol style="list-style-type: none"> Any excavations greater in depth than 30 cm which are left open overnight will either be temporarily covered over or a temporary ramp (e.g. scaffold board at suitable angle) inserted. This is to prevent the entrapment of mammals within the excavations and/or to enable their escape from the excavation. All vegetation removal shall be monitored by the ECoW, or appropriately experienced ecologists directed by the ECoW, to ensure there is no disturbance of protected species. If disturbance occurs, the ECoW will treat each species appropriately (e.g. relocate hedgehogs, shrews, etc.) to avoid accidental killing or injury. <p>Operational phase accidental killing and injury</p> <ol style="list-style-type: none"> Mammal fencing, to the specification set out in <i>Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes</i> (NRA, 2006), will be provided 50 m either side of each bridge or culvert and on both sides of the carriageway. The fencing will be tied into the bridge abutment or culvert/dry pass headwall, as necessary. Where gates are necessary within sections covered by such fencing, they will require concrete sills and mammal resistant mesh attached to the gate to exclude mammals from accessing the proposed road.
Other protected mammals (hedgehog, pygmy shrew, red squirrel, pine marten, Irish stoat, Irish hare, deer species)	All	O	<p>Habitat loss, fragmentation, and alteration and operational phase accidental killing or injury</p> <ol style="list-style-type: none"> The features to allow the continued movement of mammals across the road corridor and prevent them accessing the carriageway (i.e. open-span bridges, box and pipe culverts and ledges, and badger/otter fencing) will be subject to annual inspection to ensure their continued functionality for the movement of these species and other protected animal species. The inspections will identify any maintenance required to maintain their functionality and any remedial actions necessary to maintain such functionality.
Breeding Birds	All	C	<p>Accidental killing or injury</p> <ol style="list-style-type: none"> All vegetation removal or demolition of buildings will be completed outside the breeding bird season (March to August, inclusive) unless it is confirmed that no breeding birds are present within 5 m of the proposed vegetation removal by the ECoW immediately prior to the vegetation being removed. This includes any required vegetation removal for the implementation of derogated measures with respect to otters or badgers. Once vegetation is confirmed as being absent of breeding birds, vegetation shall be removed within 24 hrs. Breeding birds can be

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			<p>present in most habitats at the appropriate time of year; including habitats which are of negligible ecological value in their own right (e.g. modern agricultural buildings).</p> <p>Habitat loss, fragmentation, and alteration</p> <ol style="list-style-type: none"> By way of enhancement, 6 no. bird boxes per 1 km of new carriageway will be erected at suitable locations along the route of the proposed road. Suitable locations will be determined by the ECoW based on locations available to erect, proximity to operational sources of disturbance, and connectivity to foraging and commuting habitats. In the absence of suitable structures (e.g. retained trees, bridge structures, and buildings) to erect the boxes, they will be pole-mounted in suitable locations. The bird boxes will be Schwegler-type (woodcrete) boxes (or similar) and a range of different types of boxes (e.g. 1B, 2H, and 17C) will be used. <p>Construction phase disturbance from noise, vibration, lighting, and human presence</p> <ol style="list-style-type: none"> Floodlights will be cowled and angled downwards to minimise light spillage outside of works areas. Lighting will be provided with the minimum luminosity sufficient for safety and security purposes and will be shut off at night when not in use or when works cease at the end of the day to minimise the effects of light pollution and disturbance to birds. See Table 21-11 for mitigation measures in place for blasting activities. <p>Operational phase disturbance from noise, vibration, lighting, and human presence</p> <ol style="list-style-type: none"> Public lighting for the Proposed Development’s operational phase is discussed with respect to roosting bats mitigation measures above. These measures will also mitigate impacts on breeding birds.
Breeding Birds	All	O	<p>Habitat loss, fragmentation, and alteration</p> <ol style="list-style-type: none"> All Schwegler bird boxes will be subject to annual inspection and maintenance for up to 30 years. Any damaged or lost boxes will be replaced with same within two months of the annual inspection. <p>Disturbance from noise, vibration, lighting, and human presence</p> <ol style="list-style-type: none"> See mitigation measures outlined for operational phase disturbance from noise, vibration, lighting, and human presence above. These mitigation measures, implemented at construction phase, are to be maintained throughout the operational phase of the Proposed Development.
Wintering Birds	All	C	<p>Construction phase disturbance from noise, vibration, lighting, and human presence</p> <ol style="list-style-type: none"> Floodlights will be cowled and angled downwards to minimise light spillage outside of works areas. Lighting will be provided with the minimum luminosity sufficient for safety and security purposes and will be shut off at night when not in use or when works cease at the end of the day to minimise the effects of light pollution and disturbance to bats. See Table 21-11 for mitigation measures relating to noise and vibrations.

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			<p>Operational phase disturbance from noise, vibration, lighting, and human presence</p> <p>1. Public lighting for the Proposed Development's operational phase is discussed with respect to roosting bats mitigation measures above. These measures will also mitigate impacts on wintering birds.</p>
Wintering Birds	All	O	<p>Disturbance from noise, vibration, lighting, and human presence</p> <p>1. See mitigation measures outlined for operational phase disturbance from noise, vibration, lighting, and human presence above. These mitigation measures, implemented at construction phase, are to be maintained throughout the operational phase of the Proposed Development.</p>
Amphibians and reptiles	All	C	<p>Habitat Loss, Fragmentation and alteration</p> <p>1. The design of the Proposed Development includes the "built in" open-span bridge designs over the River Finn, Cloghroe, Backlees, Swilly Burn, Deelee, and Swilly Estuary and the mammal underpass in Section 1 (mainline chainage 3+200) which will aid connectivity for common frog, smooth newt, and common lizard across the proposed road corridor.</p> <p>2. Box culverts will include mammal ledges where possible and, if not possible, associated dry passes will be included. Dry passes will be included adjacent to pipe culverts where required. The dry passes are included purely to facilitate animal passage. The locations and types of mammal underpasses or other permeability measures are detailed in Chapter 9A: Biodiversity – Terrestrial. These will also allow passage by amphibians and reptiles.</p> <p>Construction phase accidental killing or injury</p> <p>1. Any excavations greater than 30 cm in depth which are left open overnight will either be temporarily covered over or a temporary ramp (e.g. scaffold board at suitable angle) inserted.</p> <p>2. All vegetation removal shall be monitored by the ECoW, or appropriately experienced ecologists directed by the ECoW, to ensure there is no disturbance of protected species. If disturbance occurs, the ECoW will treat each species appropriately (e.g. relocate amphibians, etc.) to avoid accidental killing or injury.</p> <p>3. Should site clearance works at flooded or waterlogged sections of the Proposed Development be required during the spring to early summer period, salvage and translocation of spawn or tadpoles will be undertaken, under appropriate licence from the NPWS. The creation of numerous attenuation ponds along the proposed road development will provide additional breeding habitat for amphibians and any spawn, tadpoles, or adults will be translocated to these ponds if they have sufficient vegetation established within and in their vicinity at the time of translocation.</p>
Amphibians and reptiles	All	O	<p>Habitat loss, fragmentation, and alteration and operational phase accidental killing or injury</p> <p>1. The features to allow the continued movement of mammals across the road corridor and prevent them accessing the carriageway (i.e. box and pipe culverts and ledges) will be subject to annual inspection to ensure their continued functionality for the movement of these species and other protected animal species. The inspections will identify any maintenance required to maintain their functionality and any remedial actions necessary to maintain such functionality.</p>

21.6 Aquatic Biodiversity

The following environmental commitments associated with Chapter 9B: Biodiversity - Aquatic are summarised below.

Table 21-6: Biodiversity - Aquatic Environmental Commitments

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
General Mitigation	All	C	<ol style="list-style-type: none"> 1. The Applicant shall employ a suitably qualified and experienced Ecologist and ECoW. See Table 21-5 for further detail regarding ECoW requirements. 2. There shall be good site management at all times and all site personnel will be made aware by the ECoW of the importance of the freshwater environment and the requirement to avoid pollution of all types, throughout all stages of the construction phase of the proposed development. 3. To avoid unintended incursion by personnel, equipment and materials, the construction site boundary will be fenced off and site access/egress points constructed. 4. Robust sediment control measures will be employed in all aspects of the road construction. Key principles in mitigating run-off of suspended solids (SS) will be: (i) divert clean water away from construction areas; (ii) minimise erosion from exposed soils, and (iii) prevent contaminated runoff from entering water courses. 5. At the time of writing, the following guidance applies to all construction works in and near watercourses: <ul style="list-style-type: none"> ▪ Loughs Agency (2016) Guidelines for Fisheries Protection during Development Works (Foyle and Carlingford areas). ▪ IFI (2016) Guidelines on protection of fisheries during construction works in and adjacent to waters. ▪ NRA (2008) Guidelines for the crossing of Watercourses During Construction of National Road Schemes.. ▪ Murnane et al. (2006) [CIRIA C648] Control of water pollution from linear construction proposed developments. Technical guidance.
Water quality degradation	All	C	<p>General</p> <ol style="list-style-type: none"> 1. See Table 21-8 for measures relating to control of sediment and pollutants. 2. There will be no discharge of SS in concentrations greater than 25 mg/l, nor discharge of any other deleterious matter to watercourses. To ensure compliance, monitoring shall be undertaken according to the detailed schedule set out in Chapter 11: Water, Section 11.12. 3. To comply with typical conditions of Loughs Agency for water quality protection during instream works (i.e., no downstream increase of 10 mg/l SS or more as a result of instream works) monitoring shall be implemented as set out in Chapter 11: Water Section 11.12.

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			Soil Deposition Areas
			<ol style="list-style-type: none"> 1. Any spoil spread on lands or used in contouring should be kept at least 5 m back from the edges of ephemeral land drains or 10 m from larger streams and rivers, noting that areas indicated for potential deposition of excess cut material are located minimum of 10 m away from all EPA delineated watercourses. 2. The sequence of spoil deposition with respect to a nearby drain or watercourse will include that a set-back earthen bund (tamped down mound) will be installed in advance of the main period of deposition, with further deposition occurring sequentially behind. The earthen bund forms a barrier to prevent un-controlled sediment run-off during rain events. A secure silt fence will be installed at the watercourse / drain side at the toe of the bund until the deposition area behind it is rolled, reseeded and revegetated to reduce sources and pathways of solids wash-out to surface waters. 3. Deposition areas will be rolled sequentially, and the top layer reseeded as soon as material has been spread, to stabilise it and reduce the possibility of solids wash-out to surface waters. 4. A secure silt fence will be installed at the toe of any newly deposited material and left in-situ until the area is rolled, reseeded and revegetated. 5. Coir matting may be used to cover exposed soil if there is a low chance of the area revegetating before the winter months. Such matting (protection) shall be installed in each case between October and March, inclusive.
			Silt Fencing General
			<ol style="list-style-type: none"> 1. The bottom edge of the geotextile silt fence material will be installed to a 200 mm embed below ground level. 2. Stakes should be placed at the ends, on any bends, and at 2 m intervals along the silt fence. Stakes need to be driven a minimum of 400 mm to provide adequate support. 3. The silt fence must have a tensioned wire backing - a minimum of 2 lines of wire run along the stakes. The top wire is used to clip the geotextile onto to hold it up and provide strength against trapped sediment. 4. Silt fences will be checked and maintained weekly at minimum, and always before any forecasted heavy rain event.
			Suspended Solids (SS) Pollution
			<ol style="list-style-type: none"> 1. See Table 21-8 for mitigation measures relating to sediment traps and settlement ponds. 2. It is intended that interceptor drains and attenuation ponds will be installed and revegetated in advance of the main earthworks phase, to reduce source areas for solids export. If this is not possible, then alternative measures, such as geotextile lining of temporary settlement areas will be employed. 3. Any temporary attenuation ponds utilised during the construction phase will be correctly designed and sized to allow sufficient volume and residence time for the settlement of suspended solids.

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			<ol style="list-style-type: none"> 4. Temporary attenuation ponds shall outfall to nearby land drains, not watercourses. This provides an additional line of attenuation prior to connectivity to a watercourse 5. Where permanent attenuation ponds are used for solids settlement during the construction phase, these will be cleaned out periodically during the construction works (as required) and at the end of the construction period. 6. Any sediment removal from attenuation areas shall occur during dry conditions with a dry (favourable) forecast of low rainfall (<5 mm daily rainfall), both during and in the 2–3 days following the maintenance event. The inlet and outlet of the settlement area will be temporarily bunded during cleaning so that contaminated discharge does not occur. 7. The level of SS in any discharges to fisheries waters (Rivers Finn, Burn Daurnett, Cloghroe and associated tributaries (Section 1) and Rivers Swilly and Isle Burn and associated tributaries (Section 2), and the Rivers Finn, Swilly Burn and Deelee (Section 3) as a consequence of construction works shall not exceed 25 mg/l at the point of discharge from the construction phase attenuation ponds. To ensure compliance, monitoring shall be undertaken according to the detailed schedule set out in Chapter 11: Water, Section 11.12. 8. Topsoil stripping in proximity to any watercourses will be undertaken in dry weather conditions. Long-term stockpiles within 50 m of a watercourse or drain will be covered with geotextile or coir matting or allowed to revegetated (if during summer months). 9. Any temporary stockpiling of earthwork spoil will be placed on flat ground at least 10 m back from the edge of a riverbank or 5 m back from the nearest drainage ditch and covered with geotextile or coir matting if it is not being respread locally within 7 days. 10. Stripped areas will be revegetated, particularly cut and fill slopes and disturbed slopes as soon as possible, e.g., by use of hydroseeding (larger areas), replacement of turves (smaller areas) etc. Mulches or other organic stabilisers will be used to minimise erosion until vegetation is established on sensitive soils. Hydroseeding shall not be carried out in close proximity to water and these areas will be seeded by hand or placement turves used. 11. Any preferable flow paths towards drains or water courses from construction areas will have features including cut-off drains, check dams, staked-down haybales, sand bags bunds, to slow run-off velocities, reduce erosive energy and prevent sediment entrainment to surface waters. 12. The crossing of watercourses at natural fords will not be permitted owing to uncontrolled sediment losses that can be generated. Crossing of watercourses during the construction phase will occur at the newly constructed culvert reaches. 13. The creation of fords on streams and rivers through the introduction of stone is prohibited. 14. Heavy vehicular movements will be restricted adjacent to watercourse and tidal areas to avoid inputs. Heavily used haul routes will require a secure silt fence to be installed, with check-dams on preferential flow paths (as above) to prevent solids wash out to the nearby surface water. Haul routes parallel to watercourses will be at

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			<p>nearest 5 m away from the bank top and will have a secure silt fence installed along the edge to prevent wash out.</p> <p>15. Run-off from stockpiles will be collected via a shallow toe drain which will discharge to a settlement pond. Settlement ponds will be designed and sized to adequately attenuate suspended solid run-off from stockpile areas. Sediment build-up will be removed at regular intervals by manual means only and will be re-used when dry or treated at an appropriately authorised waste management facility.</p> <p>16. The contractor will install wheel washes at compound and construction site exits to prevent sediment and dirt being transported on to the road network. These will be contained and treatment shall be employed, including through the use of adequately sized settlement tanks, to remove sediment before discharge to the environment. These areas will be separate to designated concrete chute wash-out areas.</p> <p>17. Existing and proposed surface water drainage and discharge points shall be mapped on a site plan including the location of existing and proposed measures such as monitoring points, sediment traps, settlement ponds and hydrocarbon separators.</p> <p>18. The workflow on each site in association with the Proposed Development will be designed to minimise damage to the edge of watercourses by heavy construction vehicles, with avoidance of rutting which would increase the risk of gully erosion or solids wash-out during intense rainfall.</p> <p>19. Excavations for foundations and piles will be carried out so as to minimise sediment run off, including the use of cofferdams that isolate the working area around bridge foundation construction. The use of cofferdams around the piling area applies, at a minimum, to the first pier north of the River Finn (left hand side on floodplain) in Section 1.</p> <p>20. See Table 21-8 for further mitigation measures for SS control.</p> <p>Pollution with Other Substances</p> <p>1. Safe handling of all potentially hazardous materials will be emphasised to all construction personnel employed during this phase of the Proposed Development and an emergency response plan shall be in place, in case of accidental spillage.</p> <p>2. The storage of oils, fuel, chemicals, hydraulic fluids, etc. will not occur within 50 m of all watercourses and will be undertaken in accordance with current best practice for oil storage (Enterprise Ireland, BPGCS005) on an impervious base within a bund and appropriately secured.</p> <p>3. All machinery operating in these locations will be steam-cleaned in advance of works and routinely checked to ensure no leakage of oils or lubricants occurs.</p> <p>4. All fuelling of machinery will be undertaken at least 50 m set-back from all watercourses.</p> <p>5. All hazardous materials on site will be stored within the site compounds in lockable, secondary containment designed to retain at least 110% of the storage contents.</p>

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			<ol style="list-style-type: none"> 6. Any spillage of fuels, lubricants or hydraulic oils will be immediately contained, and the contaminated soil removed from the site and properly disposed of. 7. Oil booms and oil soakage pads will be kept on site to deal with any accidental spillage. 8. Prior to any instream works, the Contractor will ensure that all construction equipment is mechanically sound to avoid leaks of oil, fuel, hydraulic fluids and grease. 9. No hydrocarbon-based waste material of any kind can be directed into any river, stream or drain. <p>Use of Concrete</p> <ol style="list-style-type: none"> 1. Any plant operating close to the water will require special consideration of 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 surface waters. 2. The main pouring phases of liquid concrete associated with major bridge construction works (Finn x 2, Swilly, Isle Burn, Cloghroe, Deelee, Swilly Burn) will be carried out under regular checks by the ECoW who shall make daily observations to ascertain that containment measures are secure, such that concrete leaks and spills that could reach surface waters are not occurring. The ECoW shall inform the site manager if there is a risk of such occurrences and these shall be immediately remedied. 3. There will be no hosing of concrete, cement, grout or similar material spills into surface water drains. Such spills shall be contained immediately, and runoff prevented from entering the watercourse. 4. Raw or uncured waste concrete will be disposed of by removal from the site and disposal at a licenced facility. 5. On-site bulk liquid concrete batching will not be allowed and will be specifically prohibited in the contract documents. 6. Washout from concrete lorries, except for the chute, will not be permitted on site and will only take place at the batching plant (or other appropriate facility designated by the manufacturer). 7. 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. 8. Chute washout locations will be provided with appropriate designated, contained impermeable area and treatment facilities including adequately sized settlement tanks. 9. Wash down water from exposed aggregate surfaces, cast-in-place concrete and from concrete trucks will be trapped on-site to allow sediment to settle out and reach neutral pH before clarified water is released to a drain system or allowed to percolate into the ground or alternatively disposed of as waste to a licensed facility 10. Best practice to be used in bulk-liquid concrete management addressing pouring and handling, secure shuttering/formwork, adequate curing times.

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Water quality degradation	All	O	<p data-bbox="808 296 2047 347">11. Cement dust must be controlled as it is alkaline and harmful to the surrounding ecology. Activities which result in the creation of cement dust must be controlled by light dampening down.</p> <p data-bbox="790 368 1003 395">Operational Phase</p> <p data-bbox="790 411 1240 438">Built-in Surface Water Drainage Design</p> <ol data-bbox="808 456 2047 1281" style="list-style-type: none"> <li data-bbox="808 456 2047 592">1. The surface water drainage network, and catchment run-off interceptors, incorporate numerous features that provide 'mitigation by design' in terms of attenuating and treating run-off which avoids and reduces potential impact on receiving watercourses. Such measures have been incorporated into the design in accordance with TII Drainage Standards (TII, 2024), which include for use of Sustainable Drainage Options (TII, 2014) and Vegetated Drainage Systems (TII, 2015b). Details on the proposed drainage measures are set out in Chapter 11: Water. <li data-bbox="808 611 2047 954">2. The following have been incorporated within the surface water drainage network to contribute and facilitate attenuation and treatment of surface water run-off from the proposed development: <ul data-bbox="846 683 2047 954" style="list-style-type: none"> <li data-bbox="846 683 1016 703">▪ Filter Drains <li data-bbox="846 722 1061 743">▪ Grassed Swales <li data-bbox="846 762 1099 783">▪ Infiltration Trenches <li data-bbox="846 802 1128 823">▪ Attenuation Ponds and <li data-bbox="846 842 1704 863">▪ Class I forecourt interceptor and Class I By-Pass Separator at Service Areas. <li data-bbox="846 882 2047 954">▪ Class I by-pass hydrocarbon interceptors upstream of each proposed outfall to a watercourse or constructed attenuation pond. <li data-bbox="808 973 2047 1109">3. Class I by-pass hydrocarbon interceptors will be provided upstream of each proposed outfall to a watercourse or constructed attenuation pond. These are primarily aimed at removing hydrocarbons from run-off, while swales and attenuation ponds reduce the concentrations of other types of pollutants, e.g. heavy metals and sediment, and reduce the rate of run-off discharged to receiving watercourses. The rate at which flow is discharged from the attenuation ponds is limited to the 'greenfield' or pre-development run-off rate from that catchment area. <li data-bbox="808 1128 1957 1181">4. For the lifetime of the Project, the Applicant (or TII) will undertake a documented hydrocarbon interceptor maintenance schedule including regular maintenance and cleaning according to manufacturer guidance. <li data-bbox="808 1200 2047 1281">5. Where no surface water course or existing drainage network is available, soakaways are designed into the Proposed Development that will discharge run-off to ground. These have been designed in accordance with local hydrogeological conditions and in compliance with Groundwater Regulations. <p data-bbox="790 1300 1167 1327">Attenuation Ponds and Wetlands</p> <ol data-bbox="808 1347 2047 1394" style="list-style-type: none"> <li data-bbox="808 1347 2047 1394">1. Lined attenuation ponds (hybrid wetlands) will be provided at all major surface water outfalls along the length of the road scheme and are designed in accordance with TII Drainage Standards (TII, 2015a, b; 2024).

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			<ol style="list-style-type: none"> 2. The ponds will be planted with vegetation suitable for the specific zonation within the pond i.e., permanently wet, marginal zones and dry slopes. 3. Where discharge is to ground via infiltration, infiltration basins/trenches are provided as the means of surface water discharge.
Disturbance / loss / fragmentation of habitat	All	Both	<p>Construction</p> <p>Temporary Instream Works</p> <ol style="list-style-type: none"> 1. In-stream works are restricted to occur during the period 1 May - 30 September in any year. There shall be no instream works or entry into fisheries watercourses outside this period. Refer to Appendix 9B.04 for fisheries sensitive watercourses. 2. Instream works in fish bearing watercourses of the Foyle catchment (Section 1 and southern Section 3) will be carried out in accordance with Section 47 and Section 70 permits from the Loughs Agency, as set out in Section 9B.3 of EIA Chapter 9B: Aquatic Biodiversity. This applies to all culvert installations, preparatory works, temporary crossings and diversions. 3. Typical conditions for Section 47 and 70 permits as provided by the Loughs Agency relate to the protection of water quality during instream works and have been included for in the sub-sections below, both as part of the design of the Proposed Development and the suite of mitigation measures required to protect aquatic habitat quality, which apply across the whole project whether the waters are under Loughs Agency or IFI jurisdiction. 4. Final detailed design and construction method statements for instream works on fisheries channels will be submitted to the Loughs Agency (Section 1 and southern Section 3) as required during the Section 47 permit application process. This applies to all culvert installations, temporary crossings and diversions. Construction methods shall employ water management methods and mitigations, as set out in the sub-sections below. 5. Final detailed design and construction method statements for instream works on fisheries channels within the remit of IFI (Section 2 and northern Section 3) will be submitted to IFI at detailed design stage, well in advance of works commencing. This applies to all culvert installations, temporary crossings and diversions. 6. The ECoW will ensure notification is made to IFI and Loughs Agency the weeks prior to actual commencement of construction works on watercourses (or a time frame specified in any condition of an electrofishing permit/licence) so that the appropriate agency can, if they deem fit, schedule a staff member to be on-site to observe e.g., during temporary stream diversions or electrofishing. 7. Fish passage conditions on fish bearing streams must be maintained at all times even during temporary diversions. 8. As per Loughs Agency requirements, instream works activities shall not, including in conjunction with any other activities by any other persons: <ul style="list-style-type: none"> ▪ Raise the waterway downstream to a SS level in excess of 10 mg/l above the upstream level in the mixing zone;

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			<ul style="list-style-type: none"> ▪ Cause the waterway downstream to contain visible oil or grease; ▪ Cause the waterway downstream to contain any substance (other than as defined above) which will cause the waterway or water in an underground stratum to be toxic or injurious to fish or other aquatic organisms. <p>9. To comply with the above typical conditions of Loughs Agency for water quality protection during instream works, monitoring shall be implemented as set out in Chapter 11 – Water Section 11.12.</p> <p>10. Instream works will be carried out in adherence to IFI Biosecurity Protocol (Caffrey, 2010), regarding ‘check, clean, dry’ and disinfection stations for cleaning waders, boots and equipment to prevent transference of pathogens between watercourses and waterbodies.</p> <p>Flood and Heavy Rainfall Preparedness</p> <ol style="list-style-type: none"> 1. Short- and long-range weather forecast will be monitored and works scheduled accordingly to avoid, e.g., fresh excavations and soil deposition activities near watercourses. Refer to Chapter 11: Water, Section 11.12.1.1 for detail on weather forecast monitoring in relation to construction works. 2. Follow an emergency response and evacuation procedure for all works areas including removal of potential contaminants and construction plant and equipment. 3. Bolster sediment run-off control measures in advance of forecast heavy rain events. 4. Backup pumps and generators to be in place where over-pumping is taking place to mitigate against construction period pump failure or unexpected flooding. <p>Enabling and Additional Ground Investigation Works</p> <ol style="list-style-type: none"> 1. All general pollutant loss control measures set out above also apply for the pre-main construction enabling and any additional ground investigation works. 2. In relation to the proposed crossings of SAC rivers and their floodplain, proposed pre-commencement GI works will be rotary core boreholes and will include archaeological surveys and testing. The location of additional ground investigation and (potential) archaeological testing are described in EIAR Chapter 4: Project Description as follows: <ul style="list-style-type: none"> ▪ Section 4.11.9 – River Finn crossing in Section 1 (upstream Ballybofey). Proposed GI works are 8 m (minimum) away from the river channel, which is outside the SAC boundary as there are no temporary bridge construction works required within the SAC. ▪ Section 4.12.9 – River Swilly crossing in Section 2 (downstream Letterkenny). Proposed GI works are 15 m (minimum) away from the river channel, which is outside the SAC boundary as there are no temporary bridge construction works required within the SAC.

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			<ul style="list-style-type: none"> ▪ Section 4.13.9 – River Finn crossing in Section 3 (upstream Lifford/Strabane) which occurs within the SAC boundary. Proposed GI works are 7.9 m (minimum) away from the river channel, i.e., bridge piers are required to cross the SAC floodplain on the County Donegal, ROI (northern side) of the river. <ol style="list-style-type: none"> 3. The above ground investigation and archaeological test trenching do not involve discharges to water. The GI works occur within discrete areas that are subject to disturbance by the construction footprint in any case, i.e., bridge pier foundations. 4. The GI works areas will be surrounded in silt fencing prior to works commencing. 5. In Sections 1 and 2, the SAC boundary shall be clearly marked by temporary exclusion fencing so that unintended incursion into the SAC does not occur. 6. In Section 3 (within River Finn SAC) the riverside exclusion zone (7.9 m) shall be marked using temporary fencing to ensure an intact vegetated buffer area is preserved between the GI / archaeological works and the watercourse. 7. GI works and archaeological surveys and testing at the above locations will only be undertaken where feasible, having considered both ground conditions and ecological considerations and will be set back from these channels as far as practicable beyond the distances set out. 8. For GI works or testing within 25m of SAC channels, the investigations and/or testing will employ focused sediment loss prevention measures as required, e.g., silt fencing around any areas of soil stripping associated with these activities. 9. The ECoW shall ensure the SAC boundaries (Sections 1 and 2) and riverbank exclusion zone (Section 3) are clearly marked and shall liaise with the work teams to ensure working area set-backs are adhered to and sediment loss prevention measures are implemented as prescribed. <p>SAC Bridge Crossing Construction</p> <ol style="list-style-type: none"> 1. The bridge crossings at SAC rivers: River Finn (Section 1), River Swilly (Section 2) and River Finn (Section 3) shall be constructed in strict adherence to the sequences set out in Chapter 4: Project Description. These methodologies were devised to include measures as part of the bridge construction works to avoid direct and indirect impact on each SAC in terms of containment of temporary works areas and management of pollutant run-off at bridge pier sub-structure construction areas (foundation pilings). This includes: <ul style="list-style-type: none"> ▪ The use of temporary sheet-piled cofferdams installed around the bridge piers with a top height that excludes the 1% AEP (+ 20% CCA) flood level + freeboard; ▪ Reno-mattress (or similar) - essentially flat gabions filled with clean stone - which avoids placing large areas of clause 804 which can become entrained to the SAC river during potential flooding, ▪ Robust silt fencing along the SAC boundary and around temporary works and hardstanding areas to prevent pollutant run-off; (v) fencing to demarcate and thus prevent unwanted incursion into the SAC.

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			<ol style="list-style-type: none"> 2. All overarching pollutant loss control measures set out above also apply at each bridge crossing construction. 3. Monitoring of water quality in relation to bridge crossing works shall be undertaken as set out in Chapter 11: Water, Section 11.12. <p>Cloghroe and Backlees – River Bridges (Section 1)</p> <ol style="list-style-type: none"> 1. There is a requirement for permanent channel realignment for construction of the Cloghroe Bridge at the northern N13 tie in, which will be carried out in accordance with permits from the Loughs Agency as discussed in more detail in Section 9B.3 above. The structure will be clear span with abutments set-back a minimum of 5 m from the river channel. <ol style="list-style-type: none"> a. The permanent realignment of Cloghroe River to facilitate the proposed new clear span bridge will be achieved by constructing the northern abutment first, with the 5 m set back and a 3 m wide ‘no working zone’ behind the riverbank crest. The new channel shall be constructed off-line with the river running in its natural course until the northern abutment is in place. b. Earthworks ‘plugs’ will remain in place until the new channel has been excavated and reinstated and fully lined with locally sourced, washed rounded gravel and rock material, with morphology that is characteristic of fisheries habitats, as per Loughs Agency 2016 <i>Guidelines for Fisheries Protection during Works</i>. c. When the new channel is ready to be wetted, dams shall be placed at the upstream and downstream ends, and the existing channel shall be destocked of fish under the appropriate permit as described in Section 9B.3 of Chapter 9B – Aquatic Biodiversity, before diverting it into the new channel. d. In stream works can only occur May 1st to September 30th of any year. e. Fish shall be relocated downstream of the new channel where there is good spawning and nursery habitat available. f. The abandoned channel shall be infilled, and the construction of the southern abutment will then commence prior to laying of the bridge superstructure. 2. The proposed Backlees Bridge is clear span with abutments a minimum set-back of 5 m from the channel. There shall be a no-go zone for construction works within 2.5 m of the channel bank at all times. This allows sufficient distance between the embankment of the proposed farm access track and the channel. To prevent sediment washout to this salmonid stream the entire channel length through the works zone shall be silt-fenced on both sides at the 2.5 m exclusion zone. Temporary sediment attenuation ponds or tanks shall be employed as required to prevent excessive solids wash out. Permanent attenuation pond No. 7 shall be utilised during the construction phase as on the southern bank. 3. The construction of these bridges will be implemented in accordance with all overarching mitigation measures for water quality protection set out above with respect to the aquatic environment.

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			<p>4. The residual channel morphology at Cloghroe River following the realignment shall mimic the pre-existing channel form in terms of cobble and gravel dominated pool-riffle-glide morphology using natural materials and incorporating instream features and that will give rise to flow type variation as found in fish bearing waters, e.g., utilising intermittently placed larger boulders at channel margins to create flow and habitat diversity.</p> <p>Farsetmore Stream - Instream Works (Section 2)</p> <ol style="list-style-type: none"> 1. Construction works on the Farsetmore stream are extensive with 3 No. new culverts and a realignment upstream of the existing N13 culvert. It is envisaged that the new culverts and realigned channels shall be constructed offline. 2. Where instream works are required, water management techniques shall be employed (temporary diversion, dam and pump over/fluming) to allow works in the dry. 3. A finalised construction method statement shall be agreed with IFI well in advance of works commencing on this stream. 4. Instream works may only occur May 1st to September 30th of any year. 5. Where dewatering of the existing channel is required, it shall be anticipated as a precaution that trout, brook lamprey and eel are present and will require removal by electrofishing by a qualified specialist with Section 14 Authorisation from IFI and Section 14 Authorisation from DCEE. 6. Rigorous mitigation measures for water quality protection (mainly SS losses), as set out above, will be employed to prevent construction phase cumulative water quality degradation effects in this channel. 7. Sensitive reinstatement of open channel sections shall be undertaken to mimic natural step-pool and riffle run habitats, characteristic of fisheries channels. <p>Tullyrap Watercourse Diversion (Section 3)</p> <ol style="list-style-type: none"> 1. The watercourse realignment (EPA name Drumbeg, W3-12) in Section 3 between Ch. 9+200 to Ch10+200 will be constructed offline, i.e., in dry conditions, incorporating all features as described in stream diversion and channel realignment measures, above. 2. The new channel will be sinuous with varied flow regimes, comprising morphological characteristics conducive to fisheries habitats (riffle, glides and pools) generated by varying the channel width, using natural materials (locally sourced gravel and stone) and the judicious use of boulders to form restrictions that vary flow-types. 3. The preliminary design follows principles defined in <i>Channels and Challenges – The enhancement of Salmonid Rivers</i> (O’Grady, 2006) and in alignment with Loughs Agency (2016) <i>Guidelines for Fisheries Protection during Development Works</i>. 4. The channel will be backfilled on completion with locally sourced cobble and gravel with appropriate landscaping and riparian planting along the banks. Sufficient land-take has been included to accommodate the proposed channel and associated planting.

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			<p>5. The existing channel shall be destocked of fish under the appropriate permit from Loughs Agency (as set out in Section 9B.3, above) before diverting it into the new channel. Fish shall be relocated upstream of the new channel as there is potential habitat availability and they can drop downstream and colonise new habitats.</p> <p>Coniferous Forestry Felling</p> <ol style="list-style-type: none"> 1. Small areas of coniferous forestry will require felling as part of general site clearance works. This applies in Section 1 at the northern N13 tie-in where circa 3.75 ha of forestry clearance will be required. This occurs on a minor tributary in the upper River Deele catchment (Lisnaree, Site W1-12). The tributary is currently modified (channelised) through the conifer forest and is of low ecological value and ephemeral (dries out on occasion). It has no fisheries significance. 2. The following Guidelines and Standards apply and will be complied with during felling operations: <ul style="list-style-type: none"> ▪ Forestry & Water Quality Guidelines (DAFM, 2000a) ▪ Forest Harvesting & the Environment Guidelines (DAFM, 2000b) ▪ Standards for Felling and Reafforestation (DAFM, 2019) 3. Specific water quality protection measures from these documents as set out in Chapter 9B - Aquatic Biodiversity, Section 9B.6.1.2 shall be implemented. <p>Culvert Installation Measures</p> <ol style="list-style-type: none"> 1. Culvert installation is in accordance with detailed design that includes site-specific construction phase mitigations set out in Appendix 9B.04 relating to timing restrictions (fish bearing waters) and general water quality protection measures. 2. Culverts shall be constructed in accordance with detailed design that includes site-specific operation phase mitigations set out in Appendix 9B.05 relating to culvert specification /mitigation to ensure fish passage (i.e., low flow channels, baffles) as specified for each culvert. 3. All instream works will occur in the dry using appropriate water management techniques. Where watercourses are to be diverted or culverted, dewatering will be required (excepting where channels are dry during spring/summer). 4. Where watercourses are to be permanently or temporarily diverted or culverted, dewatering will be required (excepting where channels are dry during spring/summer). Fish removal is required for the installation of culverts at locations specified in Appendix C9B.04. This shall be undertaken by suitably qualified electrofishing specialists in accordance with electrofishing permits from the Loughs Agency (Sections 1 and 3) and Section 14 Authorisation from IFI (Section 2), as appropriate. Refer 'Dewatering Protocol during Watercourse Interventions', below, for specific measures that will be employed where channels are to be dewatered and destocked of fish. 5. Where bank protection works are required as a result of new culvert installations, rock armour will be used, placing boulders one third of their size below bed level and back filled to allow riparian vegetation regrowth and planting.

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			<ol style="list-style-type: none"> 6. Where rock armour is required, the height should be built to match the prevailing (upstream / downstream) bank top level and back filled to allow riparian vegetation regrowth and planting. The Contactor shall adhere to IFI (2016) guidelines. 7. Bridge and culvert design has been carefully examined to ensure slope is acceptable for fish passage and there will be no significant impact on flow regimes and riverbed profiles upstream and downstream of the structure. 8. Adequate fish resting places (pools or slower water) will be provided by the detailed design above and/or below culverts, as required. 9. As per TII (2008) and IFI (2016) Guidance, culverts will require detailed designs that incorporate internal baffles to aide fish passage dependent on slope/length. 10. At a minimum, all culverts on fish sensitive watercourses will require a low flow channel. Internal baffles are required in prescribed locations, 11. Bridges or box culverts are proposed for fish bearing channels on the scheme. 12. Box culverts are set at least 500 mm below the existing bed level and mimic the gradient of the pre-existing channel long section. The culvert invert at the upstream and downstream end shall be the full 500mm embedment to ensure there is no defined lip or apron at the entry or exit. 13. All pipe culverts on the scheme are >1.2 m diameter and no pipe culverts are used on salmonid watercourses. Pipe culverts have a 300 mm embed below natural bed level. 14. Preliminary specifications (height, width, slope) for culverts > 60 m in length were given special consideration for fish passage on channels with fisheries significance, i.e., by increasing height to improve light penetration (e.g., S1-CUL.25) and ensuring effective slope is low. These details are set out on a site-specific basis in Appendix 9B.05. 15. Additional works to minimise erosion will be undertaken, e.g., rock armour, downstream pools, baffles to protect bank and channel flows. All such works must ensure fish passage is not obstructed. 16. Original bed material will be stockpiled (where salvageable) and reinstated or, where imported, will consist rounded washed gravels derived from local rock type which will be either seeded upstream of the culvert or placed within the culvert before it becomes live. 17. Culverts will, at detailed design stage, incorporate a two-stage channel (see specific requirements for each culvert. Rock armour training will be used to mimic the existing bed width at entry and exit to ensure fish passage in low flow. In no instance shall flows be allowed to disperse across the bottom of a flat box culvert. 18. There shall be no screening of temporary or permanent culverts to prevent rubbish build up as this can cause obstruction to fish passage.

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			Water Management Measures – Culvert and Realignment
			Construction
			<ol style="list-style-type: none"> 1. The preferred method for culvert installation shall be offline, which allows for flow to continue in the existing watercourse until the new channel and culvert have been constructed and bedded in before going live. The Contractor shall endeavour to construct offline as a first preference. 2. In cases where online construction is unavoidable the options for water management on watercourses affected by the Proposed Development (i.e., all are small as larger channels are being bridged) are: dam and pump-over, temporary piping/fluming, temporary diversion channel. 3. Temporary diversion channels will be the second most preferable option after offline construction. 4. Temporary diversion channels shall provide for fish passage, be non-eroding, and be of similar width to the natural stream channel. In cases where a temporary watercourse diversion is required (e.g., culvert installation) the temporary channel must be lined with suitable grade of impermeable geotextile membrane, secured up the channel banks to form a complete seal, and lined with coarse washed gravel in the base (low fines). This will minimise erosion and solids export from the temporary channel. 5. Temporary diversion channels will be designed to accommodate flows as could be expected to occur in the May-September works period. 6. The Dewatering Protocol for Watercourse Interventions, below, shall apply to the abandoned channel of a temporary diversion. 7. The Dewatering Protocol for Watercourse Interventions, below, shall apply to those locations where it is necessary to dam (cofferdams, sandbagging, sheet piling) and pump-over, pipe or gravity flume to create a dry working area.
			Dewatering Protocol during Watercourse Interventions
			<ol style="list-style-type: none"> 1. For online construction, damming shall occur at low flow. Sufficient pump or flume capacity will be on hand before operations commence to ensure that: (a) upstream flows can be adequately transferred, and (b) downstream flows are not stopped or significantly interrupted. 2. For temporary diversions, an upstream and downstream earthen bund shall remain in place until the adjacent temporary channel is constructed and lined. A dam shall then be introduced both upstream and downstream with the bunds opened to the diversion at that stage. The dams will be kept in place while the reach is electrofished and drawn down. 3. Any cofferdam or sheet pile materials will be cleaned and dried between river catchments and sites within river catchments to prevent spread of invasive species and biological agents.

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			<p>4. Sand-bags will be of good integrity (i.e., composed of high-grade polythene, not webbing or hessian), filled with clean, coarse grade sand with no fines at all, sealed and placed carefully so they don't burst. The dam shall be faced with impermeable geotextile on the upstream side to seal gaps if required.</p> <p>5. On fish bearing waters as prescribed in Appendix 9B.04, electrofishing will be undertaken by a suitably qualified, experienced ecologist and/or fisheries scientist to remove and relocate fish from the area to be dewatered (under appropriate permits from Loughs Agency or IFI). In some cases, it may be necessary to slightly draw down water prior to electrofishing, however that is unlikely given that affected watercourses are generally small in nature (i.e., larger channels are bridged).</p> <p>6. As per typical conditions of electrofishing permits from Loughs Agency and IFI, data on fish removed (e.g., species, abundance, size class) shall be submitted in report and excel format to Loughs Agency (Section 1 and southern Section 3) and IFI (Section 2 and northern Section 3).</p> <p>7. Where channels are permanently being abandoned, once fish are removed, residual water shall be allowed to soak to ground before infilling of the old channel.</p> <p>8. In areas of online construction, once fish are removed, the works area will be pumped dry.</p> <p>9. This water will be pumped into a temporary sediment attenuation pond or tank for settlement. Such ponds or tanks shall be sized to allow for sufficient volume and residence time to settle SS before discharge, preferably to ground.</p> <p>10. An alternative for small volumes will be to pump to a constructed basin formed by hay bales covered with a porous geotextile fabric that will filter the pump-out water.</p> <p>11. Filtered out sediments shall be disposed of well away from the watercourse in a location where they cannot be entrained back to any watercourse or connected land drain.</p> <p>12. With any works involving river damming or cofferdams – there is always a need for additional pumping from the works area to retain dry conditions. Even small leaks through dams can lead to pooling of water, requiring intermittent pump out. This water can become contaminated with sediment or substances that are harmful to aquatic life.</p> <p>13. Water contaminated with spilled or leaked concrete within cofferdams or dewatered channels, including water that leaks and surrounds newly dry concrete, can be very alkaline. Such water will be pumped out and tankered off-site to an appropriate, licenced disposal facility.</p> <p>During pump-overs, on-site pumps will be screened according to IFI (2016) guidance to prevent fish being entrained, e.g., using an outer barrier of permeable terram fitted over a prefabricated frame, with a metal pumping strainer / grill fitted to the end of the pipe inside the exclusion barrier.</p>

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
Introduction / spread of Invasive Alien Species (IAS)	All	C	<ol style="list-style-type: none"> 1. Transfer of invasive alien plant species (IAPS) between sites within catchments and to other catchments will be prevented as per the Invasive Species Management Strategy set out in Appendix 4.04 of this EIAR. The strategy was prepared for the Proposed Development in line with TII Guidance (GE-ENV-01105, 2020) and the TII Standard (GE-ENV-01104, 2020) in relation to Management of Invasive Alien Plant Species on National Roads. 2. Measures set out in the IAPS Management Strategy will be implemented during construction to ensure accidental spread does not occur from machinery or materials moved within or outside the site. Developers will also adopt any modified or updated approaches to invasive alien species control (www.invasives.ie). 3. Asian clam (<i>C. fluminea</i>) has been recorded at the downstream end of the Swilly Burn near the proposed bridge (Site W3-14). There are no instream works at this or any other major river crossings in the Foyle catchment (rivers Deelee, Swilly Burn, Finn) but instream works are required on smaller tributaries of the Foyle catchment main channels. To avoid transference of clams or their waterborne juvenile stages, construction personnel are strictly forbidden to enter the water at the major bridge crossing locations. 4. If accidental contact with water occurs in the rivers of Section 3: Swilly Burn, Deelee or Finn and/or Section 2: Swilly Estuary or Isle Burn (Lesliehill) - before moving to other areas within the catchment or any outside river, lake or estuary catchment the following biosecurity protocol shall be carried out: <ul style="list-style-type: none"> ▪ Check – Remove any visible matter, including any clams you can see, along with plant material or mud. Empty boots, or drain all river water from containers. ▪ Clean – Washdown all clothing, equipment and any other gear that was in contact with river water using tap-water onto grass (or a dedicated washdown area within the site compound), at least 50 m away from any watercourse and not into a stormwater drain system. For any absorbent surfaces of equipment and/or materials that accidentally come into contact with river water use a suitable disinfection method for the item: (1) Hot water - Soak in hot tapwater (55°C) for at least 5 minutes; (2) Diluted bleach - Soak in household bleach in a 10% (1 in 10) ratio with water for 1 hour; (3) Virkon® Aquatic – use a spray bottle of solution according to manufacturer’s instructions to douse the equipment; (4) Freezing – overnight until solid. ▪ Dry – Allow gear to dry to touch, inside and out, then leave it to dry for at least 48 hours (2 days) before using again. 5. To avoid potential transfer of aquatic alien species or pathogens, there shall be no abstraction from any natural watercourse as part of construction activities. Any construction related water requirements will be served by tanker sourced from a municipal treatment supply. 6. Any personnel that enter water as part of instream works on tributaries of the Swilly Burn will adhere to biosecurity protocols as set out in the Invasive Species Ireland Water Users Code of Practice (a joint development by NPWS and NIEA) which can be found online at: https://invasives.ie/biosecurity/ (Accessed February 2026).
Air Pollution	All	C	See Table 21-9 for mitigation measures relating to air quality.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
Environmental Incidents and Accidents	All	C	<ol style="list-style-type: none"> 1. An emergency-operating plan shall be established to deal with incidents or accidents during construction that may give rise to pollution within any watercourse. 2. Throughout all stages of the construction phase of the proposed development the Contractor shall ensure that good housekeeping is maintained and that all site personnel are made aware of the importance of the freshwater environments and the requirement to avoid pollution of all types. 3. There shall be no discharge of un-attenuated water to the adjacent freshwater environment.
Changes to hydro morphology	All	Both	<p>Construction</p> <p>Stream Diversions and Channel Realignment Measures</p> <p>Stream diversions and realignments are primarily associated with culvert installation that involve instream works, hence all measures set out above relating to instream works and culvert construction apply. This includes instream works timing restrictions and provision of final detailed construction method statements for all realignments to be submitted to the Loughs Agency (Section 1 and southern Section 3) and to IFI (Section 2 and northern Section 2) as appropriate.</p> <p>Preliminary designs of the two more significant permanent stream diversions are shown in the EIAR drawings for the following locations:</p> <ul style="list-style-type: none"> ▪ Cloghroe River (Site W1-14) at the N13 northern tie-in for Section 3 (Mainline 1.3): EIAR Drawing 4.01 (Section 1 General Arrangement, sheet 7 of 8) and EIAR Drawing 4.16 (Section 1 Cloghroe River Bridge) ▪ Swilly Burn tributary between Ch. 9+200 to Ch10+200 (EPA name Drumbeg, Sites W3-12 / W3-13) in EIAR Drawing 4.03 (Section 3 General Arrangement, sheets 5 and 6 of 10) <ol style="list-style-type: none"> 1. These diversions will be constructed in accordance with the designs provided, and in accordance with permits from the Loughs Agency. 2. Newly formed channel base widths will be designed to match the width of the original channel. 3. Newly formed channel sections shall mimic (or improve) the existing habitats. They will incorporate instream substates and meanders that give rise to flow type variation (riffle, glide and pool sequences) as found in fish bearing waters. 4. New channel sections shall be fully constructed in dry conditions (using appropriate Water Management Measures, see below), i.e., offline construction, temporary diversion, dam and pump over, piping/fluming. 5. Where in-stream bed material is to be removed from a dewatered section during construction, coarse aggregates (cobbles, gravels) shall be stockpiled for replacement in the reformed or new channel. Additional coarse material shall match the existing gravel size and be of local rock type origin. 6. Permanent stream diversions shall be completed as far in advance as possible, i.e., allowing for “bedding in” of substrates and not before a cover of bankside vegetation (low grass at the very least) has established prior to connection of flow.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ol style="list-style-type: none"> 7. The abandoned stretches of old watercourses shall be electro-fished before dewatering by suitably qualified personnel in accordance with permits from the Loughs Agency or Section 14 Authorisation from the IFI, as appropriate. 8. Newly constructed river and stream channels shall have banks battered to a finished angle of not greater than 45 degrees on one bank and not greater than 30 degrees on the opposite banks, (to allow for maintenance of a low flow channel, and overflow and a flood flow channel). 9. Banks shall be top soiled and seeded to ensure the growth and development of a broad range of local grasses and shrubs thereby facilitating development of stable bank root structures. 10. Broadleaves shall be planted along newly created channel to provide a mixture of dapple and shade conditions. Such riparian tree planting shall be in scattered groups (not linear) set back from the watercourse channel to avoid "tunnelled" growth that can reduce instream productivity. 11. Allowance has been made for vegetated riparian strips and planting between new road infrastructure and the newly formed channel to create shade and cover for fish. Riparian planting will be of native species and will be in scattered clumps, not linear plantings, to avoid tunnelled vegetation around watercourses.

21.7 Land, Soil and Hydrogeology

The following environmental commitments associated with Chapter 10: Land, Soil & Hydrogeology are summarised below.

Table 21-7: Land & Soil Environmental Commitments

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
Import of Road Construction Materials	3	C	<ol style="list-style-type: none"> Vertical alignments have been optimised to achieve a balance in the earthworks quantities required to minimise the import of material. Reuse of excavated materials and use of material extraction within the project area. All material imported and material reused on site will be subject to testing to ensure it is suitable for its proposed end use. It must comply with material properties and constituents as outlined in the TII Series 600 Earthworks Specification. Of the material that will not be suitable for reuse, some may require treatment, and some will be deemed unsuitable and will be deposited in material extraction and deposition areas or used as landscape fill. Materials required to be imported will be sourced from reputable quarries which are listed on the register maintained by DCC.
Subsoil & Bedrock Removal	All	C	<ol style="list-style-type: none"> The earthworks balance has been designed to maximise the reusability of excavated materials within the site. Where surplus soil cannot be reused it will be placed in the deposition areas or removed off site for treatment, recycling or disposal at an authorised waste management facility off site. In areas of soft soils and peat, excavate and replace options are proposed to achieve acceptable settlement limits. Organic peat/soils will be removed.
Soil Erosion	All	C	<ol style="list-style-type: none"> Minimising areas and time for exposure of soils – For example, topsoil stripping and subsoil removal will not be carried out over large areas in advance resulting in these areas being exposed for long periods of time. Topsoil and subsoil shall be used immediately following stripping, wherever practicable and shall not be unnecessarily trafficked. Temporary fencing will be erected on site indicating the route to be taken by vehicles to minimise compaction of soils outside of areas proposed for excavation. Slopes considered to be at risk from erosion are to be topsoiled and seeded as soon as possible to prevent deterioration due to weathering effects. Where stockpiling of topsoil is required, stockpiles shall be limited to heights not exceeding two metres, shall be battered back to a stable slope, and shall not be unnecessarily trafficked. Where stockpiling of overburden is required, stockpiles shall be limited to heights not exceeding four metres, shall be battered back to a stable slope, and shall not be unnecessarily trafficked.

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ol style="list-style-type: none"> 6. When the design cut level has been achieved, the slopes shall be battered back to a safe angle of repose and the underlying material shall be protected by immediate covering with construction materials or topsoil, as required. 7. Adequate drainage shall be provided to limit and control surface water runoff. There shall be no direct discharge of runoff to watercourse. 8. On completion of construction, reinstatement will take place, stockpiled soils will be backfilled and landscaped in accordance with good engineering practice such as CIRIA's (2006) Control of water pollution from linear construction projects. 9. Use of sediment ponds, silt traps and bunds.
Embankment Construction in areas of Soft Soils	All	C	<ol style="list-style-type: none"> 1. Staged construction is therefore proposed as it allows time for consolidation of the underlying soft ground to occur which results in a strength gain of the underlying soft ground. This can be combined with foundation improvement. The staged construction is repeated until the final embankment height is achieved.
Soil Pollution	All	C	<ol style="list-style-type: none"> 1. The storage and handling of oils, fuel, chemicals and hydraulic fluids will be in secure areas within the site compounds and will not occur within a minimum of 50 m of watercourses. 2. All hydrocarbons used during the construction phase shall be appropriately handled, stored and disposed of in accordance with the TII/NRA document "<i>Guidelines for the crossing of watercourses during the construction of National Road Schemes</i>" (NRA, 2008). 3. All chemical and fuel filling locations shall be protected from potential spillages through the provision of appropriate protection measures including but not limited to bunded areas and double skinned bowser units with spill kits. 4. Storage tanks shall have secondary containment provided by means of an above ground bund to capture any oil leakage. Storage tanks and associated provision, including bunds, shall conform to the current best practice for oil storage and will be undertaken in accordance with <i>Best Practice Guide BPGCS005 – Oil Storage Guidelines</i> (Enterprise Ireland, 2017). 5. The pouring of concrete, sealing of joints, application of water-proofing paint or protective systems and curing agents will be completed in the dry weather conditions and allowed to cure for 48 hours in order to avoid pollution of watercourses. 6. An Emergency Response Plan (ERP) detailing the procedures to be undertaken in the event of a spillage of chemical, fuel or other hazardous wastes (e.g. concrete) shall be in place prior to commencement of the proposed Scheme. These procedures to be undertaken shall at a minimum include the following: <ol style="list-style-type: none"> a) Carry out an investigation to identify the nature, source and cause of the incident and any emission arising therefrom; b) Isolate the source of any such emission; c) Evaluate the environmental pollution, if any, caused by the incident; d) Identify and execute the measures to minimise the emissions/malfunction and the effects thereof;

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ul style="list-style-type: none"> e) Identify the date, time and place of the incident; f) Notify the Environmental Protection Agency and other relevant authorities; and g) DCC and the appointed contractor during the construction phase shall provide a proposal to the Environmental Protection Agency for its agreement within one month of the incident occurring or as otherwise agreed by the Agency to identify and put in place measures to avoid reoccurrence of the incident and identify and put in place any other appropriate remedial action.
			<ul style="list-style-type: none"> 7. Relevant staff, including cover staff shall be trained in the implementation of the ERP and the use of spill kit / control equipment. 8. Plant and equipment shall be maintained in place and in working order for the duration of the works.
Groundwater Quality – Accidental Spillages	All	C	<ul style="list-style-type: none"> 9. Drainage will be provided to collect seepage water and slope angles will be engineered suitable for materials on side slopes. 10. Oil interceptors will be provided at each outfall to the attenuation ponds to prevent runoff of pollutants to surface water, which could potentially filter to groundwater. A suitably qualified contractor will take responsibility for management and maintenance of the oil interceptor and associated drainage on a regular basis and including decommissioning at the end of the construction phase. 11. Closed drains will be used in areas where there is potential interaction between the drainage waters. 12. All potentially harmful substances (e.g. oils, diesel, herbicides, pesticides, concrete etc.) will be stored in accordance with the manufacturer’s guidelines regarding safe and secure buildings/compounds and hardstanding areas. Adequate means to absorb or contain any spillages of these chemicals are available at all times.
Domestic Water Wells	All	C	<ul style="list-style-type: none"> 1. Any well lying within the land take will be replaced by the provision of a new well or by providing a connection to an existing public or group water scheme. 2. An additional well audit will be carried out at detailed design stage to confirm which, if any, of these impacted wells are in use. Those identified will be replaced by the provision of a new well or by providing a connection to an existing public or group water scheme. 3. Further investigations are required in order to establish baseline conditions for water quality (hydrochemical impact) and to confirm there are no other operational wells undetected to date. 4. It is proposed post-planning to conduct further hydrogeological investigations to ensure that either the current water source can be retained, or an alternative and suitable well site for Holywell from the same aquifer can be identified and provided. 5. The proposed alternative well site (BSBHRC3009A) has been sited outside this apparent zone of influence and within the existing land take, with the view to providing an alternative well site and groundwater source.

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ol style="list-style-type: none"> 6. The dewatering plan for the construction phase will need to be informed by further focussed hydrogeological monitoring and pump tests around Holywell to determine well yield and to refine the zone of influence of the cutting and potential impact on the proposed supply at BSBHRC3009A, found in Section 1. 7. Arrangements for creating a new well site with access paths and other features in the vicinity of BSBHRC3009A (or another source) will be developed at detailed design stage. <ul style="list-style-type: none"> ▪ Step 1: Conduct further hydrogeological investigations to confirm with certainty that the current water source can/cannot be retained. These investigations will comprise focussed field investigations and permeability testing to better quantify the initial field investigations i.e. pump testing to determine the original source feeding Holywell and to obtain site-specific transmissivity values and aquifer thickness for use in the calculation of Ro. ▪ Step 2: If it is determined that the current source cannot be retained, an alternative groundwater source has been identified to replace current flow at Holywell. As stated above, initial investigations have identified BSBHRC3009A as a potential for providing an alternative groundwater source while retaining the original well site. ▪ Step 3: Determine if yield and flow characteristics of groundwater from the upgradient borehole BSBHRC3009A matches Holywell through pump testing to supplement preliminary pump testing previously carried out at BSBHRC3009A. ▪ Step 4: If BSBHRC3009A is deemed suitable as an alternative source, determine capture method e.g. pipe by gravity, buried pipe, or pump borehole to feed Holywell. The optimum method will be determined by the aforementioned hydrogeological investigations.
Groundwater Quality	All	O	<ol style="list-style-type: none"> 1. Embedded mitigation is incorporated into the drainage design. 2. The system includes a number of SuDS treatment and Pollution Control components. Sealed drainage will be incorporated in areas where the cutting is in or within one metre bedrock (as per response matrix). 3. The drainage system has been specifically designed to reduce the risk of accidental spillage and restrict the pathway to the underlying groundwater environment. 4. Post-construction phase monitoring of groundwater wells identified in the vicinity of cuts (as listed in Tables 10.50, 10.54 and 10.57 of Chapter 10 Land, Soils & Hydrogeology) are to be carried out for a period of three months.
Climate change	All	O	<ol style="list-style-type: none"> 1. The proposed surface water drainage network is designed to allow for an increase of 20% in flow rates in attenuation ponds with an additional 300 mm freeboard to cater for the effects of climate change, in line with OPW and TII requirements.

21.8 Water

The following environmental commitments associated with Chapter 11: Water are summarised below.

Table 21-8: Water Environmental Commitments

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
Impact to Water Quality	All	C	<p>All construction phase mitigation measures set out in Chapter 9B: Biodiversity – Aquatic, Section 9B.6 and Appendix C9B.04 relating to protection of water quality for aquatic biodiversity shall be adhered to.</p> <p>Key measures to control and treat silt-contaminated run off from the site during construction, incorporated into the Construction Methodology as are follows:</p> <ol style="list-style-type: none"> 1. Early installation of Pre-Earthworks Drainage (PED) will occur to separate 'clean' catchment runoff from construction areas. 2. Interception, channelling and/or discharge of surface water from sumps, excavations and exposed soil surfaces to silt traps and settlement ponds. 3. Construction of silt traps, silt fences, settlement lagoons / ponds (e.g., permanent ponds to be used as temporary settlement ponds during construction) at an early stage in the construction programme. 4. Construction of cut-off ditches to prevent surface water run-off from entering excavations. 5. Temporary access/ haul routes to be surfaced by granular materials to prevent erosion of fines and/or rutting by site traffic. Temporary drainage from these shall be managed by cut off drains, check dams and interceptor channels that direct runoff to temporary settlement ponds. 6. Storage of fuel, oils and chemicals on an impermeable base, away from drains and watercourses. Fuel storage areas should be bunded to provide adequate retention capacity in the event of a leak or spillage occurring. 7. Refuelling of plant and vehicles on impermeable surfaces, away from drains and watercourses provision of spill kits at high risk and/or sensitive sites. 8. Installation of wheel wash and plant washing facilities having no overflow where effluents are retained pending treatment and disposal. 9. Implementation of measures to minimise waste and ensure correct handling, storage and disposal of waste (most notably wet concrete and asphalt). 10. To protect sensitive surface waters during the construction phase, i.e., at the crossing of SAC channels, temporary cofferdams are proposed for the construction of the bridge piers for the River Swilly and River Finn crossings. These will enclose each of the individual pier foundation works that are located on the floodplain (northern bank) of the River Finn in Section 1 and of the floodplain (western bank) of the River Swilly in Section 2. 11. Cofferdam walls are made of impermeable, interlocking steel sheet piles. The sheet piles are to be installed using a hydraulic press method, which is feasible considering the stiff /dense subsoils with pre-auguring as necessary, to

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<p>form a continuous interlocking vertical wall. The top of the sheet piles will extend to a height above the ground surface which is above the peak 1% AEP (plus 20% CCA), plus a minimum of 200 mm freeboard.</p> <ol style="list-style-type: none"> 12. The water accumulating in the cofferdams will be pumped from a sump formed in the cofferdam to a storage bowser positioned outside of the cofferdam. Pump-out water shall be transported to the nearest permanent attenuation pond and shall be subject to the monitoring and treatment protocols. 13. The implementation of environmental control measures to protect watercourses from runoff and pollutants will be managed by a nominated member of the contractor’s crew and detailed records will be kept of measures undertaken, their maintenance schedule and any pollution incidents arising, under supervision from the ECoW. 14. In addition, a suitably experienced and qualified independent person (ECoW), will be employed for each of the three road sections to oversee and review of the implementation and operation of the pollution control measures throughout the construction and their records shall be available to the Local Authority, the IFI, Loughs Agency and the NPWS for inspection. 15. Daily visual inspections at active and recently completed construction areas shall be undertaken by the ECoW to ensure mitigation/ control measures (i.e., silt fences, attenuation ponds, drip trays etc). are being implemented and there are no obvious emissions visible, e.g., silt plumes, oil slicks. 16. Any maintenance and repairs to mitigation measures shall be carried out immediately by the appointed contractor. 17. All environmental monitoring and checklists shall be recorded and added to the EOP on a daily basis. 18. The ECoW will report any instances of failure of mitigations, spillage, maintenance and repair by way of specific Incident Reporting sheets that include how the issue was remedied. 19. Future seven-day forecasts will be checked daily by the ECoW, with construction works programmed accordingly in the event that heavy rainfall is forecast. Works involving excavations, earthmoving and instream works will be suspended, and sediment loss control measures will be checked and bolstered, if necessary, in the event of a forecast that suggests an impending high rainfall or high intensity event is likely to occur (based on Mateus and Coogan, 2023): <ul style="list-style-type: none"> ▪ >4 mm/hr (high intensity rainfall) ▪ >25 mm in a 24-hour period (heavy extended rainfall)
Impact to Water Quality	All	O	<ol style="list-style-type: none"> 1. Attenuation ponds are designed as hybrid wetlands. <ul style="list-style-type: none"> ▪ The ponds will be planted with appropriate native species suitable for the specific zone of the pond including permanently wet, marginal zones and dry earthworks slopes. ▪ Ponds will be inspected and maintained DCC to ensure their integrity and treatment function according to TII drainage standards. 2. Rock armour has been proposed at the inlets/outlets of all culverts to reduce any risk of scouring in the channel beds.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ol style="list-style-type: none"> 3. Sustainable road drainage systems, e.g., filter drain, grass surface water channels are proposed. However, areas where groundwater vulnerability risks are high, sealed drainage systems are proposed. 4. The type of drainage collection system (e.g., concrete channels, filter drains, grass channels) has been determined based on the outcomes of the HEWRAT assessment and geotechnical requirements. <ul style="list-style-type: none"> ▪ Sealed systems (concrete or plastic) will be used where protection of groundwater is necessary. ▪ Unsealed systems will be porous, allowing clean water to filter into the ground. ▪ Filter drains will be installed adjacent to unsealed systems to collect clean runoff from cut slopes.
General Surface Water Monitoring	All	C	<ol style="list-style-type: none"> 1. Upstream and downstream water samples shall be collected within a short time of each other on each watercourse to obtain comparable samples. 2. Grab samples (water sampling) shall be taken in clean, 1L HDPE bottles and stored in cooler boxes, stored (if required) in a refrigerator; transported within 3 days and analysed by an EPA approved or ISO accredited water analysis laboratory. 3. Water sampling shall be conducted such that bed sediment is not disturbed. A long reach pole shall be used on larger rivers to sample the main river flow (as opposed to a backwater). 4. Water sampling personnel shall record the following details at each sample site: location (ITM X, Y), watercourse name and sample site code (created by the sampler for easy identification of results), date of sample, time of sample, general flow condition (e.g., flood, high, average, low), estimate of Antecedent Dry Period (ADP); visual observations of turbidity, oil slicks and any other comments relevant to the record of effectiveness of pollution control measures at the site. 5. Recording flow condition at the time of sampling is important to the interpretation of results. Elevated flows are when SS are more likely to be mobilised and can be elevated both upstream and downstream with a wider connectivity to site works. Baseflow conditions (dry periods) would be expected to have low SS levels, hence, a result of elevated TSS during low flow conditions is usually related to localised construction related disturbance which requires immediate action to control the source and pathway of SS generation / loss at the site. 6. The ECoW will maintain a regularly updated Excel spreadsheet recording all sample results: daily, weekly and monthly. The spreadsheet will include all relevant information, at a minimum: location, date of sample, time of sample, general flow condition (flood, high, average, low); with columns for recording visual observations, turbidity, pH and SS data. Any actions taken on foot of observations shall also be recorded. This data shall be submitted in Excel format to Donegal County Council on a monthly basis. 7. Any differences between upstream and downstream parameter values shall be investigated as to whether the construction is the cause, with remedial action taking place immediately (e.g., temporarily halt works and enhance sediment control measures). 8. An excel sheet shall be prepared by the ECoW to tabulate results and rolling averages of upstream / downstream results for total suspended solids (TSS) shall be displayed to view any exceedance of either one-off or mean 25mg/l TSS (Surface freshwater only).

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			<p>9. Water sampling locations are shown in EIAR Drawings 9B.01, 9B.02 and 9B.03 in Volume D: Book of Drawings (Watercourse Survey Locations – Sections 1, 2 and 3). Further sampling sites may be identified by IFI or Loughs Agency at the detailed design stage, subject to final construction method statements.</p>
			<p>Attenuation Pond Outfall Monitoring</p> <p>1. SS concentrations in the attenuation pond outfall channels to surface waters shall not exceed 25mg/l TSS or the turbidity (NTU) equivalent and pH shall not exceed 9.0. These are the trigger levels, either separately or together that signal works to stop temporarily to implement additional appropriate control measures following investigation/evaluation of the source by the ECoW.</p> <p>1. Grab samples will be taken at the outfalls of the attenuation pond listed for each section below when they are active. This must capture the first 6 no. rainfall events after construction commences, and shall include at least 3 samples per discharge event, capturing early, mid and later stages of the event. If rain (and therefore pond discharge) persists for multiple days, sampling shall be conducted daily throughout the event. In addition, there shall be continued (minimum weekly) sampling during subsequent hydrological activity (i.e., during rainfall).</p> <p>2. Samples shall be analysed for SS (mg/l) and turbidity (NTU) to establish a broad correlation between the two parameters (reliable correlation involves a minimum of 30 TSS/NTU readings). If the discharges are shown through grab sampling to be exceeding 25mg/l SS (or the site-specific turbidity equivalent as established by correlation of TSS mg/l and NTU data) then additional measures, such as additional silt fencing, check dams, and linearly sequenced sediment ponds for silt control must be implemented across the construction site to prevent discharges exceeding 25mg/l TSS.</p>
			<p>Cofferdam Pump-out Water Monitoring</p> <p>1. Before any concrete pouring has commenced, i.e. in the earth excavation stage, the ECoW will take daily pH readings of a sample of the cofferdam pump-out water to establish a baseline for pH readings (in the absence of concrete).</p> <p>2. Once bulk liquid concrete pouring has commenced and concrete is curing, the ECoW must conduct daily in situ pH measurement of pump-out water. If pH remains between 6.0 and 9.0, then this water can still be discharged into the Attenuation Ponds for settlement of SS. If pump-out water pH exceeds 9.0, the water will be treated through separate settlement of fine SS (e.g., in a dedicated settlement tank for concrete contaminated pump-out water) to reduce residual pH or transported off-site for disposal at a licenced facility.</p>
Surface Water Monitoring	1	C	<p>1. Section 1 is the most sensitive in terms of aquatic ecological receptors, comprising salmonid (including Annex I QI salmon) spawning, nursery and holding habitats. Given the SAC and Salmonid Water designation of the River Finn, it is a requirement that SS limit of 25mg/l average concentration over a period of 12 months, is not breached as a consequence of the construction works. Proposed frequency of monitoring is as follows:</p> <ul style="list-style-type: none"> ▪ River Finn (Upstream Ballybofey – related to bridge construction) to be sampled fortnightly for 3 months during the preconstruction phase and then weekly during the construction phase. ▪ River Finn (downstream Ballybofey – related to works in Mullaghagarry catchment) to be sampled fortnightly for 3 months during the preconstruction phase and then fortnightly during the construction phase.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ul style="list-style-type: none"> ▪ Burn Daurnett to be sampled fortnightly for 3 months during the preconstruction phase and then weekly during the construction phase. ▪ Cloghroe River to be sampled fortnightly for 3 months during the preconstruction phase and then weekly during the construction phase. <ol style="list-style-type: none"> 2. Samples are to be inspected for turbidity, pH and conductivity on site and TSS and turbidity in laboratory testing. 3. Attenuation ponds (temporary and/or permanent) discharging directly to the watercourses listed in point 1 above shall be subject to periodic sampling at their outlets, i.e., River Finn (upstream Ballybofey): Ponds 08, 09, 10, 11; River Finn (downstream Ballybofey) 04, 05 15; Burn Daurnett: Pond 14; Cloghroe: Ponds 01, 21. These attenuation ponds drain to the most sensitive watercourses and act as a proxy for the performance of all ponds across the Section 1 construction areas. Any additional measures required in relation to exceedances identified at the representative ponds shall be implemented at every construction work area across Section 1. 4. Handheld records of turbidity, conductivity and pH shall be taken during periods when these attenuation ponds are hydrologically active (i.e., discharging to the nearby watercourse). The attenuation pond must be blocked off and pollutant sources remedied if pH exceeds 8.5, or if turbidity at the outfall does not represent a decline compared to the inlet value during the same rainfall event.
Surface Water Monitoring	2	C	<ol style="list-style-type: none"> 1. Due to the main sensitivities being tidal in Section 2 (i.e. Lough Swilly and Isle Burn) and being unsuitable for water sampling techniques, daily visual checks will be undertaken by the ECoW of downstream watercourses and attenuation pond outlets (and ponds themselves) for silt plumes, sedimentation and oil slicks—especially during rainfall when ponds discharge. 2. A selection of representative Section 2 attenuation ponds, including at a minimum Pond 06, 07, 05, 12, 09, 10, shall be subject to periodic sampling at their outlets (in addition to the daily visual inspections). Handheld records of turbidity (NTU), conductivity and pH shall be taken during periods when these attenuation ponds are hydrologically active (i.e., discharging to the nearby watercourse). The attenuation pond must be blocked off and pollutant sources remedied if pH exceeds 8.5, or if turbidity at the outfall does not represent a decline (of any value) compared to the inlet value during the same rainfall event.
Surface Water Monitoring	3	C	<ol style="list-style-type: none"> 1. Daily visual checks will be undertaken by the ECoW of downstream watercourses and attenuation pond outlets (and ponds themselves) for silt plumes, sedimentation and oil slicks—especially during rainfall when ponds discharge. 2. A selection of representative Section 3 Attenuation Ponds shall be subject to periodic sampling at their outlets. Handheld records of turbidity (NTU), conductivity and pH shall be taken during periods when these attenuation ponds are hydrologically active (i.e., discharging to the nearby watercourse). The attenuation pond must be blocked off and pollutant sources remedied if pH exceeds 8.5, or if turbidity at the outfall does not represent a decline (of any value) compared to the inlet value during the same rainfall event.
Temporary Instream Works Monitoring	All	C	<ol style="list-style-type: none"> 1. In line with Loughs Agency requirements for water quality protection, all instream works (culvert installation, stream realignments) on fish sensitive watercourses shall be subject to monitoring during the construction phase to ensure instream work activities do not, including in conjunction with any other activities by any other persons:

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ul style="list-style-type: none"> ▪ Raise the waterway downstream to a TSS level in excess of 10 milligrams per litre above the upstream level in the mixing zone; ▪ Cause the waterway downstream to contain visible oil or grease; ▪ Cause the waterway downstream to contain any substance (other than as defined above) which will cause the waterway or water in an underground stratum to be toxic or injurious to fish or other aquatic organisms.
			<p>2. Fish sensitive watercourses are those listed in EIAR Appendix 9B. 04 as salmonid (trout, salmon) bearing channels in relation to culvert installations. In addition, the monitoring applies to instream works to construct the stream realignments associated with:</p> <ul style="list-style-type: none"> ▪ Bridge construction on the Cloghroe River (Section 1 - N13 northern tie-in: Aquatic survey site W1-14) ▪ Tullyrap Watercourse Diversion (Section 3 Ch. 9+200 to Ch10+200 on the Drumbeg stream; Aquatic survey sites W3-12, W3-13).
			<p>3. Water quality monitoring will be achieved by taking discrete grab samples on each watercourse in relation to the instream works area involved at two locations:</p> <ul style="list-style-type: none"> ▪ Upstream of the temporary instream works area, and ▪ Within 30m downstream, i.e., within the mixing zone, and before any adjoining active drain/stream confluence.
			<p>4. The upstream and downstream samples shall be discrete collected in 1-litre HDPE bottles (provided by laboratory) and clearly labelled. Samples shall be analysed for TSS (mg/l) and turbidity (NTU) at an ISO accredited or EPA approved water analysis laboratory. The frequency of sampling shall be:</p> <ul style="list-style-type: none"> ▪ Twice weekly grab sampling on fixed days at each site, e.g., Tuesday & Thursday so as to avoid 'fair weather sampling' ▪ Additional grab sampling during at least 3 no. elevated flow (rainfall) events per month at each site. The elevated flow grab samples shall be conducted as close as possible to the peak of the rainfall event as that is when SS are most likely to be mobilised. ▪ At the time of discrete grab sampling, turbidity measurement in-situ shall also be carried out at the upstream and downstream sites using a hand-held (portable) laboratory calibrated turbidity meter (NTU). These results shall be tabulated and compared to laboratory results and will feed into the establishment of a site-specific correlation between TSS and in-situ turbidity results which can help in the rapid identification of any 10 mg/l TSS exceedance using the portable turbidity probe whilst on site.
			<p>5. Any upstream / downstream difference of ≥ 10 mg/l TSS shall trigger an investigation of the site-specific instream works area to identify the source(s) and pathway(s) of SS losses. Additional measures shall be implemented to manage / reduce sources and further silt control measures (check dams, silt fencing, additional attenuation/settlement areas in sequence) shall be added along the pathways. There will be a delay between the taking of samples and receipt of results at any particular instream works site, however, any ameliorative actions shall be taken as soon as results become available. Any learnings in terms of the types and level of silt control measures required to prevent downstream exceedance of 10 mg/l (or the in-situ turbidity equivalent), within the mixing zone, shall be implemented for each instream works area across the entire Proposed Development.</p>

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<p>6. To augment discrete water sampling, and to build up a picture of the relationship between TSS concentration (mg/l) and turbidity (NTU), the following shall be conducted at each active instream works site:</p> <ul style="list-style-type: none"> ▪ Thrice weekly pH measurement in-situ, using a hand-held (portable) laboratory calibrated pH meter (pH units) - upstream and downstream. pH must remain within the range $\geq 6 \leq 9$. Artificial pH variations shall not exceed ± 0.5 of a pH unit within the limits 6 and 9. If there is a 0.5 pH unit change upstream to downstream, the cause shall be identified (e.g., accidental concrete spillage; leaching or wash out) and measures to secure and remove the source shall be undertaken, such as bunding and removal. ▪ Thrice weekly turbidity measurement in-situ, using a hand-held (portable) laboratory calibrated turbidity meter (NTU) – Any change in turbidity between upstream and downstream shall trigger an additional round of grab sampling at that time so that a correlation can be made between turbidity (NTU) and TSS (mg/l) to ensure the downstream sample does not exceed 10 mg/l TSS compared to the upstream (control). ▪ Daily visual observations and records shall be taken of visible turbidity and/or oil slicks or any other form of pollution. A record of any action taken (e.g., bolstering silt control measures) following visual observations shall be kept. <p>7. The ECoW will maintain a regularly updated Excel spreadsheet recording all sample results: daily, weekly and monthly. The spreadsheet will include date of sample, time of sample, general flow condition (flood, high, average, low); with columns for recording visual observations, turbidity, pH and SS data. Any actions taken on foot of observations shall also be recorded. This data shall be submitted in Excel format to Donegal County Council on a monthly basis and shall be made available to Loughs Agency and IFI upon request</p>
Flood Risk Impact	All	C	<p>1. Contractors' will take account of the flooding threat at the following culvert installations and shall size temporary diversion channel (or allow sufficient pump-over capacity) for their installation to accommodate the Q10 event.</p> <ul style="list-style-type: none"> ▪ Section 1: Culverts S1-CUL-01, S1-CUL-14, and S1-CUL-28 ▪ Section 2: Culverts S2-CUL-13, S2-CUL-16, S2-CUL-17, S2-CUL-19, S2-CUL-20 and S2-CUL-27 ▪ Section 3: Culverts S3-CUL.01, S3-CUL.02, S3-CUL.03, S3-CUL.04, S3-CUL.05 and S3-CUL.06 <p>2. Storage of excavated material, plant or construction materials will be located on higher ground away from the watercourses.</p> <p>3. Flood compensation areas will be installed at the commencement of the construction works in the areas that have been identified as being at risk of increased flood risk during the operation phase.</p>
Flood Risk Impact	All	O	<p>1. Increased road runoff is proposed to be attenuated to greenfield runoff rates up to the 1%AEP event.</p> <p>2. Where attenuation ponds are located in areas liable to flooding, ponds will be designed for a 1 in 100-year return period and an assessment of the impact of the pond on the hydraulic regime of the watercourse is undertaken and the pond bunded to a level 500 mm above the adjacent 1 in 100-year flood level. Flood compensatory measures are provided where the provision of the attenuation pond reduces the area available to flood in the current scenario.</p>

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<p>3. All bridge/culverts are sized for 1% AEP design flows such that net head losses are less than the OPW section 50 Guidelines specified head loss of 300 mm in all cases, and the available freeboards above the design flood levels are greater than the OPW section 50 Guidelines specified freeboard of 300 mm in all cases.</p> <p>4. To mitigate predicted significant effects on flood risk, additional flood volume storage has been provided in relation to the River Swilly crossing (Section 2). This has been achieved by the inclusion flood compensation areas.</p>

21.9 Air Quality

The following environmental commitments associated with Chapter 12: Air Quality are summarised below.

Table 21-9: Air Quality Environmental Commitments

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
General	All	C	<ol style="list-style-type: none"> 1. Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. 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. Display the head or regional office contact information. 3. Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, real time PM10 continuous monitoring and/or visual inspections.
Site Management	All	C	<ol style="list-style-type: none"> 1. 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. 2. Make the complaints log available to the local authority when asked. 3. Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book. 4. Hold regular liaison meetings with other high risk construction sites within 250 m 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.
Monitoring	All	C	<ol style="list-style-type: none"> 1. Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces within 100 m of site boundary, with cleaning to be provided if necessary. 2. Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked. 3. Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions. 4. Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
			large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.
Preparing and maintaining the site	All	C	<ol style="list-style-type: none"> 1. Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. 2. Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site. 3. Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period. 4. Avoid site runoff of water or mud. 5. Keep site fencing, barriers and scaffolding clean using wet methods. 6. 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. 7. Cover, seed or fence stockpiles to prevent wind whipping.
Operating vehicle/machinery and sustainable travel	All	C	<ol style="list-style-type: none"> 1. Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable. 2. Ensure all vehicles switch off engines when stationary - no idling vehicles. 3. Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable. 4. 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). 5. Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials. 6. Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).
Operations	All	C	<ol style="list-style-type: none"> 1. 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. 2. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/ mitigation, using non-potable water where possible and appropriate 3. Use enclosed chutes and conveyors and covered skips.

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ol style="list-style-type: none"> 4. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. 5. 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.
Waste management	All	C	<ol style="list-style-type: none"> 1. Avoid bonfires and burning of waste materials.
Demolition	All	C	<ol style="list-style-type: none"> 1. Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust). 2. Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground. 3. Avoid explosive blasting, using appropriate manual or mechanical alternatives. 4. Bag and remove any biological debris or damp down such material before demolition.
Earthworks	All	C	<ol style="list-style-type: none"> 1. Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. 2. Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. 3. Only remove the cover in small areas during work and not all at once.
Construction	All	C	<ol style="list-style-type: none"> 1. Avoid scabbling (roughening of concrete surfaces) if possible. 2. 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. 3. 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. 4. For smaller supplies of fine power materials (e.g. cements, limes, etc) ensure bags are sealed after use and stored appropriately to prevent dust.
General Operational	All	O	No project specific mitigation measures have been identified for the operational phase of the Proposed Development.
Generation and dispersion of construction dusts	All	C	<ol style="list-style-type: none"> 1. Maintenance of a high moisture level of dust particles by water misting at dry/ windy periods. 2. Site roads shall be regularly cleaned and maintained as appropriate. Unpaved roads restricted to construction workers. 3. Any site roads with the potential to give rise to dust will be regularly watered, as appropriate, during dry and/or windy conditions (also applies to vehicles delivering material with dust potential).

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ol style="list-style-type: none"> 4. Wheel wash facility prior to entering the public road. 5. Public roads outside the site shall be regularly inspected for cleanliness and cleaned as necessary. 6. Material handling systems and site stockpiling of materials shall be designed and laid out to minimise exposure to wind. 7. Water misting or sprays shall be used as required if particularly dusty activities are necessary during dry or windy periods. 8. All vehicles which present a risk of spillage of materials, while either delivering or removing materials, will be loaded in such a way as to prevent spillage on to the public road. 9. All vehicles must be suitably maintained to ensure that emissions of engine generated pollutants are kept to a minimum. 10. Monthly monitoring of dust levels through the construction period, following guidance provided by IAQM on monitoring during demolition, earthworks and construction, as agreed dust position, dust flux or real-time PM₁₀ continuous monitoring locations.
Enhanced traffic emissions from hauling in of materials	All	C	<ol style="list-style-type: none"> 1. CTMP will be developed. 2. Designated delivery routes for all material transportation 3. Owners/ operators of all vehicles are responsible for ensuring those vehicles are suitably maintained to ensure that emissions of engine generated pollutants are kept to a minimum.
Project Monitoring commitments	All	C	Monthly monitoring to be conducted during the construction phase at a minimum of three locations surrounding each construction compound in each of Section 1, 2 and 3.
Project Monitoring commitments	All	O	Residential properties within 50 m of the Proposed development (e.g. Section 1: Receptor 3) to be monitored one month per year during the operation phase.

21.10 Climate

The following environmental commitments associated with Chapter 13: Climate are summarised below.

Table 21-10: Climate Environmental Commitments

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
Pre-Construction Works i.e. Clearing of roadside verge vegetation, change in land-use	All	C	1. The design for temporary site access during enabling works should first seek to avoid peat disturbance in so far as possible.
Embodied carbon of materials i.e. imported fill, road pavement, road marking, drainage, kerbing, structures and transport of materials.	All	C	<ol style="list-style-type: none"> 1. Optimisation of the sizes of key structures and concrete needs to design out any excess carbon needs. 2. The Proposed Development will employ Warm Mix Asphalt (WMA) in line with TII standards. WMA are produced at lower temperatures, typically 20-40°C lower, compared to equivalent Hot Mix Asphalts (HMA) reducing energy consumption and embodied GHG emissions. 3. Optimise the cut/fill balance to ensure that the minimal transport of material to and from the site is required thereby minimising transport emissions. 4. Minimise transport distances (and associated carbon emissions from transport) of materials by securing or specifying local suppliers for aggregates, asphalts, and other materials, where feasible. 5. Within the Project detailed design, concrete need is minimised by specifying non-concrete assets where possible such as gravel footpaths, grassed drains, etc. 6. Reduction in the need for barriers or vehicle restraint systems through passive design to reduce the overall steel requirement on the Proposed Development. 7. The use of sustainable timber post fencing over steel in boundary treatments where possible.
Construction and excavation activities	All	C	<ol style="list-style-type: none"> 1. For electricity generation at site compounds, consider the use of hydrogen generators or electrified plant over traditional diesel generators. 2. Regular maintenance of construction plant machinery to keep them as efficient as possible. 3. Turning off machinery engines when not in use. 4. Enacting measures to reduce the use of private vehicles to get to site (e.g., public transport and car sharing and maximising the amount of local labour). 5. The committed mitigation measures will be tracked through a Project Carbon Management Plan (PCMP) which will be developed in accordance with PAS 2080 (Carbon Management in Infrastructure). The PCMP is used to monitor and report on the above committed carbon management measures and all other climate measures adopted during the design, procurement and construction phases. Contractors will be obliged to provide a PCMP as part of the tendering for the project and will be evaluated on the commitments for further carbon reductions.

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
Construction Waste	All	C	1. Locate material disposal areas (including peat) close to the project site – ideally within the redline boundary of the Proposed Development but failing that at a locally permitted soil recovery facility. As above this reduces transport emissions from material haulage.
Road Traffic Emissions	All	O	<ol style="list-style-type: none"> 1. Active travel infrastructure will be incorporated into all sections of the Proposed Development. 2. Access to local amenities and the local active travel network (existing footways, cycleways) will be provided at interface points with the proposed active travel network for the project to ensure connectivity between proposed and existing networks. 3. Removal of traffic congestion and idle traffic with an increase to efficiency (this is particularly the case for Section 2 within the town of Letterkenny). 4. Optimise the road surfacing and horizontal gradients for greater vehicle efficiency throughout the design life of the Proposed Development. This will allow for a smoother journey throughout the length of the Proposed Development and require less sudden acceleration or braking to negotiate hills or tight bends. 5. There is potential for tree planting in the surrounding areas for carbon sequestration.
Increased energy demand	All	O	1. Limit the amount of public lighting on the Proposed Development where possible and safe. These public lighting installations will use a photocell to only be on when required. These lighting fixtures could also be enhanced with the addition of a Central Management System (CMS), to communicate what is required with lighting (e.g., dimming, and reduced night-time scouting).

21.11 Noise & Vibration

The following environmental commitments associated with Chapter 14: Noise & Vibration are summarised below.

Table 21-11: Noise & Vibration Environmental Commitments

Item	Section	C/O Phases	Controls, Mitigation and Monitoring
General Construction	All	C	<ol style="list-style-type: none"> 1. Construction will be phased to minimise the duration of activities in each area. 2. Contractors likely to generate significant levels of noise will employ the Best Practicable Means to minimise noise emissions and will be obliged to comply with the general recommendations of BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise. And BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part2: Vibration (together referred to as BS5228). <ul style="list-style-type: none"> ▪ Limiting the hours during which site activities likely to create high levels of vibration are permitted. Any work outside normal working hours shall only take place with the written permission of the local authority. ▪ Establishing channels of communication between the Contractor/developer, Local Authority and residents. 3. Where works need to be completed outside normal working hours or the Contractor's method statement for any proposed works indicates that the levels set out in Ch 14: Noise & Vibration may be exceeded, permission for these works must be sought from the Local Authority in advance of any works taking place. 4. All relevant properties as listed in Table 17 68: Summary of Potential Environment Effects, Mitigation and Monitoring in Chapter 17: Cultural Heritage will be subject to a pre-construction and post-construction phase condition survey and stabilised pre-construction if deemed necessary. <ul style="list-style-type: none"> ▪ If vibration levels above the thresholds are detected, the contractor will utilise alternative equipment and/or methods which result in vibration levels below the threshold for building damage. 5. Vibration monitoring, if required, will be carried out during the course of construction at the relevant properties. 6. Noise barriers will be constructed as early as practicable during the construction phase. The Contractor will be required to set out an additional acoustic barrier construction schedule to maximise acoustic screening for the construction phase. Local absorptive noise barriers will be used to screen noisy equipment when works are located close to noise sensitive locations (NSLs). 7. A noise and vibration monitoring programme will be implemented for the duration of the construction phase. This programme is to be developed by the Contractor and will assess compliance of the constructions works with the construction noise thresholds set out in Chapter 14: Noise & Vibration. 8. For activities occurring close to NSLs, noise emissions will be reduced by avoiding simultaneous use of noisiest items of plant in the same location.

Item	Section	C/O Phases	Controls, Mitigation and Monitoring
			<ol style="list-style-type: none"> 9. Channels of communication between the Contractor/developer, the Local Authority and residents will be established. 10. Records of any noise complaints relating to the construction operations will be and investigated as soon as possible and reported to the Local Authority. 11. Plant such as pumps and generators used on or near NSLs will be contained within an acoustic enclosure and comply with the noise levels in Section 14.3.3 of Chapter 14: Noise & Vibration. 12. Plant and machinery used on-site will comply with the EC (Construction Plant and Equipment) Permissible, Noise Levels Regulations, 1988 (S.I. No. 320 of 1988). 13. All noise producing equipment will comply with S.I. No 632 of 2001 European Communities (Noise Emission by Equipment for Use Outdoors) Regulations 2001. 14. Measures outlined in "CONSTRUCTION NOISE - A good practice guide to the preparation, submission and management of Section 61 consents" UK Association of Noise Consultants March 2021.
General	All	O	<ol style="list-style-type: none"> 1. To reduce road traffic noise for as many properties as possible, all newly constructed roads on all sections of the Proposed Development are specified as low noise road surfaces which forms part of embedded mitigation measures. 2. Where included in the project design, 'Noise Barriers' taking the form of walls, earthen berms and other landscaping features will be constructed providing acoustic screening and meeting all other technical specifications. 3. Post completion noise surveys will be carried out for each section of the Proposed Development. Noise monitoring will be in accordance with the TII measurement procedure. Locations are to be approved by the local authority, with monitoring to be carried out by a competent person independent of the design and construction teams. 4. In the event of excessive noise arising during the post-completion noise survey or validated noise complaints, the planning authority may require additional monitoring to be carried out by an independent competent person.
Site Compounds Construction and enabling works i.e. tree felling and processing activities.	All	C	<ol style="list-style-type: none"> 1. When tree processing activities are occurring on site, the woodchipper will be located as far away as possible from NSLs. Noise barriers are proposed in those instances where compound boundaries are less than 25 m from NSL. 2. Noise barriers are proposed in those instances with details below: <ul style="list-style-type: none"> ▪ Section 2: Bonagee site compound: 2.4m high noise barrier along the boundary adjacent to commercial premise (38344081). ▪ Section 3: Pluck roundabout site compound: 3.6m high noise barrier along the boundary adjacent to NSL 80523887.
Site clearance	All	C	<ol style="list-style-type: none"> 1. Distance between tree felling and processing plant required for site clearance and the nearest NSLs shall be maximised. Where this is not practical, the use of temporary noise barriers should be used to mitigate the noise impacts.

Item	Section	C/O Phases	Controls, Mitigation and Monitoring
			<ol style="list-style-type: none"> 2. Where extensive tree removal is required in close proximity to NSLs, the use of tree shears should be implemented where practicable. 3. It is recommended that a 2.4 m high noise barrier (reflective) shall be installed and maintained for the duration of the construction phase along the site compound boundary adjacent to NSL 80523887. 4. Continuous noise monitoring will be undertaken at selected residencies within 50 m of site clearance and earth works activities.
Demolition works	All	C	<ol style="list-style-type: none"> 1. Where a hydraulic breaker is required, the following measures shall be implemented: <ul style="list-style-type: none"> ▪ Fit suitably designed muffler or sound reduction equipment to reduce noise without impairing machine efficiency. ▪ Use dampened bit to eliminate ringing. 2. The use of a temporary noise barriers/screen of 2.4 m in height shall be implemented adjacent to NSLs. 3. Where works are occurring within 39 m, over an extended period and adjacent to an NSL, the use of temporary noise barriers/screens of 2.4 m height shall be implemented where practicable.
Earthworks	All	C	<ol style="list-style-type: none"> 1. For NSLs where predicted noise levels are above the construction noise threshold, noise barriers shall be installed as early as possible within the construction programme. Noise barriers shall be at least 2.4 m in height and up to 3.6 m in some locations to ensure they block line of sight.
Rock Extractions	All	C	<ol style="list-style-type: none"> 1. Overburden to be retained at the borrow pit location shall be located to block line of sight to the nearest NSLs where practicable. 2. Where NSLs are less than 56 m away from borrow pits, retained overburden shall be used to block line of sight. Where this is not possible a 2.4 m – 3.6 m noise barrier shall be installed along the boundary adjacent to NSLs. Plant shall be located as far away as possible from NSLs. 3. For rock extraction along the proposed alignment, a 3.6m high noise barrier shall be installed along the development boundary between Mainline S2.2 West Ch 2+000 – 2+150.
Rock Blasting	All	C	<ol style="list-style-type: none"> 1. Blasting will only be permitted between 09:00 and 18:00 hrs Monday to Friday inclusive. Blasting will not be permitted on weekends or public holidays. 2. Noise and vibration monitoring will be undertaken at the nearest residence in all cases. 3. In advance of any blasting operation the Contractor will inform occupants of all dwellings within 500 m of the blast that blasting will take place and the duration of blasting operations. 4. If blasting is required within 500 m of any residence, the Station Masters House and adjacent buildings, The Mill, the Windmill and St. Patrick's Church, vibration monitoring (event data) will be carried out at a representative sample of residences and all of the cultural heritage sites listed in Chapter 17: Cultural Heritage. 5. Air overpressure from any blast will not exceed 125 dB (linear) max peak, with a 95% confidence limit when measured at the nearest air overpressure sensitive location. No individual air overpressure value shall exceed the limit value by more than 5 dB (Lin).

Item	Section	C/O Phases	Controls, Mitigation and Monitoring
			6. Full details of the Contractor's provision for noise and vibration monitoring and procedures in relation to public notice will be made available to the Local Authority.
Road Formation and Paving	All	C	The noise barriers recommended for the earthworks are also applicable for road formation construction activities.
Construction Vibrations (Cultural Heritage Sites)	All	C	Continuous vibration monitoring at Cultural Heritage sites will be undertaken for the duration of construction.
Construction Monitoring	All	C	<ol style="list-style-type: none"> 1. Noise monitoring during construction will be carried out continuously at the nearest residence (or other suitable location approved by the planning authority) at each of the following activities for the duration of the construction activity (e.g. rock extraction activity): <ul style="list-style-type: none"> ▪ Site clearance and earthworks at selected residences within 50 m. ▪ Rock blasting during construction at selected residences within 500 m of the activity and locations identified as part of the cultural heritage assessment. ▪ Vibration Monitoring at the locations identified as part of the cultural heritage assessment. 2. Vibration monitoring (continuous logging) will be carried out during the course of construction at: the Station Masters House and adjacent buildings, The Mill, the Windmill and St. Patrick's Church.
Operational Monitoring	All	O	<ol style="list-style-type: none"> 1. During the operations phase a post completion noise survey will be carried out for each section of the Proposed Development. Noise monitoring will be in accordance with the TII measurement procedure. Locations are to be approved by the local authority, with monitoring to be carried out by a competent person independent of the design and construction teams. 2. In the event of excessive noise arising during the post-completion noise survey or validated noise complaints, the planning authority may require additional monitoring to be carried out by an independent competent person.

21.12 Material Assets Agriculture

The following environmental commitments associated with Chapter 15: Material Assets Agriculture are summarised below.

Table 21-12: Material Assets Agriculture Environmental Commitments

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
General	All	C	<ol style="list-style-type: none"> 1. A Land Liaison Officer (LLO) will be appointed by the local authority. The LLO will keep in contact with the local farmers and agri-contractors. 2. Where necessary, suitable stockproof temporary fencing will be erected for the duration of the works. <ul style="list-style-type: none"> ▪ Where any fences, walls or hedges are damaged during the construction of these roads they will be made stock proof immediately, unless otherwise agreed with the landowner. ▪ Any necessary permanent restoration of fences, walls, or hedges will be completed within two months of the work concluding.
General	All	O	<ol style="list-style-type: none"> 1. Where required, suitable stock proof fencing shall be erected along the Proposed Development. 2. The maintenance and replacement of the road fencing will be the responsibility of the local authority.
Noise	All	C	See Table 21-11 for mitigation measures proposed to reduce noise levels.
Dust	All	C	See Table 21-9 for mitigation measures to reduce dust effects to material assets (agriculture) receptors.
Construction Traffic	All	C	See Table 21-2 for mitigation measures to reduce construction traffic effects to material assets (agriculture) receptors.
Soil	All	C	<ol style="list-style-type: none"> 1. Any lands temporarily acquired will, before return to the landowner, be subsoiled to alleviate compaction and minimise risk of impeded crop growth.
Drainage	All	C	<ol style="list-style-type: none"> 1. All drainage likely to be affected or disturbed during the construction works will be identified during discussions with landowners. 2. Land drains will, to the extent possible, be maintained during the course of the works. 3. Any damage due to the works will be made good on completion of the works. 4. Damage to crops and soils by flooding as a result of the construction of these roads, will be rectified and/or compensated.
Disturbance of Services (Water and Electrical Facilities)	All	Both	<p>Construction: Any disruption to animal water supplies will be reinstated immediately by the Contractor or an alternative source supplied until the source is reinstated, unless otherwise agreed with the landowner.</p> <p>Operation: Ducting will be provided, where required and where practicable, to allow for the provision of services (electrical/water) across the newly developed road to severed areas.</p>

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
Division / Severance	All	C/O	<p>Construction: Existing accesses to property, including homes, farms and severed lands will, where practicable, be maintained during construction of the road, otherwise, reasonable temporary access will be provided.</p> <p>Operation: Where required access will be provided to all severed lands.</p>
Spread of Disease or Pests	All	C	<ol style="list-style-type: none"> 1. All machinery coming from outside of the State will be cleaned and disinfected on entry to the country. 2. All machines will be sprayed with appropriate disinfectant prior to arrival on site. The Contractor will verify to the LLO that this has been done. 3. The LLO will liaise with the local District Veterinary Office (DVO) to establish the location of any restricted herds along the route of the Proposed Development. <ul style="list-style-type: none"> ▪ The liaison will continue on a regular basis throughout the construction and reinstatement periods. Where any landholder becomes aware that his/her herd has become infected, it is his/her responsibility to inform the LLO as a matter of urgency. ▪ Where the LLO has been informed of a restricted herd along the route, it will require the Contractor to disinfect machinery and personnel before leaving the land concerned. The number of accesses across the working strip will be reduced to one in the case of lands having restricted herd status. The Contractor will arrange for disinfectant mats/baths to be replenished with disinfectants, as required. 4. In the event of an outbreak of a Notifiable Disease, the proposed project will be subject to such operational restrictions as are imposed by the Department of Agriculture Food and the Marine (DAFM).
Land take	All	O	<ol style="list-style-type: none"> 1. Permanent and temporary land take, including the implications this may have on area-based entitlements, will be dealt with by way of compensation.
Loss of Facilities	All	O	<ol style="list-style-type: none"> 1. Loss of facilities will all form part of the overall compensation package to be agreed with the landowner.

21.13 Material Assets Non – Agriculture

The following environmental commitments associated with Chapter 16: Material Assets Non-Agriculture are summarised below.

Table 21-13: Material Assets Non – Agriculture Environmental Commitments

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
Disruption to Utilities (General)	All	C	<ol style="list-style-type: none"> 1. Prior engagement with all utility providers. 2. Measures to avoid unplanned disruption of services during construction will be outlined by the Contractor prior to excavation works being commenced. 3. The Contractor will ensure the latest service records will be sought; service providers will be consulted and localised confirmatory surveys will be undertaken during the detailed design stage to verify the identified location of and existence of existing services and methods such as ground penetrating radar (GPR) and slit trenching in the verge areas will be used in this verification process. 4. Where works are required in and around known utility infrastructure, precautions will be implemented by the Contractor to protect the infrastructure from damage, in accordance with best practice methodologies and the requirements of the utility companies. Protection measures during construction will include warning signs and markings indicating the location of utility infrastructure, safe digging techniques in the vicinity of known utilities, and in certain circumstances where possible, isolation of the section of infrastructure during works in the immediate vicinity. 5. Measures to minimise disruption during diversion works will be planned in advance by the Contractor. These measures will ensure prior notification will be given to all impacted properties. Interruptions will be planned to be minimised. 6. All work carried out in the vicinity of services will be undertaken in accordance with recommended code of practices including the current HSA 'Code of Practice for Avoiding Danger from Underground Services' and the 'Code of Practice for <i>Avoiding Danger from OH Electricity Lines</i>'.
Utilities (Electric Supply)	All	C	<ol style="list-style-type: none"> 1. Each conflict location with the ESB network was discussed as an individual identity with ESB. For the existing underground locations, the general resolution is to provide new underground ducting and cable route through the Proposed Development and divert the existing cable. For the overhead lines (OHL), the general resolution is to provide new sets of poles to carry the existing OH wires. 2. Detailed design of these identified 'conflict' resolutions will be developed. Any detailed design will not diverge to any material extent from that which is subject to this EIAR.
Utilities (Telecommunications)	All	C	<ol style="list-style-type: none"> 1. When crossing Eir services with a new road embankment, the current standard procedure will be followed, where an access chamber will be introduced on either side of the road. Consultation with Eir personnel will continue during the detailed design and construction phases. Similarly, proposals for any permanent diversions will be finalised during the detailed design stage in consultation with Enet.

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
			2. Sections 2 and 3 of Proposed Development have seven and twelve direct conflict interfaces, respectively, with existing Project Kelvin apparatus (fibre optic utility) which has national strategic significance. The conflict resolution for these interfaces has been discussed and agreed with EXA Infrastructure who are responsible for the asset. Proposed resolutions for each conflict location are detailed in Section 16.6.1.2 of Chapter 16: Material Assets Non-Agriculture.
Utilities (Public Water and Wastewater Supply)	All	C	1. There are 48 interface points between the Proposed Development and UÉ networks (including water supply and sewerage). Diversions or protection measures will be adopted with mutual agreement with UÉ and Water Services Department of Donegal County Council. It is proposed to use ductile iron pipe under the Proposed Development crossings and HDPE for other locations.
Waste generation due to construction workers.	All	C	<ol style="list-style-type: none"> 1. The Contractor will ensure the compliant management of all waste generated by the construction activities. Circular economy principles will be incorporated within the management of materials during the Construction Phase to reduce the amount of materials used and waste generated by the Proposed Development. 2. All waste will be managed in accordance with the waste hierarchy as set out in the Waste Framework Directive (2008/98/EC), and the Waste Management Act 1996 (as amended). 3. A CDRWMP shall be prepared by the Contractor and be in operation for the duration of the Proposed Development. A CDRWMP is contained in Appendix C16.03 of the EIAR and follows EPA 's Best Practice Guidelines for the Preparation of Resource & Management Plans for Construction and Demolition Projects. 4. Source segregation of waste. 5. Temporarily stockpiling of waste for a period not exceeding six months. 6. Material management: 'Just-in-time' delivery will be used to minimise material wastage. 7. Wastewaters from temporary toilets will be either discharged to the existing sewerage network or tankered off-site for disposal. 8. Waste classification testing shall be undertaken in accordance with List of Waste (LoW) and Determining if Waste is Hazardous or non-Hazardous (EPA) (2018). 9. All waste shall have a suitable waste classification in line with the LoW. 10. Hazardous waste shall be appropriately stored and disposed of. 11. Waste Acceptance Criteria (WAC) testing in accordance with Council Decision of 19 December 2002 establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC will be undertaken on waste destined for landfill. 12. Waste hauliers shall hold a waste collection permit. 13. Waste will only be taken to a suitably authorised waste management facility that is permitted for the class of activity required to process, treat, and/or dispose of the waste. This process will be managed and tracked by the Site Environmental Manager.

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ol style="list-style-type: none"> 14. A Transfrontier Shipment (TFS) document will be in place for exported waste as required under Regulation (EC) 1013/2006 of the European Parliament and of the Council on Shipments of Waste. 15. During the construction phase of the Proposed Development, records of all waste and associated documentation shall be kept by the Site Environmental Manager as per the EOP. 16. Possibilities for reuse of clean non-hazardous excavation material as fill on the site or in landscaping works will be considered following appropriate testing to ensure material is suitable for its proposed end use. See Table 21-7. 17. The site will be maintained to prevent litter and regular litter picking will take place throughout the site 18. On-site office and food waste arising will be source separately at least into dry mixed recyclables, biodegradables and residual wastes. 19. Waste bins, containers, skip containers and storage areas will be clearly labelled with the waste types which they should contain, including photographs as appropriate. 20. Where unidentified contamination (such as potential asbestos containing material) is encountered, material shall be segregated and stockpiled on a low permeability surface with bunding and shall be covered to allow further testing of the impacted soils to enable specification of treatment and re-use, or disposal. 21. While the risk of asbestos containing materials is exceptionally low, construction workers will be briefed on the possible presence of localised asbestos. Dermal contact with soils (particularly Made Ground) will be avoided wherever possible and appropriate training and Personal Protective Equipment (PPE) and Respiratory Protective Equipment (RPE) will be provided to mitigate the risk of inhalation of asbestos. 22. A Demolition Survey of all buildings to be demolished will be required prior to commencement of any such demolition works. Asbestos-containing materials will only be removed from site by a suitably permitted/licensed waste Contractor and will be brought to a suitably licensed facility. The Health and Safety Authority will be contacted where needed in relation to the handling of asbestos and material will be dealt with in accordance with the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006, as amended and associated approved Codes of Practice.
Impact to Non-Agricultural Properties	All	C	<ol style="list-style-type: none"> 1. Measures incorporated within the design proposal include inter alia reinstatement works; provision of new or altered access; provision of new boundary treatment; and provision for replacement wastewater treatment facilities, where such features are affected. Compensation will also be payable as per the CPO process where land take occurs. 2. Any lands temporarily acquired only, will be made good as per Section 4.10.2.3 of Chapter 4: Project Description. 3. Construction works that affect access points to businesses and residences will be scheduled in such a way as to minimise disruption. Where accesses are affected by construction activities, affected property owners/ occupiers will be notified in advance. See Section 4.10.72 of Chapter 4: Project Description. 4. Arrangements will be in place to manage boundary treatment as set out in Section 4.10.2.3 of Chapter 4: Project Description.

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
			5. See mitigation measures within Table 21-2, Table 21-8, Table 21-9, Table 21-11 and Table 21-15 for measures relevant to control the traffic, water, air quality, noise and landscape and visual impacts.
Impact to Non-Agricultural Properties	All	O	1. Embedded mitigation put in place at and following the construction phase noted earlier, including compensation, reinstatement works, provision of new access and boundary treatment where necessary.
Waste	All	O	<p>1. Waste silts and hydrocarbons/oily waters collecting onsite drainage interceptors will be managed by specialist contractors as and when required. The specialist contractors will be appointed to clean out the interceptors and ensure the waste material is sent to a suitable licensed facility for treatment and/or disposal.</p> <p>2. Wastes arising from re-surfacing works will be re-used, recycled or disposed of to appropriately authorised waste management facilities. Where possible, some of these wastes may be designated as no longer wastes under Article 28 of the European Communities (Waste Directive) Regulations 2011, as amended, i.e. End-of-Waste status.</p>

21.14 Cultural Heritage

The following environmental commitments associated with Chapter 17: Cultural Heritage are summarised below, including only Very Significant and Significant impacted Cultural Heritage receptors. The full list of all Cultural Heritage receptors and their associated mitigation, if required, is listed in section 17.4 of Chapter 17: Cultural Heritage.

Table 21-14: Cultural Heritage Environmental Commitments

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
Presently unknown sub-surface archaeological resources	All	C	<ol style="list-style-type: none"> 1. Presently unknown sub-surface archaeological resource (such as AAPs, river crossings and identified LiDAR anomalies and other potential archaeological features) shall involve a programme of archaeological geophysical surveys (where geological/ground conditions are feasible) and follow-up archaeological test-trenching and metal detection within the footprint of the Proposed Development. 2. This programme shall be carried out by suitably qualified archaeological personnel, under Ministerial Direction (currently under Section 14A of the National Monuments Act 1930 (as amended) or per other licencing requirements as may subsequently be commenced under the HAHMP Act 2023). 3. This programme shall be undertaken in close consultation with both NMS Department of Housing, Local Government and Heritage (DHLG&H) and the TII Project Archaeologist as part of advance construction stage works. 4. Provision will also be made at construction stage for any on-site archaeological monitoring and inspection at lands not conducive to archaeological test-trenching (due to environmental, safety or access constraints). Following completion of on-site archaeological works during construction stage and in line with the conditions of Ministerial Direction to excavate archaeological sites and features, a full post-excavation reporting phase shall be undertaken to include for the conservation of artefacts and the publication of excavation results. 5. Sections of (undesignated) townland boundaries, when present, shall be recorded in their current state in advance of construction and where original upstanding banked remains exist (earthen and/or stone), a machine-dug test trench will be excavated and archaeologically monitored, with a drawn and photographic record of the exposed cross-section recorded together with a written record. 6. Watercourses forming townland boundaries will not be test-excavated but will be subject to a wade and metal detection survey, together with a written and photographic record. 7. Any testing in wetland or boggy areas shall be undertaken in accordance with the TII (2005c) Guidelines for the Testing and Mitigation of the Archaeological Wetland Heritage for National Road Schemes.
Potential unknown riverine and underwater archaeological material remains	All	C	<ol style="list-style-type: none"> 1. Archaeological wade and metal detection surveys shall be undertaken. 2. Where feasible, archaeological geophysical survey and/or archaeological testing/test pits investigations will be carried out as part of advance construction works. The latter shall also provide for a systematic geoarchaeological/paleoenvironmental core sampling and assessment programme.

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
			3. Provision shall be made for a systematic geoarchaeological review of available project geological investigation (GI) data and/or geoarchaeological core sampling, if deemed suitable at select locations (e.g. former extensive paleochannels/floodplains, or reclaimed lands). The strategic siting of geoarchaeological core sampling shall be identified and determined in advance by a suitably qualified geoarchaeologist (subject to statutory agreement).
Design and landscaping interventions	All	Both	1. Maximise the usage of the local topography to best absorb the designed alignment by making use of existing natural screening by trees and hedgerows use of sympathetic landscaping and/or planting/screening to areas such as raised embankments installation of noise barriers and/or artificial lighting solutions and provision of improved accessibility options to areas of cultural heritage amenity value.
Indirectly Negatively impacting Dunwiley Fort (RMP DG078-003)	1	Both	<ol style="list-style-type: none"> 1. Outside Proposed Development boundary – site has been avoided. 2. Screening of the development with planting. 3. Improved non-ground intrusive access and information provision for visiting public. 4. Prior to installation of access provisions at construction stage (with licenced archaeological oversight), a programme of geophysical survey (and testing if required) will be carried out at advance stage works in order to adequately inform the access 5. Providing an exclusion zone during the construction phase. 6. Providing a written/ photographic monument before construction commences. 7. Planting failures will be detected and replaced accordingly.
Indirect effects have impact on the setting of church site at Drumboe Lower (RMP DG078-005---)	1	Both	<ol style="list-style-type: none"> 1. Outside Proposed Development boundary – site has been avoided. 2. Continued preservation by design of existing archaeological sub-surface soil environment. 3. Regular archaeological site visual inspection/ monitoring to ensure integrity of designed soil stability measures and ground vibration monitors, if required. 4. A works exclusion zone shall be applied to Drumboe church site during construction stage, oversight by the appointed project Archaeological Contractor shall be undertaken by way of periodic site (visual) inspection to ensure that designed embankment cut/earthworks at this location are suitably stable and the sub-surface archaeological integrity of the adjacent former church site is not affected. 5. Providing a written/ photographic monument before construction commences.
Indirect Negative Impact on holy well (including setting) SMR DG078-005001- at Drumboe Lower	1	Both	<ol style="list-style-type: none"> 1. Outside Proposed Development boundary – site has been avoided. 2. Provision of alternate water source to well. 3. Provision of exclusion zone at this location during construction stage. 4. Regular archaeological site inspection/monitoring to ensure integrity of designed soil stability and water source measures, and ground vibration monitors, if required.

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
			5. Written and photographic monument setting record prior to construction.
Direct Negative Impact on grouping value of ecclesiastical sites RMP DG078-005--- Drumboe 'abbey' and holy well SMR DG078-005001- 'abbey well' in Holywell Woods	1	Both	1. Heritage information signage and linkage provision to holy well area for visiting public.
Indirect Negative Impact on L115-2/S1-BH02 stone outbuilding at Drumboe Upper	1	Both	1. Outside Proposed Development boundary, structure has been avoided. 2. Provision of exclusion zone at this location during construction phase, if required as part of LMA for accommodation/temporary works. 3. Written and photographic building setting record prior to construction.
Indirect Negative Impact on vernacular long- house RPS 40907834 at Drumboe Upper	1	Both	1. Outside Proposed Development boundary, structure has been avoided. 2. Planting will be completed to screen amenity from the Proposed Development. 3. Provision of exclusion zone at this location during construction phase, if required as part of LMA for accommodation/temporary works. 4. Written and photographic building setting record prior to construction. 5. Planting failures will detected and replaced accordingly.
Indirect Negative Impact on outbuilding NIAH 40907720 at Cappy	1	Both	1. Outside Proposed Development boundary, structure has been avoided. 2. Planting will be completed to screen amenity from the development. 3. Provision of exclusion zone at this location during construction phase, if required as part of LMA for accommodation/temporary works. 4. Baseline inspection records together with regular built heritage site monitoring to ensure structural integrity, with use of ground vibration monitors, if required. 5. Written and photographic building setting record prior to construction. 6. Planting failures will be detected and replaced accordingly.
Direct Negative Impact on enclosure site DG053-059---	2	Both	1. A portion of this monument will require full archaeological excavation by record, with the remaining portion to be preserved in situ. 2. Geophysical survey will be undertaken to fully record the monument and any potential associated feature, both internally and externally.

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ol style="list-style-type: none"> 3. Test trench/pit targeted evaluations to determine the nature and survival of the sub-surface material to inform detailed design. 4. Full excavation by record of the site (in part) will be undertaken as part of advance works thereafter, subject to statutory approval. 5. Written and photographic archaeological setting record prior to construction. 6. Clear sub-surface delineation markers for all features preserved in situ together with detailed digital GIS mapped extent records post excavation works and prior to construction. 7. Ensure that no retaining materials ensuring preservation in situ are compromised by weather processes and or road maintenance.
Indirect Negative Impact on Croaghan House NIAH 40835028 at Carricknaslate, Lifford	3	Both	<ol style="list-style-type: none"> 1. Outside CPO structure has been avoided. 2. Planting will be completed to screen amenity from the development. 3. Exclusion zone at this location during construction phase. 4. Written and photographic building setting record prior to construction. 5. Planting failures are detected and replaced accordingly.
Direct Negative Impact on Croaghan House historic demesne DG0040 at Carricknaslate, Lifford	3	Both	<ol style="list-style-type: none"> 1. Due consideration of design alternatives and provision of optimised access requirements for residential and agricultural use thereby reducing the level of impact. 2. Implementation of mitigatory measures of preservation by record. 3. Full measured written, drawn and photographic record of designed landscape (access avenue, northern and southern boundaries) prior to removal. 4. Archaeological geophysical survey and testing with subsequent evaluation and recording of sub-surface features prior to construction. 5. Planting failures will be detected.
Indirect Negative Impact on setting of Cavanacor House (incl. gate-lodge and entrances)	3	Both	<ol style="list-style-type: none"> 1. Outside CPO: structure and attendant grounds forming part of original designed landscape layout has been avoided. 2. Planting will be completed to screen amenity from the development. 3. Provisioning an exclusion zone during the construction phase. 4. Baseline inspection record of gate-lodge together with regular built heritage site monitoring to ensure structural integrity, with use of ground vibration monitors, if required. 5. Written and photographic building setting record prior to construction.

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
			6. Planting failures are detected and replaced accordingly.
Direct Negative Impact on former Cavanacor historic demesne DG0040	3	Both	<ol style="list-style-type: none"> 1. Implementation of mitigatory measures of preservation by record. 2. Before construction, a written and photographic record will be kept.
Indirect Negative Impact on setting of St Patrick's church and bell tower (RPS 40907020/ NIAH 40834003 & 40834004)	3	Both	<ol style="list-style-type: none"> 1. Active Travel access provision with alignment traversing outside the site grounds and along an existing mature field boundary to reduce visibility impact from the church and tower site. 2. Reinforcement of field boundary to west with additional planting for screening purpose. 3. Written and photographic setting record prior to construction. 4. Planting failures are detected and replaced accordingly
Indirect Negative Impact on setting of Gort Manse NIAH 40827011 / M509 and vernacular features M482, M483 & M498 at Glebe, Raymoghly	3	Both	<ol style="list-style-type: none"> 1. Outside Proposed Development boundary: structure and attendant grounds have been avoided. 2. Strategic landscaping/planting at this area for screening effect. 3. Provision of an exclusion zone around the features. 4. A written and photographic record will be kept. 5. Planting failures are detected and replaced accordingly.
Indirect Negative Impact on outbuildings NIAH 40834006 at Murlough	3	Both	<ol style="list-style-type: none"> 1. Outside Proposed Development boundary: structures complex has been avoided. 2. Strategic landscaping/planting at this area for screening effect. 3. Provisioning of an exclusion zone surrounding the feature will be maintained during the construction phase. 4. Baseline inspection records together with regular built heritage visual site monitoring to ensure structural integrity, with use of ground vibration monitors, if required. 5. Planting failures are detected and replaced accordingly.
Direct Negative Impact on former Station Master's House NIAH 40834014 at Ballindrait	3	Both	<ol style="list-style-type: none"> 1. Implementation of mitigatory measures of preservation by record. 2. Full measured written, drawn and photographic record prior to removal, with subsequent evaluation and recording of sub-surface features prior to construction.
Indirect Negative Impact on outbuilding NIAH 40906245 / M565 at Mondooney Lower	3	Both	<ol style="list-style-type: none"> 1. Outside Proposed Development boundary: structure has been avoided. 2. Provisioning of an exclusion zone surrounding the cultural feature throughout the construction phase. 3. Baseline inspection records together with regular built heritage visual site monitoring to ensure structural integrity with use of ground vibration monitors, if required. 4. A photographic and written record will be kept.

21.15 Landscape & Visual

The following environmental commitments associated with Chapter 18: Landscape & Visual are summarised below.

Table 21-15: Landscape and Visual Environmental Commitments

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
Site Compounds	All	C	1. Site compounds have been located to minimise landscape and visual impacts experienced and will avoid the excessive removal of existing vegetation. Where vegetation is to be removed for temporary construction works, site compounds or storage, it will be replaced with similar species following completion.
Light Spill	All	C	1. Use of directional down light style cut-off luminaries to prevent up lighting and reduce glare and sky glow. 2. Use of lighting control systems such as baffles to reduce amount of light spill, sky glow, and visual appearance during the construction phase where works take place in proximity to properties.
Tree, Hedge and Shrub Planting	All	O	1. All trees, shrubs, transplants/whips, hedging material and ground cover planting shall conform fully to the specification, prepared by the landscape consultant, in respect of species, size and quality. 2. All plants shall be well grown, sturdy and bushy according to type and free from all diseases and defects. 3. Newly planted areas of woodland and scrub shall be established usually using native species of local provenance. Species mixes will be chosen to reflect the range of woodland types specified, albeit recognising the restrictions on planting of particular species due to current prevailing diseases. 4. The plants shall be available for inspection prior to planting works. Any plant material that does not conform to the specification will be automatically rejected and must be removed from site. All trees, shrubs and other plant material shall comply with the standards set out in National Plant Specification (NPS) prepared by the Committee on Plant Supply and Establishment and published with the backing of the Joint Council of Landscape Industries (JCLI, 1989).
Defective Plant Material	All	O	1. All trees, shrubs, transplants, hedging material and ground cover planting shall be maintained and guaranteed for a period against death, deformation, die-back, or disease other than that caused by malicious damage. 2. Defective plant material will be replaced with material of the same size, specification and species as that originally planted.
Plant Mixes	All	O	1. Essentially road verge or bank planting will consist of 'bare root transplants', 'whips' and 'feathered trees' which, due to their smaller stock size at time of planting. All plants are to be positioned in the locations and in the required numbers and centres indicated on the agreed planting plan. 2. Landscape mitigation planting of road verges and slopes and as compensation for loss of existing screening and loss of woodland, individual trees and hedgerows along the Proposed Development will exclusively use Irish native species that reflect the existing vegetation of the area.

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ol style="list-style-type: none"> 3. Screening Woodland Mix areas will be planted as whips and feathered transplants at a standard size of 60-90 cm or 90-120 cm augmented by semi-mature individual trees. Species shall be randomly planted in groups. The majority of species used will be quickly maturing species and will have formed dense woodland within ten years. The canopy will reach at least 7 to 10 m, in places where groups of trees are planted. 4. In addition to whip and feathered transplants individual semi-mature trees shall be used to provide screening at Specific Landscape Measures (SLM) locations. 5. Shrub planting shall consist of native species from the core and additional species listed above to provide woodland understorey, woodland edge and scrub areas. Shrub planting mixes shall complement areas of woodland and be used at locations consistent with the ecological assessment mitigation measures. Hedgerows shall be reinstated at interrupted field boundaries or where new boundaries with fields are created using native hawthorn, blackthorn and holly that shall be the predominant species used. Shrub planting shall also be planted to soften the appearance of noise barriers. 6. New grass verges will be implemented using either brush harvested seed source or hay strewing methods preferably. 7. The road verges will be seeded with a general (Grade II) grass seed mix. Areas away from designated sight lines where mowing regimes are not required to be of a regular nature will be seeded with wild grasses and meadow flowers. Grass and wildflower mixes using seed from Irish native sources shall be employed to provide quality areas of low maintenance, rapid establishment, and visual appearance. 8. The Contractor will adhere to the following guidance, where applicable; <ul style="list-style-type: none"> ▪ Guidelines on the Implementation of Landscape Treatment on National Road Schemes in Ireland (TII, July 2012); ▪ Design and Delivery of Soft Landscape Treatments in Urban Transport Environments Overarching Technical Document (TII, May 2024); and ▪ Guide for the Implementation of Soft Landscape in Towns and Villages on National Roads (TII, May 2024).
<p>Monitoring Screening Woodland Mix planting with Specimen Trees</p>	<p>All</p>	<p>C</p>	<ol style="list-style-type: none"> 1. Monitoring of implemented specific landscape mitigation measures shall be carried out in accordance with GE-ENV-01102 - <i>A Guide to Landscape Treatments for National Road Schemes in Ireland</i> (TII, 2006), Design Manual for Roads and Bridges (DMRB) <i>LA 104 Environmental Assessment and Monitoring</i> the relevant sections of <i>Manual Of Contract Documents For Highway Works (Volume 1 Specification for Highway Works Series 3000 landscape and ecology)</i> and all TII guidance as it relates to soft landscapes 2. Screen woodland mix with specimen trees will be managed to fulfil SML measures and may, in the early years, be subject to a lighter thinning regime. If after five years of planting, it is deemed that planting is fulfilling SLM measures an assessment can be carried out on an annual basis to determine which trees need to be removed to ensure successful fulfilment of SLM measures to Year 15 and beyond. 3. Monitoring at the intervals as listed below will be completed at a minimum:

Item	Section	C / O Phase	Controls, Mitigation and Monitoring
			<ul style="list-style-type: none"> ▪ Annually – Screen woodland mix planting and specimen trees within it shall exhibit annual, healthy growth consistent with the species selection and the prevailing site conditions. ▪ At year 5 – Screen woodland planting shall partly achieve the required SLM measures. From planting year until Year 5 screen woodland planting areas shall be weed free to ensure no competition during establishment of the screen woodland mix. Specimen trees within the screen woodland mix planting shall be distinctly visible and entering early maturity. ▪ At Year 15 – Screen woodland planting will have become established to fulfil SLM measures and have grown so as to form an established maturing woodland where the plants shall have knitted together to have formed a closed canopy providing visual screening to receptors identified with significant effects.

21.16 Interactions & Cumulative Effects

The following environmental commitments associated with Chapter 19: Interactions & Cumulative Effects are summarised below.

Table 21-16: Interactions & Cumulative Effects Environmental Commitments

Source	Section	C / O Phase	Controls, Mitigation and Monitoring
Cumulative Effects of Projects and Developments	All	Both	<ol style="list-style-type: none"> 1. Controls and mitigation measures provided within the identified projects and developments, will supplement mitigations proposed within the EIAR. 2. Where: (i) there is overlap between the construction phases of the Proposed Development and either, or both, the Ballybofey / Stranorlar FRS or Barnesmore Gap Greenway Project, and (ii) either the Ballybofey / Stranorlar FRS, the Barnesmore Gap Greenway Project, or both, will require instream construction elements within 1 km of elements that are part of the Proposed Development, on the same watercourse in the same year, then the following mitigation will be applied: <ul style="list-style-type: none"> ▪ Phasing of construction elements where they involve instream works on the same channel within 1 km of each other, such that instream works on the same channel do not occur in the same instream works season of May 1st to September 30th of any year.