Lobinstown Quarry

Environmental Impact Assessment Report

Appendix 16

Mitigation Summary

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APPENDIX 16. MITIGATION SUMMARY

In preparing this EIAR, regard was given to the relevant guidelines and recommendations set out in the 'Advice Notes on Current Practice in the Preparation of Environmental Impact Statements', Draft (EPA 2015) and the recently published 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' (EPA 2022).

Under Clarity of Mitigation & Monitoring Measures, Section 3.8.4 of EPA (2022), the guidance states:

'The commitment to all mitigation and monitoring measures need to be made clear in the EIAR. Terms such as …is recommended or …should be considered need to be avoided. All commitments need to be clear and specific.

For ease of reference and clarity, and to facilitate enforcement, all such measures contained in an EIAR can be included in a compendium of mitigation and monitoring commitments (only). This may be a separate section or appendix to the EIAR. Such a compendium should comprise a list of relevant measures but should not elaborate on the reasoning or expected effectiveness of those measures, as the elaboration will take place within the main body of the EIAR.'

Consequently, in this Appendix, we have generated the following Summary of Mitigation Measures to be implemented on site, subdivided under the topics Project Description and each of the eleven environmental factors.

EIAR		Summary of Mitigation Measures
Section	**Title**	
3	**Description of Proposed Development**	
3.2.2.1	Development Overview	• Consideration given to direction of working, phasing of development and progressive restoration of quarry faces (particularly upper southern quarry face) to reduce the visual impact from views to the north. • Waters will be collected in quarry sump and will be pumped to settlement lagoon via a hydrocarbon interceptor prior to discharge. Discharge at the northern boundary of existing quarry into Killary Stream is in compliance with current, valid trade effluent discharge licence (DL. 20/01). • Fuel tank for on-site refueling of some site vehicles, mobile plant and machinery is double-skinned. For larger mobile plant such as crushers and screeners, refuelling takes place on the quarry floor on an as-needs basis by a mobile fuel truck. • Spill trays and spill kits are provided • Hauliers HGVs will not be refuelled onsite. • Servicing of vehicles will take place off-site. • All hydrocarbons will be handled and stored in accordance with the Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals) (EPA 2006). • Proximity to residences and requirement to protect their amenity value has been given due consideration through scale, siting and layout of plant and machinery, phasing and direction of working and site restoration. • A working scheme has been designed for the quarry that provides for the sequence and direction of working with the objective of reducing, as far as possible, the overall visual impact of the workings. • The entranceway has substantial splays providing good visibility. Sight distances at the site entrance of at least c. 160 m are achievable in each direction along the L1603 at a distance of 3 m back from the hard shoulder, as required under P.A. Ref. LB200106. • Hedges and trees near the quarry entrance will continue to be maintained regularly in order to maintain these sightlines.
3.2.2.2	Description of Design	• Main site activity, including mobile processing plant, will continue to be sited on quarry floor and thus be screened by quarry faces, perimeter berms, hedgerows and trees. • A perimeter screening berm will be constructed from the stripped overburden and augmented with trees and hedgerow planting.

3.2.2.3	Description of Size and Scale	• Perimeter earthen berm will be constructed and seeded on the perimeter boundaries of the proposed extension and the site of the readymix plant in the field north of the drainage ditch and south of the Killary Stream. • The quarry will continue to be worked from existing quarry area in an easterly direction with consideration given to direction of working, phasing of development and progressive restoration of quarry faces (particularly upper southern face) to reduce the visual impact from views to the north.
3.3.1.1	Land-Use	• Existing quarry is bounded by thick, mature hedgerows on all boundaries, while the proposed extension is only partly bounded by field boundary hedgerows and elsewhere traverses open fields. These new boundaries will be secured with stock fencing and earthen berms will be constructed and planted. • Eastern limit of the proposed extension is restricted by the presence of a 220 kV transmission line that traverses the eastern side of the landholding. A 10 and 20 m standoff will be maintained to the application and extraction areas, respectively. • The quarry has been worked below the water table, and in order to maintain a dry working environment on the floor of the quarry, some rainfall-runoff and groundwater is discharged from site in compliance with discharge licence Ref. 20/01.Discharge of water from the settlement lagoon at the northern boundary of the existing quarry into the adjacent Killary Stream is subject to the requirements of an existing trade effluent discharge licence (DL. 20/01) granted by Meath County Council on 16th November 2020. • Consideration has been given to screening of the development, phasing and direction of working and restoration of the upper quarry face with respect to receptors so as to reduce the visual impact, while impacts due to noise and dust are substantially attenuated.
3.3.1.2	Aggregate Reserve Assessment	• The following design constraints were incorporated into the calculations (i.e., standard criteria were adopted with regard to face heights, bench widths, haul road design, etc.): • 1:2 Side slopes for soils and construction of screening berms. • 1:10 Longitudinal gradient for internal haul road ramps within the quarry. • Provision for construction of 1.5 m high safety berms along quarry ramps. • Quarry working face at 80°. • 10 m residual benches between subsequent benches. • Site will be worked from the existing quarry area in an easterly direction in a series of c. 15 m benches between c. 105 and 35 m OD.
3.3.1.3	Preliminary Development Works	• Within the proposed quarry extension area, preliminary works will include the stripping of soils and overburden. The soils and overburden once stripped will be utilised to the benefit of the overall development as follows: • Construction of screening embankments at strategic locations around the site;

		• Progressive restoration of some of the areas of the existing quarry that have been previously worked out. • The perimeter of the entire working area is/will be secured in accordance with the requirements of the Safety, Health and Welfare at Work (Quarries) Regulations.
3.3.1.4	Access	• Access to the proposed development is directly onto the L1603 local road. All materials from the site are transported directly via McEntegart's Crossroads c. 1.5 km to the north or the Sally Gardens Crossroads and Harlinstown Cross Roads c. 3.8 and 7.7 km, respectively, to the south. At the quarry access junction on the L1603, when travelling to/from the quarry, it is anticipated that development traffic will be split 30:70 to the north and south, respectively, along these two haulage routes. • Entranceway has a well spayed, paved and secure entrance with a lockable gate and CCTV coverage. • Sight distances at the site entrance of at least c. 160 m are achievable in both directions along the L1603 at a distance of 3 m back from the edge of the carriageway, which is considered adequate for the prevailing vehicle speeds on the L1603. • Hedges and trees near the quarry entrance will be maintained regularly in order to ensure that the sightlines at the access are kept clear at all times. • The 350 m section of the internal access road extending from the main entrance to the weighbridge office is paved. The access road is c. 9 m wide with an asphalt surface and accommodates two-way HGV traffic flow. • Signage, bollards and speed bumps are also used to control internal traffic. A speed restriction of <15 kph applies to all vehicles along the road. • A wheelwash is already in-situ and will ensure that the wheels and undersides of all vehicles transporting aggregate from the site onto the public road are cleaned. • A weighbridge is also in-situ to ensure that all vehicles transporting materials are weighed prior to exiting site and meet weight restriction requirements for commercial HGV's. • Warning signs are displayed at appropriate intervals along the property and excavation boundary. • Existing boundaries around the site perimeter will be maintained and will be reinforced, where necessary. The boundaries will be maintained in accordance with the operator's obligations under various health and safety legislation. • The access gate is kept padlocked outside of the normal working hours unless exceptional circumstances require otherwise.
3.3.1.5	Site Drainage	• Potential impacts to the European sites are highly unlikely given the distance of water and potential contaminant assimilation and removal over 43 km downstream flow path. The intervening freshwater and estuarine water bodies would involve dilution to the extent that a pollution event would be imperceptible at 1 km from the application site boundary. Monitoring results suggest that the Section 4 compliant discharge is completely assimilated within 100 m of the site. • There is an extensive array of established, proven, water management components already in use at the site, which were specified in the Section 4 Discharge Licence (DL. 20/01) issued by Meath County Council in November 2020. These are designed to retain waters, attenuate for the required duration to remove solids, intercept contaminants (oil interceptor), and provide a mechanism of discharge (diffuse on a plinth) that would ensure protection of the receiving water.

		• The established water management system includes the following:
		  • The floor sump in the south of the working bedrock extraction area.
		  • A western lagoon that collects rainfall runoff water from the road that is used by trucks entering and leaving the site.
		  • A fully functioning wheelwash and associated sump and silt settlement system.
		  • A final lagoon that receives water pumped from the floor sump and the western sump.
		  • A Class 1 oil separator.
		  • A flow meter.
		  • A discharge pipe with concrete plinth to diffuse and aerate discharge water as it is delivered to the receiving water.
		• The only parameter that has the potential to change is the Suspended Solids (SS) concentrations arising - SS can change with blasting and workings. The site discharges an average concentration of 3 mg/l SS, while the permitted ELV for SS is 20 mg/l (DL. 20/01), such that the site uses 15% of the ELV.
		• There is significant capacity available in the Discharge Licence conditions, underutilised treatment capacity and treatment function in the 'as built' settlement lagoons, such that the chemistry of all the water anticipated to be encountered by the proposed extension can be accommodated and treated by the existing infrastructure. The proposed development's waters will be adequately treated and appropriately attenuated in compliance with the existing site discharge licence without the need for any additional water treatment infrastructure.
		• Given the hydraulic capacity is 3,105 m^3 of the final settlement lagoon and the maximum discharge rate is 1,728 m^3/d, there is a guaranteed 1.75 day retention time in the settlement lagoons, which is significantly greater than best practice specifications for retention times for settlement of solids.
		• Risks to surface water and groundwater on-site relate primarily to the use and storage of hydrocarbon liquids. A double skinned fuel tank is provided on-site for refueling of some mobile plant and machinery.
		• For larger mobile plant such as crushers and screeners, refuelling takes place on the quarry floor on an as-needs basis by a mobile fuel truck.
		• Hauliers HGVs will not be refuelled onsite.
		• Servicing of vehicles will take place off-site. Small amounts of oils and lubricants will be stored on-site for use on mobile equipment.
		  • Spill trays and hydrocarbon spill kits will continue to be provided as necessary.
		  • The operator has in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation.
		  • Road sweeping – regular sweeping of paved areas including the site entrance will continue to be carried out to ensure public roads in the vicinity remain free from sediment derived from the quarry.
		  • The site access from the wheelwash to the entrance has been paved.
		• All hydrocarbons will be handled and stored in accordance with the Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals) (EPA 2006).

3.3.3.1.2	Environmental Management & Monitoring	• Breedon Ireland has established an environmental management system (EMS), which is accredited to ISO 14001:2015 standard and the Quality Management standard ISO 9001:2015.
		• The integrated management system IMS is a two-tier system with this top-level Environmental Manual based on ISO EN 14001:2015 being applicable to all activities. The top-level Quality manual then feeds down to the Factory Production Control (FPC) Quality Plans and the depot specific Environmental Management Plans.
		• The IMS will ensure that the objectives and targets that the Company sets themselves in the environmental and quality policies are appropriate.
		• The Environmental Management Plans (EMP's) are depot specific and have been designed to comply with the requirements of ISO EN 14001:2015. The EMP's record the procedures and controls in place to reflect the Quality System and the specific environmental aspects and impacts and the legislative requirements applicable at each depot.
		• The Operations Director will implement the company requirements at regional level and is responsible for the establishment of the EMS.
		• The Head of Land, Minerals & Environment is responsible for ensuring that the company's EMS requirements are implemented and maintained in order to comply with the requirements of ISO 14001.
		• The Depot (Operations) Manager implements the day-to-day requirements of the EMS at depot level and will report on the effectiveness of the operation of the EMS.
		• The Managing Director will ensure that sufficient resources are allocated to the system to ensure its satisfactory operation.
		• The Environmental Management Plan (EMP) for the Lobinstown Quarry will be updated in accordance with any new planning consents or licences.
		• Detailed procedures to be followed in respect of monitoring for the purpose of demonstrating compliance with Permits/ Licences, etc. are outlined in the Depot Procedures Manual. Monitoring procedures, recording, and reporting procedures and specific procedures for dealing with non-compliances, and corrective actions are outlined in these procedures.
		• The EMP for the quarry will include regular monitoring activities (e.g., Water, Blasting, Noise and Dust) to demonstrate that the development is not having an adverse impact on the surrounding environment.
		• The facility will also be operated in accordance with current relevant guidance issued by the EPA and DoELHG, i.e.;
		  • Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals), have been produced by the EPA (EPA 2006); and
		  • Quarries and Ancillary Activities – Guidelines for Planning Authorities (DoEHLG 2004).
		• The results of any future monitoring programme will be recorded and placed on file at the site office and will be submitted to Meath County Council as required for their review and records.
		• The monitoring programs will be compiled to demonstrate compliance with any environmental conditions attached to any decision to grant planning permission, and also to ensure that the development is not having an adverse impact on the surrounding environment.

3.3.3.2	Working Hours	• The operating hours for the quarry are in accordance with Condition No. 10 of the existing planning permission (PA. Ref. LB200106). *"No quarrying activities including extraction shall be carried out on the site between 18:00 and 07:00 hours on Monday to Friday, 00:00 to 07.00 hours*

		and 14:00 hours to midnight on Saturdays, and at no time on Sundays or Public holidays. No rock-breaking activity shall be undertaken within any part of the site before 08:00 hours on any day." • These operating hours are also consistent with Condition No. 4 of P.A. Ref. 22/328.

3.3.3.4	Management of Topsoil & Overburden Soils	• Topsoil and subsoil stripped to obtain access to the underlying greywacke resource will be used directly for construction of peripheral screening berms to aid attenuation and visual impact or is stored for later restoration.
		• The storage areas are vegetated as soon as possible to reduce both visual impact and erosion.
		• Stripping is carried out in accordance with the principles of good soil handling. These principles are aimed at reducing possible adverse effects such as smearing and compaction of the soil. Measures which are to be incorporated to achieve this aim include:
		  • Storage of soils within perimeter security / screening embankment of the site. This is to allow the vegetation of these screening embankments as soon as possible;
		  • Placement of soils directly on completed sections of the quarry as part of the final quarry restoration;
		  • Soils are not handled in wet conditions or when the moisture content of the soils is too high. This will ensure that smearing of the soils does not take place and that the soil retains its structure;
		  • Soils are not stripped or placed when the moisture content is high, i.e., after heavy rainfall;
		  • No soils are moved when they are too dry or when there are unusually windy weather conditions. This will help to prevent erosion and any consequential creation of dust;
		  • All temporary storage mounds are given slope angles not greater than 1:1.5 and are re-vegetated as quickly as possible to avoid soil erosion by air and water; and
		  • Topsoil is stored to a height not exceeding 3 metres to preserve organic constituents.

3.3.3.5	Method of Extraction	• Drilling and blasting will continue to be used with processing of extracted rock using mobile crushing and screening plant located within the quarry floor. This will have the benefit of screening these activities from outside views, and being at depth, will also mitigate impacts associated with noise and dust.
		• The operator will ensure that the drilling contractor uses a drill rig that is properly maintained and is fitted with adequate noise suppression and dust control/ extraction equipment to reduce any impact arising from drilling operations.
		• Blasting will be undertaken by Irish Industrial Explosives, who hold a current explosive licence, and will use standard blasting procedures that have been long established at this location. One of the objectives of the procedures is to ensure safety of all persons and property.
		• Blasting in quarries gives rise to ground transmitted vibrations as well as air overpressure, which also may be perceptible at nearby residences. Blast management practice at this quarry will include several mitigation measures, such as:
		  • Best professional practice in the design and execution of blasting.
		  • Only certified Shotfirers are used to conduct blasting.

		• Millisecond time delays are used in sequential detonation of the explosives to limit the maximum instantaneous charge. • Explosive charges are properly confined by a sufficient quantity of quality stemming material. • The following measures will be considered to reduce the effects of blasting: • Optimise blast design; • Monitor blasts and revise blast design, as required; • Limit ground borne vibration and minimise air over pressure by: • Taking care in unusual situations e.g., corners; • Including geological considerations in blast design; • Air overpressure is minimised through proper blast design, avoiding detonation of large unconfined charges, and by consideration of atmospheric conditions before blasting; • A blast must be carried out on a specified day as concerns over security does not allow for explosives to be stored on-site. In exceptional circumstances or unforeseen circumstances (e.g. late delivery, security, meteorological conditions, etc.) a blast may be delayed or brought forward. Where possible the operator should endeavour to inform the public of the revised blasting timetable; • Adequate stemming of holes; • Ensure the correct blasting ratio is obtained. The blasting ratio is a measure of the amount of work expected per unit volume of explosives i.e., tonnes/kg. • Notify nearest residences prior to the blast. • Conditions No. 12 of planning permission P.A. Ref. LB200106 states: • 12 (a). Vibration levels from blasting shall not exceed a peak particle velocity of 12 millimetres/second, when measured in any three mutually orthogonal directions at any sensitive location. The peak particle velocity relates to low frequency vibration of less than 40 hertz where blasting occurs no more than once in seven continuous days. Where blasting operations are more frequent, the peak particle velocity limit is reduced to eight millimetres per second. Blasting shall not give rise to air overpressure values at sensitive locations which are in excess of 125 dB (Lin)max peak with a 95% confidence limit. No individual air overpressure value shall exceed the limit value by mow than 5 dB (Lin). • (b) A monitoring programme, which shall include reviews to be undertaken at annual intervals, shall be developed to assess the impact of quarry blasts. Details of this programme shall be submitted to, and agreed in writing with, the Planning Authority prior to commencement of any quarrying works on the site. This programme shall be undertaken by a suitably qualified person acceptable to the Planning Authority. The results of the reviews shall be submitted to the Planning Authority within two weeks of completion. The applicant shall carry out any amendments to the programme required by the Planning Authority following this annual review. • Ground vibration and air overpressure measurements will continue to be undertaken taken at agreed residences within the area as per the requirement of Condition No. 11 of planning permission PA. Ref. LB200106:

		• 11 (a) Blasting operations shall take place only between 1000 hours and 1700 hours, Monday to Friday, and shall not take place on Saturdays, Sundays or Public holidays. Monitoring of the noise and vibration arising from blasting and the frequency of such blasting shall be carried out at the applicant's expense by an independent contractor who shall be agreed in writing with the Planning Authority. • (b) Prior to the firing of any blast, the applicant shall give notice of his intention to the occupiers of all dwellings within 500 metres of the site in accordance with the further information date received 21/09/20. An audible alarm for a minimum period of one minute shall be sounded. This alarm shall be of sufficient power to be heard at all such dwellings. • The local community will continue to be informed by the Company of the blasting schedule as follows: • Residences within 500 m of the quarry will be provided with a minimum of 24 hours' written notice of intention to blast. • On the day of the blast a clearly audible warning siren is sounded before each blast. When blasting operations are completed an ALL CLEAR siren is sounded. • Breedon have in place a ''Blast Notification Procedure & Blast Monitoring Programme'', which will be amended as necessary on any future grant of planning permission for the quarry development.
3.3.3.6	Extraction Design & Phasing	• The site will continue to be worked from the existing quarry area in an easterly direction in a series of typically 15 m high with consideration given to direction of working, phasing of development and progressive restoration of quarry faces (particularly upper southern quarry face) to reduce the visual impact from views to the north. • The development will be worked in a phased manner to ensure full implementation of the mitigation and restoration measures proposed. The existing workings have been incorporated into the overall phasing of the scheme to ensure a consistent approach to landscaping and restoration within the entire project area. • Development of the quarry at depth below the current floor will require continued dewatering of rainfall-runoff and groundwater infiltration with discharge to surface water in order to maintain a dry working environment on the floor of the quarry. • The site's existing water management system, including settlement lagoons, is of sufficient capacity to adequately treat and appropriately attenuate waters arising under the conditions of the existing Section 4 Discharge Licence. • The working scheme has been phased with consideration given to implementation of landscaping proposals and restoration of worked out areas. The quarry will be worked top-down in successive benches, with progressive restoration of the upper back southern face to reduce the visual impact. The proposed development will enable full restoration of the existing quarry and extension to beneficial after-use. • All crushing and processing will be carried out on the quarry floor being screened by the quarry face and perimeter screening berms. • The landscaping & restoration plan will minimise the impact of quarrying on the existing landscape of the area both now and into the future. • A further 2 years will be required to implement and complete final restoration of the site to a secure wildlife refuge/ amenity use. The proposed development will also enable the operator to fully complete the restoration of both the proposed and existing quarry areas to beneficial after-use.

3.3.3.7	Stability of the Workings	• A detailed working scheme/restoration plan has been prepared by a qualified mining engineer, which adopted standard criteria with regard to face heights and slopes, standoffs to site boundaries, etc. • Excavations at the site will also be subject to the requirements of the Safety, Health and Welfare at Work (Quarries) Regulations, which replace the existing provisions in the Mines and Quarries Act 1965, various Regulations relating to quarries made under that Act, and the provisions of the Safety, Health and Welfare at Work (Extractive Industries) Regulations, 1997 (S.I. No. 467 of 1997), as it relates to quarries. • The Regulations are accompanied by a comprehensive set of guidelines outlining how the regulations should be implemented.
3.3.3.8	Processing Methods	• A wheeled loading shovel and / or backhoe excavator will be used to feed the blasted rock to the mobile crushing and screening plant, which will be relocated close to the working face so as to reduce handling of materials. • Stockpiles will be strategically placed on the quarry floor area to reduce as much as possible their visibility from local residences. • All crushing and processing will be carried out on the quarry floor, which is screened by the quarry face and perimeter screening berms. • A mobile self-contained washing unit with a closed loop water supply system will also be used for washing of aggregate chips used for surface dressing, which will reduce water use and discharge.
3.3.3.10	Waste Management/Recycling	• Almost all products and by-products arising from processing have commercial value and any excess material produced as part of the extraction process (e.g., topsoil / overburden / fines) will be utilised in the restoration process. • Waste oils, batteries, scrap metal, etc. will be removed from site for recycling by approved contractors. A licensed waste collection contractor will remove any office/canteen waste requiring recovery/disposal to a licensed waste management facility.

3.3.3.11	Site Safety & Security	• Warning signs are / will be displayed at appropriate intervals along the property and excavation boundary.
		• Existing boundaries around the site perimeter will be maintained and, if necessary, reinforced. The boundaries will be maintained in accordance with the operator's obligations under various health and safety legislation.
		• The following barrier system has/will be put in place in the interest of public safety and to prevent public access to the quarry:
		  • Perimeter of the entire working area will be secured in accordance with the requirements of the Safety, Health and Welfare at Work (Quarries) Regulations. All necessary warning signs will be displayed at visible locations along the boundary at appropriate intervals.
		  • Two rows of boulders of c. 1 m diameter will be placed at the limit of extraction to form a further permanent hurdle.
		  • Top of the existing face is largely protected by native barrier species, such as hawthorn and gorse, and this planting will be maintained and reinforced as necessary.
		  • Current quarry site is largely bounded by thick, mature hedgerows with mature trees and scrub (except for the boundary with the northern field) backed by vegetated perimeter berms, which form a substantial natural barrier. Perimeter berms will be constructed on the perimeter boundaries of the proposed extension site and readymix concrete plant site (i.e., northern field), and planted with screening vegetation.

		• Existing hedgerow on the quarry perimeter will be retained, and if necessary reinforced, for the duration of the workings. Any gaps in the existing boundary which would provide uncontrolled access to the proposed quarry will be blocked by a suitable means and reinforced with further planting as necessary and / or fenced. • Site entrance has a lockable steel gate which will be closed and locked outside normal working hour unless exceptional circumstances require otherwise. This barrier system is designed to be a permanent, maintenance-free barricade to man and farm animals. Together the berms, existing trees, hedgerows and all other natural vegetation will develop into a permanent, dense & impenetrable barrier. The above measures are considered sufficient to prevent accidental access to the quarry workings.
3.3.3.12	Fuel & Oil Storage	• A double skinned fuel tank is provided on-site for refueling of some mobile plant and machinery. For larger mobile plant such as crushers and screeners, refuelling takes place on the quarry floor on an as-needs basis by a mobile fuel truck. Haulier HGVs will not be refuelled onsite. • Servicing of vehicles will take place off-site. • Small amounts of oils and lubricants will be stored on-site for use on mobile equipment. • Spill trays and hydrocarbon spill kits will continue to be provided as necessary. • Operator has in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation. • Road sweeping – regular sweeping of paved areas, including the site entrance will continue to be carried out to ensure public roads in the vicinity remain free from sediment derived from the quarry. • Site access from the wheelwash to the entrance has been paved. • All waste oils will be collected and removed off-site by an approved waste collection contractor in the area. • All hydrocarbons will be handled and stored in accordance with the Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals) (EPA 2006).

3.3.3.13	Water Management	• There is an extensive array of established, proven, water management components already in use at the site, which were specified in the Discharge Licence and were designed to retain waters, attenuate for the required duration to remove solids, intercept contaminants (oil interceptor), and provide a mechanism of discharge (diffuse on a plinth) that would ensure protection of the receiving water.
		• The established water management system includes the following:
		  • Floor sump in the south of the working bedrock extraction area.
		  • A western lagoon that collects rainfall runoff water from the road that is used by trucks entering and leaving the site.
		  • A fully functioning, engineered, wheelwash and associated sump.
		  • A final lagoon, which receives water pumped from the floor sump and the western sump.
		  • A Class 1 oil separator.
		  • A flow meter.

		• A discharge pipe with concrete plinth to diffuse and aerate discharge water as it is delivered to the receiving water. • The site discharges an average concentration of 3 mg/l SS, while the permitted ELV for SS is 20 mg/l (DL. 20/01), such that the site uses 15% of the ELV. Thus, the proposed development's waters will be adequately treated and appropriately attenuated in compliance with the existing site discharge licence without the need for any additional water treatment infrastructure. . • Given the hydraulic capacity is 3,105 m^3 of the final settlement lagoon and the maximum discharge rate is 1,728 m^3/d, there is a guaranteed 1.75 day retention time in the settlement lagoons, which is significantly greater than best practice specifications for retention times for settlement of solids. • Risks to surface water and groundwater on-site relate primarily to the use and storage of hydrocarbon liquids. • A double skinned fuel tank is provided on-site for refueling of some mobile plant and machinery. For larger mobile plant such as crushers and screeners, refuelling takes place on the quarry floor on an as-needs basis by a mobile fuel truck. • Hauliers HGVs will not be refuelled onsite. • Servicing of vehicles will take place off-site. • Small amounts of oils and lubricants will be stored on-site for use on mobile equipment. • Spill trays and hydrocarbon spill kits will continue to be provided as necessary. • The operator has in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation. • Road sweeping – regular sweeping of paved areas including the site entrance will continue to be carried out to ensure public roads in the vicinity remain free from sediment derived from the quarry. • The site access from the wheelwash to the entrance has been paved. • All hydrocarbons will be handled and stored in accordance with the Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals) (EPA 2006). • Relatively small amounts of water will be used for the purpose of process water, except for future concrete production: • Dust suppression, in the order of ≤1 m^3/d; • Mobile plant sprinklers for washing of chips of ≤2 m^3/d; • Wheelwash with a top-up water demand will be less than ≤0.5 m^3/d; • Readymix concrete plant will use c. 1 m^3 of water pr 5 m^3 of concrete. • A wheel wash facility has been installed on-site and the roads have sprinkler systems. • The site access from the wheelwash to the entrance has been paved with a permeable asphalt surface. • Regular sweeping of paved areas, including the site entrance, is carried out to reduce the amount of sediment being washed into roadside drainage.

		• Domestic effluent generated by on-site office workers is treated by the wastewater treatment system (WWTS) providing secondary treatment (Tricel). This is located south of the portacabin office at the weighbridge. Treated effluent is disposed of via soil polishing filters.
3.3.3.15	Transport & Access	• The existing site access onto the L1603 local road is the sole access for the delivery of aggregates and concrete from the site. • The site is situated c. 2 km southeast of Lobinstown Village with access to the N2, N51 and N52 national roads provided via the L1603, which runs adjacent to the quarry site. These are the main haulage routes, allowing the HGV traffic from the site to access the national and regional road network at the earliest opportunity, and thus avoids adverse impact on the local road network. • The entranceway has substantial splays providing good visibility. Sight distances at the site entrance of at least c. 160 m are achievable in each direction along the L1603 at a distance of 3 m back from the hard shoulder, as required under P.A. Ref. LB200106. Hedges and trees near the quarry entrance will be maintained regularly in order to ensure that the sightlines at the access are kept clear at all times. • The site is serviced by an existing secured, gateway with a paved apron and access road. The gate is set back to allow trucks awaiting entry to queue without obstructing traffic on the L1603. Provision is made to facilitate entry of HGVs into the site to queue safely prior to gate opening times. This will ensure that the formation of a queue of HGVs awaiting entry to the quarry prior to opening does not occur along the L1603. • The internal access road extending c. 350 m from the main entrance to the weighbridge office is c. 9 m wide with an asphalt surface and accommodates two-way HGV traffic flow. Signage, bollards and speed bumps are also used to control internal traffic. A speed restriction of <15 kph applies to all vehicles along the access road. • A wheelwash is in-situ to ensure that wheels and undersides of all vehicles transporting aggregate from the site onto the public road are cleaned. • A weighbridge is in-situ to ensure that all vehicles transporting materials are weighed prior to exiting the site and meet weight restrictions. • The L1603 road in the vicinity of the entrance will be mechanically swept on a regular basis. In the event of material being spilled on the public road, the quarry operator will ensure that spilled material is removed from the road surface in a safe and timely manner. • The existing and proposed traffic volumes on the Slane Road fall within the envelope of available capacity, with spare capacity available. Thus, no additional access requirements will be needed for the proposed development. The existing capacity of the adjacent road network has been shown to be capable of accommodating these minor increases. • Given the size of the proposed development, and the number of staff (4), the existing parking provision within the site is considered to be adequate to accommodate the expected demand. Quarry workers will park in the existing car park in the quarry adjacent to the weighbridge. • Appropriate signage is provided to direct traffic within the quarry area via a one way system.
3.3.4.2	Site Lighting	• Lighting will be that attached to any mobile equipment, to the processing plant and utilised by the site office. Lighting is also provided at the site entrance, car parking areas, wheelwash and weighbridge. • For those short periods when the operation will be working into darkness (i.e., over winter months), the operators will provide sufficient lighting to ensure safe operations.

		• All lighting is/will be directed downwards and into the quarry. As most quarry activity will be below ground level, light pollution from site activity will be minimal.

3.3.5.1	Accident Prevention and Emergency Response	• Operator has an EMS in place that addresses such matters as Emergency Preparedness & Response in dealing with accident and emergency situations resulting in impacts on the environment.
		• To prevent and mitigate the environmental impacts of accidents and emergency situations, the Company has established and maintains procedures to identify and respond to these situations — detailed in the Emergency Preparedness and Response Depot Procedures Manual (DP004).
		• The Company will review and revise, where necessary its emergency preparedness and response procedures.
		• The Company will provide staff with emergency and event–based instructions. Management will also ensure that if an employee is absent from work that his or her roles in an emergency event is reassigned to another adequately trained employee.
		• The Company also has in place and Accident Prevention Policy, which sets out the policies of the Company in respect of Accident Prevention at all Breedon Ireland sites. The objective is to outline the protection provided for man and the environment by appropriate means, structures and management systems. The key features of this objective are:
		  • No major accidents;
		  • No “near miss” incident capable of leading to a major accident;
		  • No requirement to evacuate persons from areas on the site; and
		  • No injury to neighbours or employees or damage to the environment as a result of accidental emissions.

3.4.1	Site Restoration	• The development will be worked in a phased manner to ensure full implementation of the mitigation and restoration measures. • Site restoration allows vegetation to become established during the course of the development, thereby reducing the overall impact of the development (i.e., visual impact, dust impact, flora and fauna impact, etc.). • A well-coordinated restoration process in consultation with the GSI can ensure representative areas of quarry faces are left unvegetated. • Parts of the upper benches will be seeded with suitable species of shrubs and climbers to create vegetated ledges. Vegetation and natural colonisation on these benches will encourage growth on the faces and break up the natural harshness of the exposed rock face. • The quarry will be worked top-down in successive benches, including provision of a temporary berm at 98m OD within the eastern extension area, with progressive restoration of the upper back southern face to further reduce the visual impact of the development. • Development will allow complete restoration of both the existing quarry and proposed development to beneficial after-use. This will ensure that the upper back face is restored at the earliest opportunity, that the working face is not open to view, and that as the quarry pushes eastwards only the restored upper face will be revealed as quarrying progresses to the limit of extraction.
3.4.2	Final Site Restoration Scheme	• Main aim of the restoration is to minimise the impact of quarrying on the existing landscape of the area, both now and into the future. • Restoration of the site will be carried out in a progressive fashion over the life of the operation.

		• Final restoration will involve removal of site infrastructure, including hard standings, fuel storage, site offices, wheelwash, weighbridge and other ancillaries. • It is anticipated that final restoration will be achieved within 2 years of completion of extraction operations • Final restoration will be to a beneficial after-use as a secure wildlife amenity with water feature. • A detailed restoration and landscaping plan has been prepared. • The EMS, including environmental monitoring (surface & groundwater only), will be in place and actively implemented during closure period.
3.4.3	Long Term Safety, Stability & Security	• A detailed working scheme / restoration plan has been prepared. • In preparing the design of the restoration plan, standard criteria were adopted with regard to face slopes, standoffs to site boundaries, etc. • Final quarry face angles have been assessed by a geotechnical engineer to ensure long-term stability after completion of extraction operations. • Stability of restored faces in the existing quarry indicates that the long term stability of the final quarry faces will be satisfactory. • All components of the barrier system for the site protection outlined in Section 3.3.3.11 will remain in place after quarry operations have ceased. The growth of vegetation over the duration of the operation will have created a thick, virtually impenetrable barrier around the site. This, in conjunction with the other barriers, is considered sufficient to prevent unauthorised access to the restored quarry.
3.4.4	Long Term Water Management	• Final site restoration will contain a landscaped woodland / amenity with water feature, creating a habitat suitable for aquatic life and birds, such that the disused workings will eventually become of considerable amenity value. • There will be no requirement for long-term water management following a short period of aftercare and monitoring.
3.4.5	Decommissioning	• Redundant structures, plant equipment and stockpiles will be removed from site on cessation of quarrying activity. • Plant and machinery will either be utilised by the Company on other sites or sold as working machinery or scrap. • Where machinery is scrapped, all contaminants will be removed, drained or flushed from all plant, tanks and pipelines. All residues containing fuels, oils and other contaminants will be removed off-site by a licensed waste contractor for recovery or disposal. • All fuel and oil storage tanks will be removed from site by a licensed waste contractor. The WWTS will also be removed from site. Therefore, there will be no potential for fuel, oil or sewage to cause long-term water pollution following cessation of quarrying and ancillary activities. • The former plant areas will be restored using topsoil / overburden and planted with a mixture of native trees and shrubs. • The EMS shall remain in place and be actively implemented during the closure period.
3.4.6	Aftercare & Monitoring	• No on-going requirement for environmental monitoring after restoration activities have ceased. • Final site inspection 2 years after site closure will ensure that final site restoration scheme implemented is functioning and progressing as required. • There will be no environmental liabilities once closure, decommissioning and residuals management are completed.
4	**Population & Human Health**	

4.4.2.1	Land Use	• On completion of site activities, the site of the quarry will be decommissioned, restored to agricultural/amenity use and left safe and secure. This will result in the site being reinstated in accordance with the approved quarry restoration scheme, and thus integrated back into the surrounding landscape with the attendant improvement to the visual amenity of the area.
4.4.2.4	Social Consideration	• The Company have an Environmental Management System (EMS) in place that is designed to comply with the environmental requirements of the ISO 14001:2015 standard. • The existing and proposed volume of traffic on the Slane Road falls within this envelope of available capacity. • No additional access requirements will be needed for the proposed development. • The traffic impact of the quarry site on the Slane Road will result in an increase in traffic on the network, but this increase is imperceptible, as the existing capacity of the adjacent road network has been shown to be capable of accommodating these minor increases. • The traffic impact on the Slane Road/Quarry Access junction will result in a slight increase in vehicles entering and exiting the quarry during the day with a slight increase in delay at the junction, of the order of approximately 0.5 seconds, which will have an imperceptible impact on the operation of the junction, which is forecast to have spare capacity for the lifetime of the development.
4.4.2.5	Amenity, Tourism & Recreation	• Traffic entering and leaving the site will use the established quarry site access, which has been adequately set-back and splayed. • Consideration has been given to screening of the development, phasing and direction of working with respect to receptors to reduce visual impact, while impacts due to noise and dust are substantially attenuated. • The quarry is well screened by mature vegetation and has been developed into rising ground at the foot of the slope upon which the nearest designated viewpoint (No. 24) is located, such that development will not have significant visual impact on any views and prospects in the county. • Consideration has been given through preparation of the quarry design with respect to preservation of perimeter hedgerows, provision of screening berms, phasing, direction of working and restoration of the residual quarry faces (particularly the southern face) to ensure there are no significant views of the site. There will be a likely, not significant, long-term effect with respect to visual impact from these vantages. • A working scheme has been designed for the quarry that provides for the sequence and direction of working in order to reduce as far as possible the overall visual impact of the workings. • The existing workings have been incorporated into the overall phasing to ensure a consistent approach to landscaping and restoration. • The quarry will be worked top-down in successive benches, including provision of a temporary berm at 98m OD within the eastern extension area, with progressive restoration of the upper back southern face and existing stockpiling area to further reduce the visual impact of the development on the surroundings. • Upon decommissioning, the site will be restored in accordance with an approved restoration scheme and assimilated in a planned manner back into the landscape in the long term.
4.4.2.7	Human Health	• Common concerns in terms of human health, particularly to vulnerable sections of the receiving population, with respect to quarry developments, are generally associated with noise & vibration, air quality, water contamination, traffic safety, and accidents and disasters. Impacts and mitigations with respect to these environmental factors are addressed under the relevant chapters of the EIAR.

		• Industrial accidents involving dangerous substances pose a significant threat to humans and the environment, both on and off the site of the accident. The large stand-off distances to the nearest Seveso establishments (<8 km) indicates that Lobinstown Quarry is not at risk of such accidents. The quarry also lies in a sparsely populated, rural area, where the nearest industrial development is at Grangegeeth c. 4.5 km to the southeast, indicating that the quarry is not vulnerable to major accidents or disasters. • The greater risk of accident probably arises from the nature of the quarrying activities on-site. However, the design, construction and operation of the proposed development will be carried out in accordance with all relevant Irish and European legislation/regulations governing safety in the workplace. A 'Health & Safety Plan' has been implemented for the development in accordance with the regulations. • Breedon are committed to preventing injuries and work-related ill-health by achieving and maintaining the highest standards of health, safety and wellbeing, through continuous improvement and the promotion and sharing of good practice. • On completion of site activities, the quarry site will be decommissioned and left safe and secure. • The site will be reinstated in accordance with the approved quarry restoration scheme, and thus integrated back into the surrounding landscape with the attendant improvement to the visual amenity of the area. • Following restoration and the mitigation measures incorporated in the design there will be no significant effects in terms of human health.
4.5	Mitigation & Monitoring	• No mitigations specific to humans, beyond normal site management including phasing, screening and progressive restoration of the quarry. • Proposed mitigation measures with regard to environmental issues, such as water quality, air quality, noise, traffic and visual impacts, are provided under the relevant EIAR sections. • Any impact on the natural environment will be mitigated against to greatest degree practical, minimising any impact on "human" environment. • Operator has in place an EMS at the quarry that is designed to comply with the environmental requirements of the ISO 14001:2015 standard, which address such matters as Emergency Preparedness & Response in dealing with accident and emergency situations. • Breedon Ireland have developed a Health Safety and Wellbeing Policy and are committed to preventing injuries and work-related ill-health by achieving and maintaining the highest standards of health, safety and wellbeing, through continuous improvement and the promotion and sharing of good practice. • Breedon have established an on-going environmental monitoring programme for quarry site, which will allow on-going monitoring of environmental emissions (e.g., noise, blasting, dust and water) from the site, thereby assisting in ensuring compliance. • Results of the monitoring will be made available to the Local Authority on a regular basis. • It is policy of operator to ensure the health and welfare of its employees by maintaining a safe, clean and tidy working environment, and employing safe working procedures that accord with the requirements of employment legislation, regulations and best work practices in the industry. • Access to the site will be restricted at all times and all visitors and contractors will undergo a site induction before entering the site. • Wearing protective clothing, such as footwear, helmets and high visibility clothing, is mandatory in operational areas. • Careful attention is paid to safe practices when carrying out machinery maintenance and ensuring appropriate guarding of moving parts.

		• Adequate fencing, signage and other barriers have been erected around the existing site for the safety of the general public and to prevent livestock straying into the development, and these measure will be extended to the proposed quarry extension area. • Large lockable gates are in place to guard against unauthorised and unsupervised entry to the site outside working hours.
5	**Biodiversity**	
5.6	Mitigation	**Activity:** Fuel storage/ usage on site; **Attribute:** Groundwater & Surface waters: **Character of Impact:** Accidental spillage of contaminants during site operations could cause short to long-term, moderate to significant impacts to soils, groundwater and the surface water environment. The following mitigation measures are included: • Breedon Ireland SOPs have been designed to ensure responsible activity on their sites. • Potentially contaminating substances will be stored in a designated area that is isolated from surface water drains or open waters and not within 30 m of drainage ditches or surface waters. • Hazardous wastes such as waste oil will be stored in designated, sealed containers. All waste containers and fuel tanks shall be stored within a secondary containment system (e.g., a bund for static tanks or a drip tray for mobile stores and drums). The bunds will be capable of storing 110% of tank capacity, plus a minimum 30 mm rainwater allowance where the bund is uncovered. • Where more than one tank is stored, the bund must be capable of holding 110% of the largest tank or 25% above the aggregate capacity • Drip trays used for drum storage must be capable of holding at least 25% of the drum capacity. • Regular monitoring of water levels within drip trays and bunds due to rainfall will be undertaken to ensure sufficient capacity is maintained at all times. • Refuelling and lubrication of semi-mobile plant and haulage vehicles is carried out by a trained and dedicated operative. Control measures exist as standard operating procedures in the overall quarry. • A double skinned fuel tank is provided on-site for refueling of some mobile plant and machinery. For larger mobile plant such as crushers and screeners, refuelling takes place on the quarry floor on an as-needs basis by a mobile fuel truck. • Servicing of vehicles will take place off-site. • Small amounts of oils and lubricants will be stored on-site for use on mobile equipment. • Spill trays and hydrocarbon spill kits will continue to be provided as necessary. • The operator has in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation. • The site access from the wheel wash to the entrance has been paved. • All waste oils will be collected and removed off-site by an approved waste collection contractor in the area. • Regular monitoring and maintenance of silt traps will be undertaken in accordance with the manufacturer's specifications.

		• Oil that accumulates within hydrocarbon interceptors shall be regularly removed by an appropriately licenced contractor. In addition, the hydrocarbon interceptor shall be appropriately maintained in accordance with the manufacturer's specifications.
		Activity: Surface water runoff; **Attribute:** Surface waters: **Character of Impact**: Surface runoff or drainage systems have potential, if not correctly designed, to result in contamination of surface waters and groundwater. Accidental spillage could contaminate the aquifer by direct percolation or via the superficial water network. The following mitigation measures are included: • All rainfall-runoff generated on quarried areas will drain towards the quarry sump. These waters are pumped to the settlement lagoon prior to leaving site. A water management system is already in place and will continue to serve the proposed application area. There is no direct connectivity between site activities and local surface waters. • Quarry waters pass through a recently installed HDPE lined settlement lagoon. This feature clarifies pumped quarry waters prior to them leaving the site. The quarry sump and settlement lagoon system have sufficient volumetric capacity to accommodate all waters for the required residence time. • Particulate matter captured in settlement lagoons to be transferred to landscaped perimeter bunds. • The wheelwash is to be maintained in accordance with manufacturer's specifications. Overflow from the wheelwash collection tank passes through the main two settlement tanks and hydrocarbon interceptor prior to leaving site. • The site holds a Section 4 Discharge Licence (Ref. 20/01), which was issued by Meath County Council in 2020, for a discharge from the treatment systems (settlement lagoons) to the Killary Stream. • Spoil heaps will be safely sloped and situated away from surface waters. • Minimum of 10 m setback from all open drains and watercourses to be maintained around the excavation perimeter. • Interceptor drains 500 mm wide and 500 mm deep will be excavated around the toe slope of any soil. Silt fences to be installed within the interceptor drains. Interceptor drains will divert captured runoff back in towards the site where runoff will enter the settlement lagoons. These will clarify any runoff waters prior to them leaving the site. • The volumetric capacity of the settlement sump on the floor of the quarry has been specified to accommodate the required extreme rainfall storm event waters for the required residence time. • A Hydrocarbon Interceptor has been incorporated into the Water Settlement Management System • Assimilation capacity simulations have been completed and appropriate Emission Limit Values have been proposed. • Discharge will be of a quality that will not impact water quality. • A flow meter has been installed on the discharge. • Hydrocarbon spill kits are located at specified locations throughout the site and contain spill containment booms and absorbent mats that can be used in the event of a hydrocarbon spill at the site.

		Activity: Extraction works, Blasting and vehicle movement on site; **Attribute:** Peregrine Falcons **Character of Impact**: Extraction works can affect bird species. The following mitigation measures are included: • Extraction works will be completed using Best Practice blasting methods. • Site data from the operational rock quarry undertaking regular blasting has shown that nesting peregrines here have successfully raised and fledged chicks for the last three years. • Vegetation clearance will be undertaken outside the bird nesting season from 1st March to August 31st. • The quarry face where Peregrine falcons are currently nesting (Summer) will be retained. • "Peregrine Falcon" signs will be erected near the nest site to ensure all colleagues are aware of the location to ensure protection. • An annual Peregrine Falcon survey and report will continue to be undertaken.
6	**Land, Soils & Geology**	
6.6.	Mitigation Measures	• A number of mitigation measures will be adopted for the proposed extraction activities to reduce the potential impacts to the receiving land, soils and geology environment. • Following full restoration and closure of the site there will be no significant, long-term, adverse impacts in terms of Land, Soils and Geology, other than the permanent, significant negative impact due to extraction of the mineral resources. **Construction Phase** **Activity:** Stripping of overburden; **Attribute:** Soils & Subsoils. **Character of Impact:** Excavation of soil/subsoil, storage in stockpiles and reuse in berms and landscaping. • Soils are poorly drained and of low fertility and are considered an attribute of low importance. • There will be no net loss of soils and subsoils as they will be retained on site and reused in landscaping berms. **Activity**: Stripping of overburden; **Attribute**: Soils & Subsoils. **Character of Impact:** Loss of overburden due to erosion and dust generation and damage to soil structure. • Movement of material shall be minimised to reduce degradation of subsoil structure and generation of dust. • Handling and placement of soils/subsoils shall only take place during appropriate weather conditions and when the soils are in optimum condition (moist but friable). Soils shall not be moved when they are too dry or during unusually windy conditions. • All temporary storage mounds will have slope angles not greater than 1:1.5 and will be re-vegetated as quickly as possible to avoid soil erosion by air and water; • Topsoil shall be stored to a height not exceeding 3 metres to preserve organic constituents.

		• Storage of soils within perimeter security / screening embankment of the site. This is to allow the vegetation of these screening embankments as soon as possible. • Working contours shall be such that there are no direct pathways for suspended solids to leave the site via uncontrolled runoff. • Sprinklers and road sweepers shall be used to suppress dust. **Activity**: Use of hydrocarbons in excavator and dump trucks; **Attribute:** Soils, Subsoils & Bedrock. **Character of Impact:** Spillages during refuelling, use and storage of lubricants; contamination of exposed soils/subsoils/bedrock. • Breedon SOPs have been designed to ensure responsible activity on their sites. • Potentially contaminating substances will be stored in a designated area that is isolated from surface water drains or open waters and not within 30 m of drainage ditches or surface waters. • Hazardous wastes such as waste oil will be stored in designated, sealed containers. All waste containers and fuel tanks shall be stored within a secondary containment system (e.g., a bund for static tanks or a drip tray for mobile stores and drums). The bunds will be capable of storing 110% of tank capacity, plus a minimum 30 mm rainwater allowance where the bund is uncovered. • Where more than one tank is stored, the bund must be capable of holding 110% of the largest tank or 25% above the aggregate capacity. Drip trays used for drum storage must be capable of holding at least 25% of the drum capacity. • Regular monitoring of water levels within drip trays and bunds due to rainfall will be undertaken to ensure sufficient capacity is maintained at all times. • Refuelling and lubrication of semi-mobile plant and haulage vehicles is carried out by a trained and dedicated operative. Control measures exist as standard operating procedures in the overall quarry. • A double skinned fuel tank is provided on-site for refueling of some mobile plant and machinery. For larger mobile plant such as crushers and screeners, refuelling takes place on the quarry floor on an as-needs basis by a mobile fuel truck. • Servicing of vehicles will take place off-site. • Small amounts of oils and lubricants will be stored on-site for use on mobile equipment. • Spill trays and hydrocarbon spill kits will continue to be provided as necessary. • The operator has in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation. • The site access from the wheel wash to the entrance has been paved. • All waste oils will be collected and removed off-site by an approved waste collection contractor in the area. • Regular monitoring and maintenance of silt traps will be undertaken in accordance with the manufacturer's specifications. • Oil that accumulates within hydrocarbon interceptors shall be regularly removed by an appropriately licenced contractor. In addition, the hydrocarbon interceptor shall be appropriately maintained in accordance with the manufacturer's specifications. **Operational Phase**

		Activity: Extraction of bedrock; **Attribute:** Bedrock. **Character of Impact:** Removal of bedrock within quarry footprint from c. 100 to 35 m OD. • There is no measure to mitigate against loss of bedrock. The amount to be extracted is considered moderate in terms of the overall quarry. **Activity:** Extraction of bedrock; **Attribute:** Bedrock. **Character of Impact:** Local & Regional Resource Generation. • No mitigation required for the supply of materials because it is the planned, positive activity for the development. **Activity:** Extraction of bedrock; **Attribute**: Soils, Subsoils & Bedrock **Character of Impact**: Long-term stability. • A detailed working scheme/ restoration plan has been prepared (Refer to Figures 3.1 to 3.3). In preparing the design, standard criteria were adopted with regard to face slopes, standoffs to site boundaries, etc. The final quarry face angles have been assessed by a geotechnical engineer to ensure long-term stability after completion of extraction operations. The stability of restored faces observed in the existing quarry indicates that the long-term stability of the final quarry faces will be satisfactory in this geological environment. **Activity**: Extraction of bedrock; **Attribute:** Bedrock. **Character of Impact**: Geological Heritage. • Allowing access to quarry faces by appropriate scientists (upon request and with due regards to Health and Safety requirements) during quarrying to check for interesting new stratigraphies / relationships as they might become exposed and to establish if the quarry site warrants recognition post extraction and through aftercare/restoration planning. • Leaving a representative section of the quarry face at the end of the quarry life or inclusion of information panels to promote the geology to the public or develop tourism or educational resources, if appropriate depending on the future use of the site. Natural exposures are few, or deeply weathered, this measure would permit on-going improvement of geological knowledge of the subsurface. • Should any significant bedrock exposures of importance be identified, Breedon will work with the GSI to find a mutually beneficial arrangement on how best they can be designed to remain visible as rock exposure rather than covered with soil and vegetated, in accordance with safety guidelines and engineering constraints. This measure would permit on-going improvement of geological knowledge of the subsurface and could be included as additional sites of the geoheritage dataset, if appropriate. • The final land restoration scheme will ultimately allow the site to be returned to a condition whereby there will be negligible residual impact on the geological heritage of the site and surrounding environment due to the excavation and removal of bedrock underlying the site. It is planned to minimise, eliminate, or decrease long-term ecological and visual impacts on the environment through the implementation of the final restoration scheme. **<u>Restoration Phase</u>**

		Activity: Landscaping, Restoration of Residual faces, movement of berms and stockpiles necessary to facilitate site restoration; **Attribute:** Soils, Subsoils & Bedrock **Character of Impact:** Restoration of land to water filled void. • No mitigation is required for restoration as it is a planned part of the development. • It is anticipated that final restoration will be achieved within 2 years of completion of extraction operations. Final restoration will be to a beneficial after-use as a secure wildlife refuge/ amenity with water feature. The intention is to create a habitat suitable for aquatic life and birds, such that the disused workings will eventually become of considerable amenity value • A detailed Restoration and landscaping plan has been prepared as part of the application (Refer to Figure 3.2) • A well-coordinated restoration process (in consultation with the IGH) will ensure that representative areas of quarry faces are left unvegetated. Parts of the upper benches will also be seeded with suitable species of shrubs and climbers to create vegetated ledges. Vegetation and natural colonisation on these benches will encourage growth on the faces and will subsequently break up the natural harshness of the exposed rock face. This will occur in a progressive manner as quarrying progresses. • he final land restoration scheme will ultimately allow the site to be returned to a condition whereby there will be negligible residual impact on the surrounding environment due to the extraction and removal of the sandstone/siltstone bedrock underlying the site. It is planned to minimise, eliminate, or decrease long-term ecological and visual impacts on the environment through the implementation of the landscaping & restoration scheme. **<u>Unplanned Events</u>** **Activity:** Fuel tank failure or large-scale spillage; **Attribute**: Exposed Bedrock **Character of Impact:** Potential for contamination of exposed bedrock as a result of spillages/leakages. • Breedon SOPs have been designed to ensure responsible activity on their sites. • Potentially contaminating substances will be stored in a designated area that is isolated from surface water drains or open waters and not within 30 m of drainage ditches or surface waters. • Hazardous wastes such as waste oil will be stored in designated, sealed containers. All waste containers and fuel tanks shall be stored within a secondary containment system (e.g., a bund for static tanks or a drip tray for mobile stores and drums). The bunds will be capable of storing 110% of tank capacity, plus a minimum 30 mm rainwater allowance where the bund is uncovered. • Where more than one tank is stored, the bund must be capable of holding 110% of the largest tank or 25% above the aggregate capacity. Drip trays used for drum storage must be capable of holding at least 25% of the drum capacity. • Regular monitoring of water levels within drip trays and bunds due to rainfall will be undertaken to ensure sufficient capacity is maintained at all times. • Refuelling and lubrication of semi-mobile plant and haulage vehicles is carried out by a trained and dedicated operative. Control measures exist as standard operating procedures in the overall quarry.

		• A double skinned fuel tank is provided on-site for refueling of some mobile plant and machinery. For larger mobile plant such as crushers and screeners, refuelling takes place on the quarry floor on an as-needs basis by a mobile fuel truck. • Servicing of vehicles will take place off-site. • Small amounts of oils and lubricants will be stored on-site for use on mobile equipment. • Spill trays and hydrocarbon spill kits will continue to be provided as necessary. • The operator has in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation. • The site access from the wheel wash to the entrance has been paved. • All waste oils will be collected and removed off-site by an approved waste collection contractor in the area. • Regular monitoring and maintenance of silt traps will be undertaken in accordance with the manufacturer's specifications. • Oil that accumulates within hydrocarbon interceptors shall be regularly removed by an appropriately licenced contractor. In addition, the hydrocarbon interceptor shall be appropriately maintained in accordance with the manufacturer's specifications. •
7	**Water**	
Construction Phase	Stripping Overburden	• Excavations at site shall be clearly defined and restricted to stated areas. Excavated overburden will remain exposed for as little time as possible. • Topsoil stripping will be restricted to the minimum area required for efficient earthworks operation. • Working contours will ensure no surface waters leave site in an uncontrolled manner. • Any stockpiles shall be located over 15 m from drainage channels. • Any stormwater leaving stripped areas shall be diverted towards the existing sump, preferably via a temporary settlement lagoon. • Perimeter stockpiles shall be vegetated with grass seed. • Maintain a vegetated margin of at least 10 m around the working area where possible.
	Spillages during refuelling of excavator and dumptrucks, and storage of lubricants	• Breedon SOPs have been designed to ensure responsible activity on their sites. • Potentially contaminating substances will be stored in a designated area that is isolated from surface water drains or open waters and not within 30 m of drainage ditches or surface waters. • Hazardous wastes such as waste oil will be stored in designated, sealed containers. All waste containers and fuel tanks shall be stored within a secondary containment system (e.g., a bund for static tanks or a drip tray for mobile stores and drums). The bunds will be capable of storing 110% of tank capacity, plus a minimum 30 mm rainwater allowance where the bund is uncovered. • Where more than one tank is stored, the bund must be capable of holding 110% of the largest tank or 25% above the aggregate capacity. Drip trays used for drum storage must be capable of holding at least 25% of the drum capacity.

		• Regular monitoring of water levels within drip trays and bunds due to rainfall will be undertaken to ensure sufficient capacity is maintained. • Refuelling and lubrication of semi-mobile plant and haulage vehicles is carried out by a trained and dedicated operative. Control measures exist as standard operating procedures in the overall quarry. • A double skinned fuel tank is provided on-site for refueling of some mobile plant and machinery. For larger mobile plant such as crushers and screeners, refuelling takes place on the quarry floor on an as-needs basis by a mobile fuel truck. • Servicing of vehicles will take place off-site. • Small amounts of oils and lubricants will be stored on-site for use on mobile equipment. • Spill trays and hydrocarbon spill kits will continue to be provided as necessary. • The operator has in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation. • The site access from the wheelwash to the entrance has been paved. • All waste oils will be collected and removed off-site by an approved waste collection contractor in the area. • Regular monitoring and maintenance of silt traps will be undertaken in accordance with the manufacturer's specifications. • Oil that accumulates within hydrocarbon interceptors shall be regularly removed by an appropriately licenced contractor. In addition, the hydrocarbon interceptor shall be appropriately maintained in accordance with the manufacturer's specifications.
Operational Phase	Blasting of bedrock	• Blasting protocol regulated and controlled by industry standards. • Calculated Nitrogen species residues in discharge waters due to blasting with Kemex emulsion explosives are very low and satisfy the relevant Environmental Quality Standards by at least an order of magnitude.
	Movement of aggregate stockpiles	• All rainfall-runoff generated on quarried areas will drain towards the quarry sump, which are pumped to the settlement lagoon prior to leaving site. • A water management system is already in place and will continue to serve the proposed application area, such that there is no direct connectivity between site activities and local surface waters.
	Spillages during refuelling of quarrying machinery and equipment, use and storage of lubricants	• Breedon SOPs have been designed to ensure responsible activity on their sites. • Potentially contaminating substances will be stored in a designated area that is isolated from surface water drains or open waters and not within 30 m of drainage ditches or surface waters. • Hazardous wastes such as waste oil will be stored in designated, sealed containers. All waste containers and fuel tanks shall be stored within a secondary containment system (e.g., a bund for static tanks or a drip tray for mobile stores and drums). The bunds will be capable of storing 110% of tank capacity, plus a minimum 30 mm rainwater allowance where the bund is uncovered. • Where more than one tank is stored, the bund must be capable of holding 110% of the largest tank or 25% above the aggregate capacity. Drip trays used for drum storage must be capable of holding at least 25% of the drum capacity. • Regular monitoring of water levels within drip trays and bunds due to rainfall will be undertaken to ensure sufficient capacity is maintained.

		• Refuelling and lubrication of semi-mobile plant and haulage vehicles is carried out by a trained and dedicated operative. Control measures exist as standard operating procedures in the overall quarry. • A double skinned fuel tank is provided on-site for refueling of some mobile plant and machinery. For larger mobile plant such as crushers and screeners, refuelling takes place on the quarry floor on an as-needs basis by a mobile fuel truck. • Servicing of vehicles will take place off-site. • Small amounts of oils and lubricants will be stored on-site for use on mobile equipment. • Spill trays and hydrocarbon spill kits will continue to be provided as necessary. • The operator has in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation. • The site access from the wheelwash to the entrance has been paved. • All waste oils will be collected and removed off-site by an approved waste collection contractor in the area. • Regular monitoring and maintenance of silt traps will be undertaken in accordance with the manufacturer's specifications. • Oil that accumulates within hydrocarbon interceptors shall be regularly removed by an appropriately licenced contractor. In addition, the hydrocarbon interceptor shall be appropriately maintained in accordance with the manufacturer's specifications.
	Quarry dewatering – lowering of groundwater levels in surrounding area	• Beneath both the current working area and the extension area, the entire depth to the proposed floor level of 35 m OD is homogenous metasandstone of very low permeability. Proposed works are unlikely to introduce notable volumes of additional bedrock groundwater, and have potential to create some minor drawdown effects around the site, although groundwater gradients are very steep. • There will be no net loss or gain in the GWB system because volume intercepted and managed at the site represents 0.04% of the groundwater volume in the regional Poor Aquifer (Pu). Any waters intercepted at the site are returned to the Killary Stream, which maintains the hydromorphological and hydrogeological regime. Pumping and discharge does not transfer any groundwater across catchment boundaries.
	Use of settlement lagoons	• Quarry waters pass through a recently installed HDPE lined settlement lagoon, which clarifies pumped quarry waters prior to them leaving the site. • The quarry sump and settlement lagoon system have sufficient volumetric capacity to accommodate all waters for the required residence time.
	Cleaning of settlement lagoons	• Particulate matter captured in settlement lagoons to be transferred to landscaped perimeter bunds.
	Use of wheelwash	• Positive impact so no specific mitigation required. • Overflow from the wheelwash collection tank passes through main two settlement tanks and hydrocarbon interceptor prior to leaving site. • Wheelwash is to be maintained in accordance with manufacturer's specifications.
	Use & maintenance of hydrocarbon interceptors	• Positive impact so no specific mitigation required. • Oil that accumulates within hydrocarbon interceptors shall be regularly removed by an appropriately licensed contractor.

		• Hydrocarbon interceptors shall be appropriately maintained in accordance with the manufacturer's specifications.
	Monitoring	• Regular visual monitoring of the settlement lagoons will continue as per present to ensure no visual oil or fuel contamination. • Water Quality monitoring will continue as per current regime.
	Setback buffer between stream and quarrying activity	• Minimum of 10 m setback from all open drains and watercourses to be maintained around the excavation perimeter.
Final Restoration Phase	Removal of semi-mobile and mobile plant (pumps, generators, etc.)	• Positive impact, so no specific mitigation required.
	Dismantling and removal of fixed plant & machinery (batching plant, wheelwash, etc.)	• Positive impact, so no specific mitigation required. • Materials such as concrete can be crushed and recycled for use as an aggregate in the construction industry.
	Landscaping and movement of overburden stockpiles necessary to facilitate site restoration	• Interceptor drains 500 mm wide and 500 mm deep will be excavated around the toe slope of any soil. • Silt fences to be installed within the interceptor drains. Interceptor drains will divert captured runoff back in towards the site where runoff will enter the settlement lagoons. These will clarify any runoff waters prior to them leaving the site. • Restored areas to be vegetated to enhance stability.
	Cessation of pumping	• Post-completion groundwater levels will return to pre-development levels, thereby partially filling any voids. These voids may be left as open waterbodies for recreational or ecological benefits.
Unplanned Events	Major spillage	• All runoff generated on potentially at-risk areas pass through hydrocarbon interceptors prior to leaving the site. • A contained spillage will be disposed of appropriately by a licensed contractor. • Potentially harmful chemicals stored on site (e.g., lubricants) to be stored under cover on bund trays.
	Intense rainfall events	• Site has the capacity to retain extreme storm events.
8	**Climate**	
8.6	Mitigation & Monitoring	• As development is not expected to affect the local climate or microclimate of the area, there is no requirement for mitigation or monitoring in respect of climatic issues beyond those in place to mitigate the impact of dust on the environment. Therefore, no mitigations are proposed specifically with respect to the local or regional climate. • Any impact on the natural environment will be mitigated to the greatest degree practical, thereby minimising any associated impact on the climate.

		• However, climate change mitigation can be integrated into the development, in order to reduce the emissions of GHGs. For example, significant avoidance of GHG emissions can be achieved by the use of powered by mains electricity as compared to diesel generators. Where GHG emissions cannot be avoided, the significance of a project's emissions can be reduced by mitigation, such as use of energy efficient plant, appropriately sized plant, and maintaining equipment to optimise process efficiency.
		• Breedon have implemented an Energy and Carbon Policy, which commits to operating in a manner that ultimately eliminates its contribution to global warming by mitigation of climate change impacts through industrial innovation and the application of industry best practice. Some of the more relevant commitments are given below and indicate different measures that can be taken to lower the carbon footprint of the development:
		  • Create and maintain a robust energy and carbon data collection and reporting system, that provides the data required to assess performance, identify opportunities for progress and to deliver improvements in performance;
		  • Set targets for the short and medium-term with a goal of achieving carbon neutrality by 2050;
		  • Monitor and measure performance regularly to ensure continual improvement and sharing of best practice;
		  • Report annual climate-related emissions data and ensure that the reported data is externally verified by a recognised, accredited body;
		  • Seek to reduce carbon emissions through optimizing energy efficiency and, where practicable, the use of alternative and renewable energy sources;
		  • Regularly audit operations for energy efficiency opportunities and implement cost-effective solutions; and
		  • Endeavour to transition operational fleets from traditional combustion engines to alternative forms of energy and, through collaboration with suppliers, make our fleets more efficient through new technology.
		• The proposed development will ultimately lead to the restoration of the quarry lands to secure wildlife amenity, which will generate no further emissions from fossil fuels or dust, further lessening any impact on the climate.

8.6.1	Climate Change Resilience	• Climate change mitigation not only addresses the local climate, air quality and GHG emissions, but also the resilience of development to climate change and its capacity to absorb climate related shocks.
		• In the context of the quarry at Lobinstown, it is considered that its vulnerability to climate change related hazards can be ranked as:
		  • Low - rising sea levels, landslides, free-thaw damage, drought, heat and wildfires.
		  • Medium – Cold periods and snow
		  • High – Extreme rainfall, fluvial and flash flooding, storms and high winds.
		• Hydraulic modelling of the surface water system has demonstrated that the local area's surface water network can accommodate the envisaged dewatering amounts, in combination with flood flows and allowances for climate change.
		• Resilience of infrastructure to withstand storms, heavy rainfall events and high winds associated with extreme weather events triggered by climate change needs to be integrated into the design of on-site infrastructure. However, as all required site infrastructure is already in-situ, there are only limited opportunities to mitigate climate change and augment climate resilience.

9	**Air Quality**	

9.6	Mitigation & Monitoring	• Breedon have a group wide EMS in place that complies with the Environmental requirements of the ISO 14001:2015 standard. The Environmental Management Plans (EMPs) are site specific and have been designed to comply with the requirements of ISO EN 14001:2015. The EMP's record the procedures and controls in place to reflect the specific environmental aspects and impacts and the legislative requirements applicable at each site. • A number of mitigation measures continue to be carried out with respect to the proposed quarry in order to promote fugitive dust reduction and ensure that the operation is within any specified thresholds, and in line with good industry practice. These are: • **EMP** • Wheelwash facility shall continue to be used at the entrance to the site; • Fixed and mobile water sprays shall be used to control dust emission from material stockpiles, road and yard surface as necessary in dry and/or windy weather. Records shall be maintained on the water spraying schedule; • Trucks entering and leaving the site with dusty materials shall be covered and they shall pass through a wheelwash before exiting the site; • Daily inspection programme to ensure that dust control measures are inspected to verify effective operation and management. Findings shall be recorded on the Daily Site Inspection Sheet; • Dust deposition monitoring shall be carried out in accordance with the requirements of the authorisation permits in order to verify the continued compliance with relevant standards and limits; • Plant and conveyers should be operated to minimise dust generation by ensuring all dust mitigation functions such as dust covers, wind boards, netting, extraction and collection systems are all functioning correctly. Regular visual inspections shall be carried out on all such plant and equipment; • Mechanical road sweeper be used on an as-needs basis to clean internal paved roads, and the L1603 public road in the vicinity of the site; • Under-trays and chutes will be provided to collect material dropping from conveyors. The height of free-fall of material from the under-tray should be minimised; and • Blowers, belt-scrapers or other devices should be fitted to clean conveyors to prevent build-up of spillage. Spillage is cleared promptly. • **Other Site Measures are:** • Screening berms have/will be strategically located to shield the site and provide topographical attenuation. Perimeter screening berms will both limit dust from blowing beyond the site and lessen the effect of wind blowing within the site. Additional screening berms will be constructed along the perimeter of the extension and northern field; • Re-vegetated earth embankments around the perimeter of the extension and northern field will aid in the visual screening of any dust generated within the workings; • Haulage routes within the workings will be carefully designed to avoid steep inclines and will be consolidated to avoid excessive dust generation; • A number of operational measures for the transport and placement of topsoil and overburden during restoration works will be implemented to limit the generation of dust.;

		• Mitigation measures to limit soil erosion are also of direct benefit in terms of dust mitigation; • Consideration will be given to location of mobile plant to ensure that principal dust sources do not adversely affect sensitive off-site locations; • Good housekeeping is an essential part of overall dust control. The provision of good surfaces that can be maintained with regular cleaning in areas that experience heavy traffic helps to minimise fugitive dust; • Maintenance of internal haul and access routes; • Regular maintenance of all plant and machinery will be carried out particularly in relation to exhaust emissions; • In the event of material being spilled on the public road, the operator will ensure that spilled material will be removed from the road surface in a safe and timely manner; • The internal quarry access road is maintained with an asphalt surface; • Site speed restrictions (<15 kph) in order to limit the generation of fugitive dust emissions; and • Suitable vegetation is to be provided on restored areas at the earliest opportunity. • The operator has committed to implementing all of the best practice mitigation measures outlined in DoEHLG (2014), and as such the operation of the quarry will not lead to either dust nuisance nor lead to an exceedance of the PM10 / PM2.5 ambient air quality standards. • The active working area of the site will be inspected frequently during dry, windy weather to assess the potential for dust blows, and when necessary, appropriate dust suppression and control measures will be implemented in response. • These measures are considered sufficient to ensure that dust emissions will be below recognised thresholds for this type of development. • The existing dust monitoring programme will be updated with the approval of the planning authority to take account of the proposed development, which will allow on-going monitoring of fugitive dust emissions from the site. • This programme will allow a comprehensive on-going monitoring of fugitive dust emissions from the site thereby assisting in ensuring compliance with any future requirements or regulations. The results of this monitoring will be made available to the Local Authority on a regular basis.
10	**Noise & Vibration**	
10.6.1.1	Mitigation - Noise	• Noise resulting from the operations can be kept below specified limits by the implementation of good design, effective operation and management and by the adoption of ‘best practices’. • In accordance with the principles of Best Available Techniques (BAT) the applicant is committed to employing the most effective and advanced methods of operation to reduce noise emissions and their impacts on the environment. • Breedon have a group wide EMS in pace, which is accredited to ISO 14001:2015 standard. The Environmental Management Plans (EMPs) are site specific and have been designed to comply with the requirements of ISO EN 14001:2015. • The EMP’s record the procedures and controls in place to reflect the specific environmental aspects and impacts and the legislative requirements applicable at each site.

		• A number of mitigation measures are in place to minimise noise emissions and blast vibration, as much as possible, and to ensure they remain below specified limits and compliant with good industry practice. These are:
		  • **EMP;**
		  • Working hours shall be strictly confined to the hours stated in the permissions for the site;
		  • No works on Sundays or Bank Holidays;
		  • Lowest possible noise level reverse warning alarms consistent with site safety shall be utilised;
		  • Compressors and pumps shall be enclosed and insulated where possible when in use;
		  • Muffling devices shall be fitted to ensure that effective noise control is achieved;
		  • Unnecessary revving of engines shall be avoided;
		  • Equipment shall be switched off when not in use;
		  • Plant and vehicles shall be properly maintained and, in particular, the effectiveness of silencers and lubrication of bearings and moving parts shall be carefully monitored; cutting edges of relevant equipment shall be kept sharp;
		  • For directional noise sources, e.g., reversing trucks, the noise source shall be pointed away from the nearest noise sensitive receptors;
		  • Internal haul roads shall be effectively maintained and constructed in such a way as to minimise gradients;
		  • Acoustic enclosures for pumps and generators and similar plant shall be used to minimise noise levels associated with their operation;
		  • Drop heights for materials shall be minimised;
		  • Plant and vehicles shall be started sequentially rather than all at once; and
		  • When working in close proximity to noise sensitive receptors, the works programme shall be carefully controlled so that noisy activities are planned in such a way that they do not all occur simultaneously.
		• **Other Site Measures**
		  • Provision of temporary screen banks to screen site activities from outside views, as necessary;
		  • Preservation of hedgerows and boundary features to aid noise attenuation;
		  • Consideration has been given to phasing and direction of working through preparation of the working scheme;
		  • Quarry will be worked top-down and phased with development in a southeasterly direction. As such, plant and machinery will be screened from outside views by the intervening quarry face and topography, which will also act as a noise attenuation barrier;
		  • Extracted rock will be processed on the floor of the quarry using mobile crushing and screening equipment to produce saleable aggregates. A such, plant and machinery will be screened by intervening quarry face and topography, which will also act as a noise attenuation barrier;
		  • Noise sources will be located to take advantage from screening provided by quarry faces and stockpiles. Mobile processing plant will be located at a screened location within the quarry.
		  • Internal haul road gradients will be kept as low as possible to reduce engine / brake noise from heavy vehicles;

		• Haul routes will be designed and maintained, with strict speed limits, to limit vehicle noise; • Existing designated internal haul roads will be utilised to manage traffic entering and leaving the site to ensure that site traffic is removed from nearest noise sensitive receptors; • All plant and machinery is switched off when not in use; and • Noise management programme will be defined as part of the EMS.

10.6.1.2	Blasting & Vibration	• Blasting in quarries gives rise to ground transmitted vibrations as well as air overpressure, which also maybe perceptible at nearby residences. In order to minimise these effects, the blast management practice at this quarry will include several mitigation measures, such as:
		  • (1) Best professional practice in the design and execution of blasting;
		  • (2) Only certified Shotfirers are used to conduct blasting;
		  • (3) Millisecond time delays are used in sequential detonation of the explosives to limit the maximum instantaneous charge; and
		  • (4) Explosive charges are properly confined by a sufficient quantity of quality stemming material.
		• The following measures should be considered to reduce the effects of blasting:-
		  • Optimise blast design;
		  • Monitor blasts and revise blast design, as required;
		  ○ Limit ground borne vibration and minimise air overpressure by:
		  ○ Take care in unusual situations, e.g., corners;
		  ○ Include geological considerations in blast design;
		  ○ Air overpressure is minimised through proper blast design, avoiding detonation of large unconfined charges, and by consideration of atmospheric conditions before blasting;
		  • Blast must be carried out on a specified day as concerns over security does not allow for explosives to be stored on site. In exceptional or unforeseen circumstances (e.g., late delivery, security, meteorological conditions, etc.) a blast may be delayed or brought forward. Where possible, the operator should endeavour to inform the public of the revised blasting timetable;
		  • When blasting near overhead cables, a risk assessment must be completed by the blast engineer.
		  • At all times 10 metres step back from the electrical cables must be maintained. No machinery should be positioned beneath or in the vicinity of the power lines.
		  • Only appropriate detonators should be used near electrical lines. A non-electrical initiation system should be used where possible to eliminate any risk of accidental initiation due to interference by overhead power lines.
		  • When the proximity of electrical lines causes concern for the IIE engineer the ESB must be contacted for advice before any blasting operations are undertaken.
		  • Adequate stemming of holes;

		• Ensure correct blasting ratio is obtained, which is a measure of amount of work expected per unit volume of explosives, i.e., tonnes/kg; and • Notify nearest residences prior to the blast. • It is proposed that blasting will continue to be carried out in accordance with Condition Nos. 11 and 12 of Planning Permission P.A. Ref. LB200106. • The local community will continue to be informed by the Company of the blasting schedule, i.e., • Residences within 500 m of the quarry will be provided with a minimum of 24 hours' written notice of intention to blast; • On the day of the blast, a warning siren is sounded before each blast. • When blasting operations are completed an ALL CLEAR siren is sounded. • It is considered that the proposed development can continue to operate within the accepted noise and vibration thresholds. • Blast monitoring will be carried out at agreed residences within the area and the results will be used to ensure compliance with any planning condition requirements.
10.6.1.3	Monitoring	• Noise monitoring will ensure that the quarry is operating within the accepted noise limits and complies with recognised thresholds for this type of development. • The Environmental Management Plan (EMP) is site specific and designed to comply with the requirements of ISO EN 14001:2015, and includes for regular noise monitoring to demonstrate that the development is not having an adverse impact on the surrounding environment. • Additional noise monitoring locations will be submitted to the planning authority prior to commencement of the proposed development. • Breedon have a Blast Notification Procedures & a Blast Monitoring Programme in place. Blast monitoring (ground-borne vibration and air overpressure) is carried out for each blast, and the following information is recorded for each blast: date; time; location in the quarry; amount of explosive used; maximum instantaneous charge; vibration and air overpressure monitoring results. • The monitoring programme will allow a comprehensive on-going monitoring of noise and blast vibration emissions from the site to ensure compliance with future requirements or regulations. The results of this monitoring will be made available to the Local Authority on a regular basis. • Through implementation of the proposed mitigation measures, it is considered that the development will continue to have no significant effects with regard to noise and blast vibration levels on Sensitive Locations, their property, livestock and amenity.
11	**Landscape & Visual**	
11.6	Mitigation Measures	• Mitigation measures include avoidance, reduction, compensation and remedy of potential impacts. The primary means of mitigation involves an efficient design and layout for the quarry that optimises use of existing infrastructure, screening using hedgerows and trees, topography and the full restoration of the quarry site once operations at the site cease. • The site will continue to be worked from the existing quarry area in an easterly direction in a series of typically 15 m high benches with consideration given to direction of working, phasing of development and progressive restoration of quarry faces (particularly the upper south-eastern quarry face) to reduce the visual impact from views to the north.

		• A well-coordinated restoration process could be implemented, in consultation with the GSI, to ensure that representative areas of quarry faces are left unvegetated. • Parts of the upper benches will also be seeded with suitable species of shrubs and climbers to create vegetated ledges. This will occur in a progressive manner as quarrying advances. Vegetation and natural colonisation on these benches will encourage growth on the faces and will subsequently break up the natural harshness of the exposed rock face. • Quarry will be worked top-down in successive benches, including provision of a temporary berm at 98m OD within the eastern extension area to facilitate progressive restoration of the upper back southern face at the earliest opportunity. • A feature landscape mound is to be constructed at the site of the existing stockpiling area and planted with suitable native species, which will help break up views particularly from the north of the upper quarry face. • Perimeter screening berms will also be provided at the boundaries of the proposed extension area. • The upper back face will be restored at the earliest opportunity, so that the working face is not open to view, and that as the quarry pushes eastwards only the restored upper face will be revealed as quarrying progresses to the limit of extraction. • All crushing and processing will be carried out on the quarry floor being screened by the quarry face and perimeter screening berms. • Consideration has been given to screening of the development, phasing and direction of working and restoration of the upper quarry face with respect to receptors so as to reduce the visual impact, while impacts due to noise and dust are substantially attenuated. • Continuance of the quarry operations has the benefit of enabling an appropriate final restoration of the quarry, which will allow full reinstatement of the land to beneficial after-use as a wildlife amenity. • Progressive site restoration allows vegetation to become established during the course of the development, thereby reducing the overall impact of the development (i.e., visual impact, dust impact, flora and fauna impact, etc.). • Grading and planting on completed sections of the upper quarry face will be carried out. • A further 2 years will be required to implement and complete final restoration of the site to a secure wildlife amenity use, which will enable the operator to fully complete the restoration of both the proposed and existing quarry to beneficial after-use. • Redundant structures, plant equipment and stockpiles will be removed from site on cessation of quarry activity. The former plant areas will be restored using topsoil/overburden and planted with a mixture of native trees and shrubs.
12	**Cultural Heritage**	
12.9	Mitigation Measures	• No direct impact on known cultural heritage warranting specific mitigation were identified. • The potential negative and permanent impact on unknown subsurface archaeological deposits or artefacts should be mitigated by monitoring of all topsoil-stripping by a qualified archaeologist. • Any archaeological material identified during archaeological monitoring should be preserved in situ or by record as appropriate under licence from the National Monuments Service. • No indirect or cumulative impacts warranting specific mitigation were identified.

13	Material Assets	
13.6	Mitigation & Monitoring	• Potential impacts on the material assets of the area can arise from the construction, operational, and decommissioning stages of the quarry, and each stage may require different sets of mitigation measures. As an existing quarry with all of the infrastructure on-site, including mobile crushing and screening plant on-site, no construction phase is envisaged • Operational stage will require a full set of mitigation measures to mitigate the impacts of noise & vibration, dust, water quality, visual intrusion and traffic, particularly on sensitive receptors. • Decommissioning stage will involve demolition and removal of infrastructure as well as landscaping, and thus will require mitigation measures largely relating to noise and dust suppression. • The quarry has established an EMS in place that was designed to comply with the environmental requirements of the ISO 14001:2015 standard. • The Environmental Management Plan (EMP) is site specific and designed to comply with the requirements of ISO EN 14001:2015, and will be updated in accordance with any new planning consents or licences. The EMP addresses such matters as Emergency Preparedness & Response in dealing with accident and emergency situations resulting in effects on the environment. • The Company has established an environmental monitoring programme for the quarry site, which allows for on-going monitoring of environmental emissions (e.g., noise, dust, blasting and water) from the site, thereby assisting in ensuring compliance with requirements or regulations. • The results of the monitoring will be made available to Meath County Council on a regular basis. The monitoring programme is sufficiently robust to ensure compliance with any conditions attached to a decision to grant planning permission. • This quarry is located in a rural area of low population density. The boundaries of the quarry are enclosed by a combination of berms, hedgerows and fencing, which are designed to blend into the landscape. There will be ongoing monitoring to ensure that site boundaries are maintained in a proper manner, including thickening of hedgerows, fencing of the landholding, provision and maintenance of quarry signage. • The development will be controlled and regularised through continued environmental monitoring and by conditions imposed by the relevant regulatory authority. The development does not have a significant impact on lands, property or amenity within the area and hence there will be no significant effect on material assets, except the loss of the mineral resource that has been extracted.
14	**Traffic & Roads**	
14.9	Mitigation	A number of mitigation measures will be put in place to reduce the impacts of quarry traffic on the local road network: • The Slane Road, in the vicinity of the entrance, will be mechanically swept on a regular basis. • The pavement in the vicinity of the existing quarry is in good condition and will be reviewed with the Roads Section of Meath County Council at an agreed frequency. • The parking requirements for the proposed development mainly relate to the quarry employees and visitors. It is proposed to maintain sufficient parking spaces within the quarry for employees and visitors. The maximum number of direct employees will be four.

		• Provision will be made to ensure HGVs awaiting entry to the quarry, prior to opening, are allowed to queue inside the quarry. This will ensure a queue of HGVs awaiting entry does not form along the L1603. • The visibility splays in both directions on the Slane Road at the Quarry Access are currently not restricted by boundary vegetation adjacent to the site. However, this vegetation will be routinely cut/trimmed to ensure the required visibility splays are maintained at all times.