15. SCHEDULE OF COMMITMENTS

15.1 Introduction

All mitigation and monitoring measures relating to the construction and operational phases of the Proposed Development are set out in the relevant chapters of this EIAR.

All mitigation which will be implemented during the various phases of the project are presented in Table 15-1 below.

The mitigation proposals in the below format provides an easy to audit list that can be reviewed and reported on during the future phases of the project. The tabular format in which the below information is presented, can be further expanded upon during the course of future project phases to provide a reporting template for site compliance audits.

All monitoring measures which will be implemented during the construction and operational phases of the project are outlined in Table 15-2. All monitoring measures were set out in the relevant chapters of this EIAR. The monitoring proposals are presented in terms of the monitoring requirement, frequency of monitoring and the mechanism for reporting results where applicable. By presenting the monitoring proposals in the below format, it is intended to provide a monitoring schedule that can be reviewed and tracked during all phases of the project to ensure all the required monitoring is completed as required.

15.2 EIAR Mitigation Measures

Table 15-1 Mitigation measures for the Pre-commencement, Construction, and Operational phases

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
Pre-Commencement Phase				
1	CEMP Section 1	All measures identified in this CEMP, which will be finalised subsequent to any permission granted and updated prior to construction will include all mitigation measures identified to be adhered to during the pre-commencement and construction phases of the Proposed Development.		
2	CEMP Section 4.1	Environmental Manager to monitor all site works and to ensure that methodologies and mitigation are followed throughout construction to avoid negatively impacting on the receiving environment.		
3	CEMP Section 4.2	The main contractor will be required to engage a qualified Project Ecologist to ensure that methodologies and mitigation are followed throughout construction to avoid negatively impacting on the receiving environment.		
4	CEMP Section 2.4.2.1	A new chain-link perimeter fence will be constructed on the eastern and northern boundaries of the extraction area within the site. The site gates will be locked and secured outside operating hours. Warning signs are placed and will be maintained at the quarry entrance and perimeter fencing. It is also proposed to install closed-circuit television (CCTV) security cameras (subject to planning permission) at the site, to monitor site operations. The contractor will be required to undertake the following.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Operate a Site Induction Process for all site staff. › Ensure all site staff shall have current 'Safe Pass' cards. › Maintain Site Security staff at all times. A parking area for construction workers vehicles will be provided within the site. There will be no parking permitted for any vehicles associated with the project on the public road during the construction phase of the development unless agreed with Clare County Council.		
Construction Phase				
Cement Based Products Control Measures				
5	CEMP Section 3.1.3	› No batching of wet-cement products will occur on site; › Ready-mixed supply of wet concrete products will be used; › Where concrete is used on site, only the chute will be cleaned, using the smallest volume of water practicable. Washout will be into a skip; › No discharge of cement contaminated waters to the site phase drainage system or directly onto bare ground; › The pour site (i.e. soil inspection shed floor slab) will be kept free of standing water and plastic covers will be ready in case of a sudden rainfall event; and › Weather forecasting will be used to plan dry days for pouring concrete.		
Fuel and Oil Control				
6	CEMP Section 3.1.4	› No plant maintenance will be completed on site. Any broken-down plant will be removed from the site to be fixed; › All plant and machinery will be serviced before being mobilised to site; › Refuelling will be completed in a controlled manner within the proposed refuelling area which will be served by an oil interceptor;		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Mobile double skinned bowser will be used outside the refuelling area; › A spill kit with absorbent material and pads in the event of any accidental spillages will be kept in the bowser. Drip trays and fuel absorbent mats will be used during all refuelling operations; › Refuelling will be carried out by trained personnel only; › Fuels stored on site during construction phase will be minimised. › Fuel storage areas will be served by an oil interceptor; and, › The plant used during construction will be regularly inspected for leaks and fitness for purpose.		
7	CEMP Section 4.3.5.1	› Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers. › If applicable, eliminate any sources of ignition in the immediate vicinity of the incident. › Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill. › If possible, cover or bund off any vulnerable areas where appropriate such as drains or watercourses. › If possible, clean up as much as possible using the spill control materials. › Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited. › Notify the applicant immediately giving information on the location, type and extent of the spill so that they can take appropriate action and further investigate the incident to ensure it has been contained adequately. › External consultants will inspect the site and ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring. › The applicant will notify the appropriate regulatory body such as Clare County Council if deemed necessary.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		Prevention Pollution Control Measures		
8	CEMP Section 3.1.2	› Prior to the commencement of earthworks, silt fencing will be placed down-gradient of the construction areas where surface water may drain towards local watercourses. These will be embedded into the local soils to ensure all site water is captured and filtered; › Drainage will be routed through a proposed full hydrocarbon interceptor and wetland area before discharging to the existing lagoons on the west of the site for final discharge to ground as permitted under existing discharge licence WP170. › Daily monitoring and inspections of any constructed site drainage channels during the construction phase will be completed; and › Any requirement for temporary fills or stockpiles will be sealed with the back of an excavator bucket, damped down or covered with polyethylene sheeting as required to avoid sediment release associated with heavy rainfall; › The majority of excavated spoil will be reused on site for the construction of berms and restoration works; › All excavated material which is not required for future restoration or berm works will be removed to an authorised waste recovery facility; › Earthworks will not take place during periods of high rainfall to reduce run-off and potential siltation of watercourses. 'High rainfall' is defined as follows: ○ >10 mm/hr (i.e. high intensity local rainfall events); or ○ >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); or, ○ Rainfall total greater than monthly average recorded in 7 consecutive days (prolonged heavy rainfall over a week).		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		Dust Control		
9	CEMP Section 3.2	› The hardstanding/roads adjacent to the site will continue to be regularly inspected by the Site Manager for cleanliness and cleaned as necessary. › Any hardstanding areas/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). › If necessary, sporadic wetting of loose stone and soil surface will be carried out during the construction phase to minimise movement of dust particles to the air. › The transport of material, which has significant potential to cause dust, will be undertaken in tarpaulin-covered vehicles. › Water spraying of stockpiles will be carried out when necessary to reduce the production of dust. › Water sprays will be used as required during transfer and loading activities, during dry and/or windy conditions. › All vehicles required to pass through the wheel wash on exiting the site. › All plant and machinery will be maintained in good operational order while onsite. › All plant and shall be stored in the dedicated compound area. › It is proposed that dust deposition monitoring using the Bergerhoff Method, be carried out in line with the existing monitoring requirements. › Following reinstatement, the area will be reseeded to facilitate immediate revegetation of the site and prevent dust generation.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		General Air Quality		
10	3.3	› All on-site plant and vehicles will be maintained in good operational order, thereby minimising any emissions that arise. › When stationary, delivery and on-site vehicles will be required to turn off engines. › Users of the site will be required to ensure that all plant and vehicles are suitably maintained to ensure that emissions of engine generated pollutants is kept to a minimum.		
		Noise Control		
11	CEMP Section 3.4	› In order to reduce the noise levels at Noise Sensitive Receptor SR1, an acoustic barrier of 3 metres height is proposed. › Regular maintenance of items of plant to ensure that they are operating efficiently; › Where practicable, location of noisy items of plant at the lowest part of the working quarry floor and as close to the quarry face as possible to provide optimum noise screening; › Regular maintenance of haul routes to avoid potholes and uneven surfaces; › Avoiding unnecessary revving of engines, reducing speed of vehicle movement and keeping lorry tailgates closed where possible; › Orienting directional noise away from sensitive areas where possible; and › Monitoring of noise will continue at the existing and proposed locations (as set out in Chapter 10) › All mobile equipment is throttled down or switched off when not in use.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		Traffic Management		
12	CEMP Section 3.5	› Warning signs / Advanced warning signs will be installed at appropriate locations in advance of the construction site access locations. › Speed limits of construction vehicles to be managed by appropriate signage, to promote low vehicular speeds. › Existing quarry traffic construction management plan to be followed. › Construction and delivery vehicles will be instructed to use only the approved and agreed means of access; and movement of construction vehicles will be restricted to these designated routes. › Appropriate vehicles will be used to minimise environmental impacts from transporting construction material, for example the use of dust covers on HGVs carrying dust producing material. › Parking of vehicles will be in the existing designated area on site. › Deliveries of construction materials will be planned to ensure that the materials are delivered only as they are required and will avoid peak hours when possible. › Checking public roads in the vicinity of the site for signs of spillages. A road sweeper is also available for use on site and adjacent sections of the R466 Regional Road at least on a weekly basis and/or if a spillage occurs. › On site wheel washing will be undertaken for construction vehicles to remove any debris prior to leaving the site, › Traffic on site will be controlled by the Facility Manager. › The weighbridge operator will provide the primary means of marshalling traffic.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
Biodiversity Management				
Otter Protection				
13	Chapter 5 Section 5.5.2.2.2	› All plant and equipment for use will comply with Statutory Instrument No 359 of 1996 "European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1996". › Operating machinery will be restricted to the Proposed Development site boundary. › Work will be completed during daylight hours. However, if lighting is needed for construction during certain periods over winter months, this lighting will be limited and will face downwards, with no lighting focussed onto surrounding habitats or watercourses. › Regular maintenance of plant will be carried out in order to minimise noise emissions. Particular attention will be paid to the lubrication of bearings and the integrity of silencers. › All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the works. › Compressors will be of the "sound reduced" models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers. › Machines, which are used intermittently, will be shut down during those periods when they are not in use.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
Bat Protection Measures				
14	Chapter 5 Section 5.5.2.2.4	› Working at night will be avoided. Where unavoidable, the following mitigations will be applied to carry out work in dark conditions: ○ Exterior lighting, during construction, shall be designed to minimize light spillage, thus reducing the effect on remaining foraging and commuting habitats i.e. Lighting will be directed away from linear features around the periphery of the site to minimize disturbance to bats. ○ Directional accessories will be used to direct light away from these features, e.g. through the use of light shields. ○ The luminaries will be of the type that prevent upward spillage of light and minimize horizontal spillage away from the intended lands. › All plant and equipment for use will comply with Statutory Instrument No 359 of 1996 "European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1996". › Plant machinery will be turned off when not in use. › Operating machinery will be restricted to the proposed works site area. › Four no. 2FN Woodcrete bat boxes will be erected on mature trees throughout the site to provide additional roosting opportunities. Bat boxes should have a southerly orientation and be positioned at least 2m from the ground (ideally 3m), away from artificial lighting. They will be placed adjacent to retained vegetation features such as treelines and hedgerows to ensure they are close to existing flight paths and can avoid wide open spaces (Collins, 2023). The exact location of the bat boxes will be determined by a qualified ecologist, however they will be placed within the south-eastern area of the site where tree loss is expected.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› A wildlife tower will be constructed at the north of the site to provide further roosting opportunities for bats, including lesser horseshoe bats		
		Invasive Species Control		
15		› Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (e.g., Himalayan Balsam, Japanese Knotweed etc.) by thoroughly washing vehicles prior to leaving any site. › All plant and equipment employed on the construction site (e.g., excavator, footwear, etc.) will be thoroughly cleaned down using a power washer unit prior to arrival on site to prevent the spread of invasive plant species. Wheel washing facilities will be provided at the site entrance. All washing must be undertaken in areas with no potential to result in the spread of invasive species. › All infill material required at the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present. › Should despite these measures any invasive alien species be introduced to site, these shall be dealt with in accordance with guidelines issued by the National Roads Authority - The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads (NRA, 2010).		
		Waste Management		
16	CEMP Section 3.7.2	› All waste will be collected in skips and the site will be kept tidy and free of debris at all times. › Waste oils and hydraulic fluids will be collected in leak proof containers and removed from the site for disposal or recycling. It is also essential that all		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		empty oil containers and other hazardous wastes should be disposed of in accordance with the requirements of the Waste Management Act, 1996. › All construction waste materials will be stored within the confines of the site, prior to removal from the site to a licensed waste facility. › No wastewater will be discharged on-site during the construction phase.		
Operational Phase				
Human Health				
17	Chapter 4 Section 4.6.3.1	› A site-specific Health and Safety Plan will be in place for the proposed facility. All site staff will be made aware of and adhere to the company Health and Safety Plan. › Only appropriately qualified and trained personnel will be permitted to operate machinery onsite. › Appropriate barriers and signage will be used. › The Proposed Development site will not be accessible to members of the public. › The site will also be secure to prevent the risk of trespass through signage and provision of barriers.		
General Air Quality				
18	Chapter 8 Section 8.4.4.1	› All on-site plant and vehicles will be maintained in good operational order, thereby minimising any emissions that arise. › When stationary, delivery and on-site vehicles will be required to turn off engines. › Users of the site will be required to ensure that all plant and vehicles are suitably maintained to ensure that emissions of engine generated pollutants is kept to a minimum.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		Dust Emissions		
19	Chapter 8 Section 8.4.4.2	› The hardstanding/roads adjacent the site will continue to be regularly inspected by the Site Manager for cleanliness, and cleaned as necessary. › The site access roads will be checked weekly for damage/potholes and repaired as necessary. › Any hardstanding areas/site roads with the potential to give rise to dust will be regularly watered, as appropriate, during dry and/or windy conditions. Water bowser movements will be carefully monitored, as the application of too much water may lead to increased runoff. › Water spraying of conveyors and stockpiles will be carried out when necessary to reduce the production of dust. › Water sprays will be used as required during transfer and loading activities, during dry and/or windy conditions. › The transport of material, which has significant potential to cause dust, will be undertaken in tarpaulin-covered vehicles. › All vehicles required to pass through the wheel wash on exiting the site. › Following reinstatement, the area will be reseeded to facilitate immediate revegetation of the site and prevent dust generation. › All plant and machinery will be maintained in good operational order while onsite. › All plant and shall be stored in the dedicated compound area.		
		Land, Soil, and Geology		
20	Chapter 6 Section 6.5.3	› Adoption of a suitable landscape and restoration plan which will be undertaken during the extraction phase and on completion of extraction. › The stripped topsoil will be used to form berms along the site boundaries and for the ultimate restoration of the site.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Sourcing material that is proven to be inert prior to transport to the site; › Pre-agreed source sites for inert material ensuring; no pollutants, unauthorised material, invasive species; › Regular checks of incoming loads to ensure the suitability of imported material within the purpose-built inspection shed; › The site will be operated under an Environmental Management System; › All required pollution prevention measures will be implemented at the site; › The operator will prepare and implement an Emergency response procedure; › The operator will complete environmental monitoring, including local groundwater and surface water monitoring; › Phased restoration of the site will be implemented, and end with the closure of site; › The operator will have a documented waste recording procedure for all material entering the site; and, › No unauthorised dumping of waste will be allowed at the site.		
Water Protection				
21	Chapter 7 7.4.7.2	› The following procedures will be put in place to ensure only suitable material is imported to the Proposed Development site: as per EPA Guidance on Soil Recovery Waste Acceptance Criteria (2020) and the Consultation Paper Regulation 27(7) National By-Product Criteria for Greenfield Soil and Stone used in Developments" (2022); › Pre-agreed source sites for inert material ensuring; no pollutants, unauthorised material, invasive species; › Testing of the imported soil material prior to arriving at site and additional testing if required within a purpose-built soil inspection shed; › The site will operate under a dedicated Environmental Management System; › All required pollution prevention measures will be implemented at the site; › The operator will prepare and implement an Emergency Response procedure;		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› The operator will complete environmental monitoring, including local groundwater monitoring; › Phased restoration of the site will be implemented, and it will end with the closure of site; › The operator will have a documented recording procedure for all material entering the site; and, › No unauthorised dumping of waste will be allowed at the Proposed Development site.		
22	Chapter 7 Section 7.4.7.5	› On site re-fuelling of machinery will be carried out in a dedicated refuelling area, or using a mobile double skinned fuel bowser outside the refuelling area. A dedicated refuelling area will be constructed as part of the Proposed Development. › No plant maintenance will be completed on site. Any broken-down plant will be removed from the site to be fixed; › Mobile double skinned bowser will be stored in the refuelling area › Drainage from the refuelling areas will be routed through a full hydrocarbon interceptor and a new wetland prior to final discharge to ground within the existing lagoons on the west of the site. There will be an inspection chamber between the wetland and the lagoon for inspection/sampling. › Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations; › Onsite refuelling will be carried out by trained personnel only; › The plant used during construction will be regularly inspected for leaks and fitness for purpose; › An emergency plan for the operational phase to deal with accidental spillages will be implemented as follows:		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Procedures and contingency plans will be set up to deal with emergency accidents or spills. The following steps provide the procedure to be followed in the event of oil/fuel spill or leak: › Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers; › If applicable, eliminate any sources of ignition in the immediate vicinity of the incident; › Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill; › If possible, clean up as much as possible using the spill control materials; › Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited; › Notify the Site Manager immediately giving information on the location, type and extent of the spill so that they can take appropriate action; and, › The Site Manager will inspect the site and ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring.		
Noise Control				
23	Chapter 10 Section 6.4.4	› In order to reduce the noise levels at NSR1, an acoustic barrier of 3 metres height is proposed. To serve as an acoustic barrier, the structure shall have a minimum surface mass of 10 kg/m^2.		
Traffic Mitigation				
24	Chapter 3 Section 3.5.4	› Adequate on-site parking is provided for employees and visitors cars; › Provision of on-speed restrictions; › Routing of vehicles with sensitive regard to local communities;		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› Ensuring that HGVs transporting material to the site are not overloaded; and › Checking public roads in the vicinity of the site for signs of spillages. A road sweeper is also available for use on site and adjacent sections of the R466 Regional Road at least on a weekly basis and/or if a spillage occurs.		
Invasive Species Management				
25	CEMP Section 3.6	The treatment and control of invasive alien species will follow the guidelines set out in the Invasive Species Management Plan (ISMP), included as part of this EIAR. These control methods are summarised in the following sections.		
26	Chapter 5 Section 5.5.3.1.2	› Prior to the commencement of any works, a pre-commencement survey for Himalayan Knotweed will be undertaken by a fully qualified ecologist to determine the locations and extent of the species within the development site and to determine whether there have been any changes in the extent of the infestation since the undertaking of surveys in 2023 & 2024. › The locations and extent of Himalayan Knotweed within Proposed Infill Boundary and north of the man-made pond will be clearly marked out using temporary fencing to ensure they are not disturbed. An exclusion zone surrounding each stand will also be identified and they will inform the extent of the area to be treated as potentially contaminated. The exclusion zone will be 7m. › Toolbox talks will be held with all members of the contractor's team responsible for carrying out measures detailed in this management plan. This will detail locations of infested material and how to carry out work on site in a biosecure way. › Areas infested with Invasive Alien Plant Species (IAPS) will be clearly identified and the specific sites of infestation isolated with fencing or warning tape. › 'Biosecure zone' signs will be erected at each contaminated site to alert workers that IAPS are present and to avoid entering or interfering with these		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		sites. Likewise, any stockpiles of soil that are or could be contaminated with IAPS must be clearly marked. › Designated and clearly marked cleaning and/or disinfection stations will be strategically placed within the work site for use by staff, vehicles and machinery. › Where it is necessary to work in contaminated areas, vehicles with caterpillar tracks will be avoided. › As a precautionary measure, machinery will be thoroughly cleaned down before entering the site to prevent potential spread of invasive species from elsewhere. › All vehicles and equipment that have been used in IAPS control operations will be thoroughly pressure-washed in a designated wash-down area each time they leave the works site and once work in that area has been completed. This also includes footwear, personal protective equipment (PPE), tools, and other light equipment. It is important to remove soil that may contain seeds or plant fragments, which otherwise could be transported along the road corridor as works are being undertaken. › Vehicles leaving contaminated area(s) will either be confined to marked haulage routes protected by root barrier membranes, or be pressure-washed before leaving the area. Only vehicles that are deemed to be biosecure (i.e. sealed so that no soil can escape) shall be used to transport contaminated soil and all will be thoroughly pressure-washed in the designated washdown area before exiting the infested area. › The clean-down area will be underlain with an impermeable membrane such as a radon barrier to prevent contamination resulting from this operation. In addition, a boot wash with a stiff brush will be installed at the edge of the exclusion zone for pedestrian use.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
27	Chapter 5 Section 5.5.3.1.2	› Prior to the outset of works, the plant will be sprayed with herbicide that is suitable for use in or near water such as Glyphosate or 2,4-D Amine. This will be undertaken to reduce above ground biomass. This will be undertaken between May - September or before leaves discolour and fall. Spring treatment is also an option but less effective. The majority of herbicides require living foliage to take up the active ingredient, therefore the more foliage the greater the uptake. Spraying will be undertaken twice, once in early summer (May) and again in autumn (September) to achieve maximum results. Spraying will be carried out by a competent person adhering to the specific label instructions. › Note: After the above spraying schedule, it is still possible for regrowth to occur. Additionally, root materials may still be viable within the soil (can remain viable up to 20 years) and any disturbance to the soil is likely to stimulate more growth. For this reason, it is necessary to carry out both chemical and physical treatment in order to obtain full eradication of the plant. Physical removal of the plant is described below in detail and within the Invasive Species Management Plan (which is included as Appendix 5-3 of Chapter 5).		
28	Chapter 5 Section 5.5.3.1.2	› Particular care is required in relation to the disposal of Japanese and other knotweed species. Where burial is being used to dispose of these species, a non-persistent herbicide shall be applied to the infestation prior to excavation. The material shall then be excavated and subsequently buried to a minimum depth of 5m. The waste shall be covered with a proprietary root barrier membrane layer and infilled with a minimum 5m depth of uncontaminated soil. › Any geotextile membranes used for burial must be undamaged, sealed securely, have a manufacturer's guarantee that it will remain intact for at least 50 years, and be Ultraviolet (UV) resistant. Where burial to a depth of 5m is		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		not possible, the infestation shall be treated with a non-persistent herbicide prior to excavation, excavated and then completely encapsulated in a proprietary root barrier membrane cell. The upper surface of the cell shall be buried to a depth of at least 2m with uncontaminated soil. › Clean down will be carried out using brushes and shovels and power washing will be avoided. This is to prevent potentially contaminated run-off spreading outside the Proposed Development site. › Once the machinery has been cleaned down as much as possible in the dry, the machines will be power-washed, or air blasted to remove any remaining material. The machine will track out of the cell over plywood or other suitable material in order to protect the machine from potential contamination while exiting the contaminated cell area. › Material used for tracking machinery out of the cell will be thoroughly cleaned down under supervision of the invasive species specialist prior to removal off site.		
29	Chapter 5 Section 5.5.3.1.2	› Once burial is complete, in order to prevent potential re-growth of rhizomes, infested areas will be overlain with a solid root barrier membrane. The root barrier membrane must stay intact for at least 50 years. A manufacturers' guarantee is required. This will be sized and installed under the supervision of a suitably qualified ecologist and in accordance with the relevant guidelines. › A layer of no sharps sand or equivalent will be placed on the ground beneath the membrane to ensure that there are no opportunities for it to become ripped. The membrane will be inspected for damage prior to it being laid. › Ideally, the membranes would consist of a single sheet with no joints. However, if joints are necessary, they will be sufficiently overlapped and sealed with a solid seam (either glue, heat or tape as per manufacturer's recommendations).		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› The supervising ecologist will oversee the installation of the membrane and determine whether further measures are required to prevent lateral spread of the plant outward from under the excavated area. › Following satisfactory laying of the membrane, it will be covered with a 50mm sand layer and then a solid concrete cap for extra protection. › Once the soil has been removed, the membrane placed and the slab poured, the site will be considered uncontaminated for the purposes of continued works. › A record will be kept of the affected areas and no further excavations or below ground works will be permitted in these areas.		
30	Chapter 5 Section 5.5.3.1.2	› No ground works should take place on site prior to the application of the site-specific Invasive Species Management Plan (ISMP). The ISMP will ensure all measures are taken to avoid the spread of species listed on the Third Schedule. › Ensure all visitors to the site are made aware of the location of the Himalayan Knotweed recorded and are familiar with its characteristics and method of reproduction. › Machinery operatives and all staff will be given a Toolbox Talk on Himalayan Knotweed and the risks associated with the Third Schedule invasive species prior to any works commencing in either of the Knotweed exclusion zones. › Only people familiar with identifying Himalayan Knotweed will be allowed to work in close proximity to the plant species. › A clearly defined bio-secure clean-down area will be established. Additionally, all bio-secure clean-down area associated measures will be carried out. › No works will take place within the Himalayan Knotweed exclusion zone other than those prescribed in the Invasive Species Management Plan. › All excavation works within the exclusion zone will be supervised by the contractor's ecologist.		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› All measures prescribed in the Himalayan Knotweed management plan will be incorporated into the contractor's respective method statements for works where Third Schedule invasive species occur. › All soil, river dredge and inert materials imported to infill and regrade the Proposed Infill Boundary will be screened for invasive species by a suitably qualified ecologist before transportation to the site. › All machinery should be thoroughly cleaned down prior to arriving on the site to avoid the potential spread of invasive species from elsewhere. › Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (e.g., Himalayan Balsam, Japanese Knotweed etc.) by thoroughly washing vehicles prior to leaving any site. › All plant and equipment employed on the construction site (e.g., excavator, footwear, etc.) will be thoroughly cleaned down using a power washer unit prior to arrival on site to prevent the spread of invasive plant species. Wheel washing facilities will be provided at the site entrance. All washing must be undertaken in areas with no potential to result in the spread of invasive species. › All infill material required at the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present. › Despite these measures, should any invasive alien species be introduced to site, these shall be dealt with in accordance with guidelines issued by the National Roads Authority - The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads (NRA, 2010). › Should despite these measures any invasive alien species be introduced to site, these shall be dealt with in accordance with guidelines issued by the National Roads Authority - The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads (NRA, 2010).		

Mitigation Measure	Reference Location	Mitigation Measure	Audit Result	Action Required
		› The following management is to be employed when dealing with the medium impact invasive species Buddleia: › As per Transport Infrastructure Ireland (TII) guidelines Buddleia is to be physically removed prior to commencement of construction by excavating all instances of Buddleia from within the site boundary. Care is to be taken to remove all traces of Buddleia from the site as broken branches can root and form new plants.		
Bat Protection Measures				
31	Chapter 5 Section 5.5.3.2.1	› Working at night will be avoided. › All plant and equipment for use will comply with Statutory Instrument No 359 of 1996 "European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1996". › Plant machinery will be turned off when not in use. › Operating machinery will be restricted to the proposed works site area.		
Waste Management				
32	CEMP Section 3.7.2	› All waste will be collected in skips and the site will be kept tidy and free of debris at all times. › Waste oils and hydraulic fluids will be collected in leak proof containers and removed from the site for disposal or recycling. It is also essential that all empty oil containers and other hazardous wastes should be disposed of in accordance with the requirements of the Waste Management Act, 1996. › All construction waste materials will be stored within the confines of the site, prior to removal from the site to a licensed waste facility. › No wastewater will be discharged on-site during the construction phase.		

15.3 EIAR Monitoring Measures

Table 15-2 Monitoring measures for the Pre-commencement, Construction, and Operational phases

Monitoring Measure	Reference Location	Monitoring Measure	Audit Result	Action Required
Construction Phase				
1	CEMP Section 4.1	Environmental Manager to monitor all site works and to ensure that methodologies and mitigation are followed throughout construction to avoid negatively impacting on the receiving environment.		
Biodiversity				
Badger Monitoring				
2	Chapter 5 Section 5.5.2.2.1	Prior to the commencement of construction works associated with the Proposed Development, the following measures will be undertaken for the avoidance of disturbance and/or direct mortality to badger and to ensure no setts have been established since the original surveys undertaken. The following measures are in line with *Guidelines For The Treatment Of Badgers Prior To The Construction Of National Road Schemes* (NRA 2009). › From a precautionary basis, a pre-commencement badger survey will be undertaken in accordance with standard best practice guidance prior to the commencement of site works to ensure that no additional setts in close proximity to the site works have been built. In the event that a badger sett is identified within or immediately adjacent to the Proposed Development footprint, mitigations as per the above referenced TII document will be implemented for the new sett.		

Monitoring Measure	Reference Location	Monitoring Measure	Audit Result	Action Required
		Otter Monitoring		
3	Chapter 5 Section 5.5.2.2.2	› No signs of otter were found during the dedicated otter surveys. However, from a precautionary basis, pre-commencement survey for otter will be carried out prior to any works commencing. Should otter holts be recorded within 150m of the proposed works, a derogation license will be obtained from NPWS and works carried out in accordance with National Road Association (NRA) (2006) *Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes*. The otter survey will be carried out no more than 10 months in advance of commencement.		
		Pine Marten Monitoring		
4	Chapter 5 Section 5.5.2.2.3 and Section 5.5.3.2.2	› From a precautionary basis, a pre-commencement pine marten survey will be undertaken in accordance with standard best practice guidance prior to the commencement of site works to ensure that no refuges/dens in close proximity to Proposed Development site works have been built. › A pre-commencement sand martin survey will take place during the breeding season (March-August inclusive), at the locations of the burrowing nests found within the Proposed Extraction Boundary during the 2023 surveys. Dedicated surveys will determine if the previous year's nests are active and if additional nests have formed in the interim. ○ If the tunnelling nests are found to be occupied by sand martin, the excavation works within the proposed excavation boundary will be undertaken in accordance with the provisions of the Wildlife Act 1976, as amended.		

Monitoring Measure	Reference Location	Monitoring Measure	Audit Result	Action Required
		Bat Monitoring		
5	Chapter 5 Section 5.5.2.2.4	A pre-commencement survey will be undertaken on trees proposed to be felled by a qualified ecologist to ensure there are no roosting bats at the time of felling. The requirement for a pre-construction survey does not represent a lacuna in the survey assessment but is fully in line with industry best practice. The function of this survey will be to assess the baseline environment since the time of undertaking the surveys in 2023. If a bat roost is identified within any of the trees to be removed, a bat derogation licence will be obtained from the National Parks and Wildlife Service (NPWS), prior to felling and the felling activity will be supervised by a qualified ecologist. › The pre-commencement survey will involve an inspection and/or dusk emergence survey of potential roosting features on the trees to be felled. Due to the potential for use by roosting bats at any time of the bat activity season, and potential use during winter, the following precautionary measures are also recommended: › Trees will be nudged two or three times prior to limb removal, with a pause of 30 seconds in between, to allow potential bats to wake and move. › Felled trees will be left in-situ for a minimum of 24 hours prior to sawing or mulching, to allow any bats present to escape (National Roads Authority, 2006)[1].		

[1] *National Roads Authority (2006) Guidelines for the treatment of badgers prior to the construction of National Road Schemes.*

Monitoring Measure	Reference Location	Monitoring Measure	Audit Result	Action Required
Construction and Operational Phases				
Groundwater Quality Monitoring				
6	Chapter 7 Section 7.4.9	Groundwater quality monitoring will be completed during the construction and operational phases (extraction & infilling) and for 1 year following the closure of the Proposed Development site. Monitoring will be completed on a quarterly basis at existing wells GW1-GW4		
Dust Monitoring				
7	Chapter 8 Section 6.4.3.2	› Dust monitoring at the existing quarry site is undertaken monthly by BHP Laboratories on behalf of Roadstone. The dust monitoring records are submitted to Clare County Council to ensure compliance with Condition 9 of the planning permission no. P17/552 for the importation of inert materials for the purpose of restoration. › It is proposed that dust deposition monitoring using the Bergerhoff Method, be carried out in line with the existing monitoring requirements.		
Noise Monitoring				
8	Chapter 10 Section 10.3.2	› BHP Ltd has been carrying out annual noise surveys at the Roadstone facility within Ballyquin, Co. Clare. Noise monitoring was carried out for a period of 15 minutes at 4 locations on a biannual basis. › Monitoring of noise will continue at the existing and proposed locations (Chapter 10).		