

Spink Quarry, Knockbaun, Abbeyleix, Co. Laois

Spink Quarry

Environmental Impact Assessment Report

Section 3

Description of the Proposed Project

2021



Part of the Breedon Group

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3 DESCRIPTION OF THE PROPOSED PROJECT

3.1 INTRODUCTION

The description of the whole project comprising information on the site, design, scale, and other relevant features of the project should consider all relevant phases of the life of the project, from construction through to operation, and in some cases to its decommissioning, closure, and restoration (EPA 2017).

3.2 CHARACTERISTICS OF THE PROJECT

The description of the characteristics of the project development should consider location, site layout, design, size/scale, resource use, waste production, emissions and nuisance, and risk of accidents. The description should consider the full life-cycle of these characteristics, as they have the potential to generate different effects at different times and different places, both on- and off-site.

3.2.1 THE EXISTING SITE

3.2.1.1 General Site Description & Layout

The site is situated in the Townland of Knockbaun and is located c. 10 km east of Abbeyleix and c. 4 km northwest of Swan, Co. Laois. The quarry is located on the southern side of Regional Road R430, which connects the town of Abbeyleix to the west with the village of Swan to the southeast. The site occurs in a wide bow in the R430 as it swings around the hill into which the quarry has been excavated (Refer to Figures 1.1 to 1.3). The quarry was developed on the northern flank of a prominent NW-SE oriented ridge or hill with elevations reaching 261 m Above Ordnance Datum (AOD). The general topographical trend of the landholding is the lower land to the northwest and southeast.

The site occurs at a maximum elevation of 261 m AOD along the southern boundary and a minimum elevation of 215 m AOD along the roadway (northwestern boundary). The surrounding lands are largely agricultural with varying degrees of intensity, with a forestry plantation abutting the site to the south. The topography of the region is that of rolling hilly landscape with the site situated on the northwestern margin of the Castlecomer Plateau, where elevations typically vary from 180 to 270 m AOD.

Hydraulically, there is a divide through the centre of the site with the subcatchments of the River Clogh to the east and the River Owenbeg to the west. Both rivers are part of the River Nore Catchment. A tributary of the River Clogh rises in the vicinity of the site entrance, flows subparallel to the R430, and ultimately drains into the mainstream of the River Clogh near Swan. Two tributaries of the Owenbeg River, the Knockbaun and Garrintaggart, rise south and north, respectively, of the quarry and flow to the northwest to drain into the mainstream of the River Owenbeg c. 500 m from the site.

The applicant is full owner of the freehold interest in the site and full landholding, where the latter comprises c. 19.6 ha. To date, extraction has taken place in the northern and central sections of the quarry, and it is proposed that extraction will be confined to the existing permitted quarry area (P.A. Ref. 10/383) comprising an extraction area of c. 14.5 ha (Refer to Figure 1.2 and 1.3). The quarry comprises predominantly excavated or disturbed ground, with stockpiles of aggregate and upstanding areas of undisturbed ground. The lands to the southeast are largely covered in scrub at present. The historical processing area is located in the northern section of the site, and currently a storeroom, wheel wash, weighbridge, aggregate storage bays, refueling hard stand, water settlement pond system, and other ancillaries remain in place (Refer to Figure 1.3).

The lands are bounded by the R430 on the northern boundary, with agricultural land and afforestation on the remaining boundaries. The surrounding area is typically agricultural land, mostly pasture and forests, with dispersed farmsteads and diffuse or sporadic ribbon development along roadsides and around villages. The residences in the locality are shown on Figures 1-1 to 1-3. The current County Development Plan policy recognises the wider area around Knockbaun as a Structurally Weak Rural Area in respect of rural housing demand and need, and in general, tends to accommodate any demand for permanent residential development, subject to meeting normal planning and environmental criteria. There are no large residential settlements close to the site, with the closest at Swan c. 3.5 km to the southeast. Roads are of a local character and typical of a rural location.

3.2.1.2 Planning History

Historically, the local authority used the lands for rock extraction, which ceased in the 1970s. In 2001, Laurence Behan applied to Laois County Council for planning permission to “develop 18 hectares of land for quarrying rock and tarmacadam plant”. This was granted on appeal and the quarry initially operated under a six year planning permission P.A. Ref. 01/947 and PL 11.130640 from 2003. The planning history for the site is detailed in Table 3.1.

The quarry is currently permitted under P.A. Ref. 10/383 which is for a 10 year period to work the quarry, plus two years for final re-instatement works, unless, prior to the end of the period, planning permission has been granted for its extension for a further period. A copy of the planning permission is included in Appendix 2. The annual extraction rate for the quarry historically was 300,000 to 350,000 tonnes per annum.

The quarry is not currently in operation, and the asphalt plant has been removed from the site. The applicant does not intend to resume asphalt production at the site.

The development will consist of the continued use and operation of the existing quarry including deepening of the quarry. Extraction will be confined to the existing permitted quarry area (P.A. Ref. 10/383) comprising an extraction area of c. 14.5 ha within an overall application area of c. 19.6 ha. The development will include provision of new site infrastructure, including portacabin site office / canteen, toilets, concrete batching plant and truck washdown facility, hydrocarbon interceptors, mobile crushing and screening plant, upgrading of the water management system, provision of holding tank for wastewater, and other ancillaries. The proposed development will utilise/upgrade the existing insitu quarry infrastructure, including

site access, internal roads, storeroom, wheel wash, weighbridge, aggregate storage bays, refuelling hard stand, water settlement pond system, and other ancillaries.

As stated previously, the site was operated under a number of successive planning permissions since 2003, i.e.

- P.A. Ref. 01/947 (PL 11.130640) - Full planning permission to development of hard rock quarry and tarmacadam plant including crushing, washing, and screening plant on c. 23.6 ha of lands at Knockbaun, Spink, near Abbeyleix, Co. Laois. The planning application was accompanied by documentation including plans and an EIS. The proposed development included the following elements:
 - 18 hectares for quarrying rock for the purpose of manufacture of road making materials;
 - installation of quarrying, crushing, and screening plant, machinery to include rock breakers, loaders, and trucks;
 - erection of tarmacadam manufacturing plant with bunded diesel storage tanks;
 - construction of entrance and access roadway;
 - erection of prefabricated offices, canteen, and toilets with installation of septic tank and Puraflo;
 - weighbridge and wheel wash;
 - landscaping including construction of berm along road frontage.

Permission was granted on both 1st and 3rd party appeal with 25 conditions on 18th June 2003.

- P.A. Ref. 08/729 – On the 6th June 2008, Laurence Behan applied to the Council to amend the conditions with respect to hours of operation and permissible level of dust emissions. On the 28th July 2008, the Council granted permission to vary condition 16(1) and extend dust emission limits for the existing development to a limit of 350 milligrams per metre squared per day averaged over a continuous period of 30 days, but refused permission to vary condition 5(1) in relation to operating hours. On the 19th February 2009, in response to a 1st party appeal, An Bord granted permission for the tarmacadam plant to operate between 0600 hours and 1800 hours Monday to Friday and 0600 and 1400 hours on Saturday, while all other operations were permitted between 0730 and 1800 hours Monday to Friday and 0730 and 1400 hours on Saturday. Pumping operations if necessary, may be carried out on a 24-hour basis, seven days a week.
- P.A. Ref. 09/384 – On the 15th June 2009, Laurence Behan applied to the Council for permission for an extension of duration for planning permission P.A. Ref. 01/947. On the 5th August 2009, the Council granted permission to extend the appropriate period for the duration of planning permission P.A. Ref. 01/947 by a period of 2 years.
- P.A. Ref. 10/383 – On the 23rd July 2010, Laurence Behan applied to the Council for permission for continuance of use of the development at Knockbaun. The planning application was accompanied by an EIS (Green 2009). On the 11th August 2011, the Council granted permission for the continued use of the development in accordance with

the plans, particulars and EIS, as amended by additional information requests, except where otherwise required by the 20 conditions attached to the permission. The permission is for a 10 year period to work the quarry, plus two years for final reinstatement works, unless, prior to the end of the period, planning permission has been granted for its extension for a further period.

- P.A. Ref. 11/146 – On the 5th April 2011, in the interim while P.A. Ref. 10/383 was at the further information stage, Laurence Behan applied to the Council for permission to extend the duration on planning permissions P.A. Refs. 01/947 and 09/384 in relation to the development at Knockbaun, which were due to expire on the 18th June 2011. On the 26th May 2011, the Council granted permission for the extension of duration of the development under P.A. Ref. 01/947 by 3 years with one condition with respect to lodgement of a bond in the amount of €50,000 for restoration and making the site safe. Thereafter, and prior to final grant of P.A. Ref. 10/383, the expiry date for P.A. Ref. 01/947 was 18th June 2014.

Laois County Council Planning Authority, Viewing Purposes Only

Table 3.1 Planning History associated with Quarry Lands at Knockbaun, Spink, Co. Laois

File No	Decision	Decision Date	Description
01947 ABP 11.130640	CONDITIONAL	18/06/2003	Develop 18 hectares of land for quarrying rock and tarmacadam plant
08729	CONDITIONAL	18/08/2008	Permission granted to alter condition No. 16(1) of P.Ref 01/947 (P111130640) to extend dust emission levels to a limit of 350 mg/m ² /day.
08729 11.230622	CONDITIONAL	19/02/2009	Permission granted on 1 st party appeal to permit the tarmacadam plant to operate between 0600 hours and 1800 hours Monday to Friday and 0600 and 1400 hours on Saturday. All other operations shall be permitted between 0730 and 1800 hours Monday to Friday and 0730 and 1400 hours on Saturday. Pumping operations if necessary, may be carried out on a 24-hour basis, seven days a week.
09235	INCOMPLETED APPLICATION	N/A	The continuance of use for (A) quarrying on an area of 16.79 ha in an overall site area of 26.70ha (B) offices, weighbridge, service workshop, laboratory, toilets, canteen & stores having a total floor area of 466.52sq m, septic tank, bord na mona puraflo effluent treatment system and entrance, (C) of all plant & machinery including crushers, tar plant, bitumen storage tanks, screen house, bunded fuel tanks, silos, bins, generators, (D) wheel washing & dust suppression systems, (E) upgrading of existing surface water drainage ponds
09384	EXTENSION OF DURATION	5/08/2009	Extension of duration of 2 years on Planning Ref: 01/947
10369	INCOMPLETED APPLICATION	14/07/2010	Continue use for (a) quarrying on an area of 16.79 ha in an overall site area of 26.70 ha, (b) offices, weighbridge, service workshop, laboratory, toilets, canteen and stores having a total floor area of 466.52 m ² , septic tank, bord na mona puraflo effluent treatment system and entrance, (c) of all associated plant and machinery including crushers, tar plant, bitumen storage tanks, screen house, bunded fuel tanks, silos, bins, generators, (d) wheel washing and dust suppression systems and surface water drainage ponds. This application is accompanied by an Environmental Impact Statement.
10383	CONDITIONAL	19/09/2011	Continue use for (a) quarrying on an area of 16.79 ha in an overall site area of 26.70 ha, (b) offices, weighbridge, service workshop, laboratory, toilets, canteen and stores having a total floor area of 466.52 m ² , septic tank, bord na mona puraflo effluent treatment system and entrance, (c) of all associated plant and machinery including crushers, tar plant, bitumen storage tanks, screen house, bunded fuel tanks, silos, bins, generators, (d) wheel washing and dust suppression systems and surface water drainage ponds. This application is accompanied by an Environmental Impact Statement.
11146	EXTENSION OF DURATION	26/05/2011	Extension of duration for Planning Permission Reference No. 01/947. Includes a condition to lodge a cash deposit of €50,000 or a bond of an insurance company in relation to the restoration and making safe of the site as required in connection with the development...To ensure the satisfactory completion of the development in compliance with Condition 24 of Ref 11.130640.

Note: Active permissions are shaded in light blue.

3.2.1.3 Current Disposition of the Site

Lagan acquired the quarry at Spink in 2014, and is the full owner of the freehold interest in the lands. The quarry is not currently in operation with most of the operational site infrastructure, including the asphalt plant, crushing and screening plant and machinery having been removed off-site. The infrastructure remaining in situ includes securable site entrance, internal roads, store, wheel wash, weighbridge, aggregate storage bays, refuelling hard stand, water settlement pond system, and other ancillaries (Refer to Figure 1.3).

The quarry is permitted under P.A. Ref. 10/383 which is for a 10 year period to work the quarry, plus two years for final re-instatement works, unless, prior to the end of the period, planning permission has been granted for its extension for a further period. Extraction will be confined to the existing permitted quarry area (P.A. Ref. 10/383) comprising c. 14.5 ha extraction area within the full landholding of c.19.6 ha. The site is roughly rectangular with an axial orientation of NW-SE. It is bounded by, and has frontage onto, the R430 Regional Road on the northern boundary with an entrance in the approximate centre of that frontage.

To date, extraction of Clay Gull Sandstone has taken place in the northern and central sections of the quarry lands. Much of the site comprises excavated or disturbed ground, with stockpiles of aggregate and areas of undisturbed ground. A sump is situated near the centre of the site. A substantial section in the southeastern part of the quarry, which is currently permitted, has been stripped of overburden and the overlying Coolbaun sandstone/shales have been partially worked. The overburden has been used to restore the upper quarry face forming the southern boundary and screening berms along the northern site boundary. The southeasternmost section of the landholding, remains as undisturbed scrub and poor grazing land and will remain in place to form a natural screening barrier from views to the east and northeast. The development is screened by vegetated earthen berms that bound the northern boundary along the R430, as well the western and eastern boundaries that bound agricultural lands.

3.2.2 PROPOSED DEVELOPMENT

3.2.2.1 Development Overview

The development will consist of the continued use and operation of the existing quarry including deepening of the quarry. Extraction will be confined to the existing permitted quarry area (P.A. Ref. 10/383) comprising an extraction area of c. 14.5 ha within an overall application area of c. 19.6 ha. The development will include provision of new site infrastructure, including portacabin site office / canteen, toilets, concrete batching plant and truck washdown facility, hydrocarbon interceptors, mobile crushing and screening plant, upgrading of the water management system, provision of holding tank for wastewater, and other ancillaries. The proposed development will utilise/upgrade the existing insitu quarry infrastructure, including site access, internal roads, storeroom, wheel wash, weighbridge, aggregate storage bays, refuelling hard stand, water settlement pond system, and other ancillaries.

When the quarry was operational, it produced a range of aggregates for construction use, as well as asphalt used in road construction. Shallow overburden was stripped to expose the bedrock for extraction, and this overburden was used for landscaping purposes, including

construction of screening berms and restoration of upper quarry faces along the southern boundary. The rock was extracted by blasting on a roughly monthly basis. The shot holes were drilled by air rotary drilling, while blasting used a slurry based explosive. The broken rock was transported to the processing area, and was crushed, screened, and stockpiled. The permitted production of 300,000 to 350,000 tonnes per annum at the time equated to c. 60 truckloads per day on a 48 working week per year basis.

The attached Site Layout Figure 3.1 shows the proposed site layout including mobile crushing, and screening plant, wheel wash, weighbridge, site office, concrete batching plant, truck washdown facility, water management ponds, quarry sump, refuelling hard stand and other ancillaries. Cross sections illustrating the quarry development are shown in Figure 3.3.

A 50 m standoff from the extraction area to the R430 Regional Road will continue to be maintained. This standoff area includes the existing site access, store, wheel wash, weighbridge, refueling hard stand, final water settlement ponds, perimeter screening berms, and other ancillaries. The standoff also includes the northeastern constructed pond/wetland at the site entrance that feeds the headwaters of the Clogh stream. The rising of the Clogh River is in this zone and is thereby protected. This bank also acts to screen the development from views to the north.

A detailed resource assessment and quarry design has been prepared (Refer to EIAR Section 3.3.3.2 below).

The geological assessment carried out by SLR (Refer to Appendix 6) indicates that the sandstones of the Clay Gall Sandstone Formation are strong to very strong and are likely to be of high quality, similar or of even greater consistency to those previously worked in the quarry, and should be capable of producing a surface dressing chip similar to that previously produced. These lithologies should be capable of producing aggregates compliant with the specifications below:

- Transport Ireland Infrastructure (TII) Series 500, 600 and 800 unbound fill materials;
- SR21: 2014 + A1: 2016 Annex E Guidance on the use of I.S. EN 13242 unbound fill materials; and
- S.R. 16 Guidance on the use of I.S. EN 12620:2002 Aggregates for concrete products.

The Coolbaun Formation (siltstones and mudstones with occasional sandstones) will likely be used more as a general fill material and / or for use in the manufacture of cement at Lagan's cement works at Killaskillen, Kinnegad, Co. Meath.

It is proposed that the quarry will be worked in a series of benches (typically 10 to 20 metres) down to a final depth of 200 m AOD in the western quarry area and 190 m AOD in the eastern quarry area (Refer to Figures 3-1 and 3-3). The development will see the extraction of both the Clay Gall Sandstone Formation and Coolbaun Formation, which overlies the Clay Gall sandstones to the east of the existing quarry sump. The workable reserves have been calculated at c. 5.8 million tonnes (Refer to Table 3.2 below).

The scale of the operation under planning permission P.A. Ref. 10/383 was up to a maximum output of 350,000 tonnes per annum, although it is proposed that the average output will be closer to c. 200,000 tonnes per annum, giving an anticipated duration for the extraction of c.

29 years. 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 to beneficial after-use.

There will be no changes to the method of extraction and processing as a result of this planning application. Drilling and blasting will continue to be utilised with processing of extracted rock using mobile crushing and screening plant located within the quarry void. This will reduce handling of material and will also have the benefit of screening these activities from outside views, and being at depth, will also mitigate impacts associated with noise and dust. The broken rock will be excavated by a combination of either a wheeled loading shovel and / or excavator. Once loaded, the excavated rock will be taken directly to the crushing plant.

An average annual output of the order of 200,000 tonnes equates to traffic volumes from the development of approximately 38 truckloads including the concrete plant per day leaving the site on a 48 working week per year basis. The existing wheelwash will ensure that the wheels and undersides of all vehicles transporting aggregate from the site onto the public road are cleaned.

The settlement sumps and the floor of the quarry have sufficient volumetric capacity to accommodate all waters for the required residence time. Discharge will be of a quality that will not impact surface water quality.

The water management and settlement pond system already in place at the site is designed and engineered for an increased capacity to that required for this proposed development. This will ensure that there is no change in resultant concentrations of Suspended Solids at the point of mixing for the discharge into the Owveg_010 stream.

There will be no bulk fuels stored on-site. Refuelling of construction vehicles will be carried out on the existing dedicated hard standing area with runoff to a hydrocarbon interceptor.

The proximity to residences and the 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. The objective of this scheme is to reduce as far as possible the overall visual impact of the workings (Refer to Figures 3.1 to 3.3). Furthermore, mitigation measures to alleviate any adverse impacts from the development on the environment have been incorporated into the design to ensure that the development can be operated above / within accepted thresholds / standards for this type of development.

The site will be worked from the existing quarry area in a westerly direction in a series of benches to between 206 and 200 m AOD. The quarry design takes into account a requirement identified in the hydrogeological study of the EIAR (Refer to Section 7) to maintain at least a 5 metre buffer above the contact between the Clay Gall Sandstone Formation and Moyadd Coal Formation. This will reduce the amount of water to be managed and discharged offsite (Refer to EIAR Section 7.5.8.4). The western quarry area has already been developed to c. 225 m AOD. The material to be worked in this area comprises the high-quality Clay Gall sandstones.

At the same time, the quarry will be pushed in an easterly direction with removal of the overlying Coolbaun Formation to expose the underlying Clay Gall Sandstone Formation. The eastern quarry area will be developed in a series of typically 10 m benches down to c. 190 m AOD (Refer to Figures 3.1 to 3.3).

The proposed design shows the progressive deepening of the existing quarry sump as quarrying progresses to 200 m AOD. The final sump for the quarry will extend to a depth of 190 m AOD in the eastern quarry area and is also shown on Figures 3.1 and 3.3. As quarrying progresses, a sump with a minimum available volume of 15,650 m³ will be maintained—this could take the form of 75 m by 75 m and an unsaturated depth of 3 m, or equivalent. A freeboard of at least 1 m will be provided above this level.

The site has the benefit of being strategically located on the R430 Regional Road, which connects Abbeyleix c. 10 km to the west with Carlow c. 20 km to the east southeast. The proposed haulage route for all site-related HGV traffic is therefore directly onto the R430 (Refer to Figure 1.1). As such, site traffic will be immediately directed onto the regional road network and thus avoid adversely impacting the local road network.

The R430 to the existing quarry entrance is an unaligned single lane 6–7 m single carriageway with 2 No. 0.5–1 m sloping grass verges. At the quarry entrance, there is a right turning lane provided on the R430 on the west side of the entrance.

The pavement is in good condition, although the line markings of the right turning lane require renewal. Pavement upgrading and repair will be a mitigation of any damage caused by the increased quarry traffic. This improvement to the pavement will be enjoyed by all the road users in the area.

The site access junction has existing sight distances of 300–500 m west and east and is located on a slightly curved section of the R430. There is an existing right turning lane for turning into the quarry on the western approach to the quarry access. The junction is located within the 80 km/hr speed limit area.

Appropriate advance warning signage will also be provided along the R430 at locations to be agreed with the Planning Authority.

The proposed development of the quarry will directly employ a work force of three persons including quarry manager and general operatives. In addition to these three employees, there will be up to an additional three contractors employed on site with respect to contract crushing, screening and haulage.

3.2.2.2 Description of Design

Details of the description of design are addressed in Section 2.1.6 Alternative Designs.

The attached Site Layout Figure 3.1 shows the site layout including the position of the mobile crushing and screening plant, concrete batching plant and truck washdown facility, wheel wash, weighbridge, site office, canteen, toilets, water management ponds, refuelling hard stand and other ancillaries. Cross sections through the site also illustrate the effectiveness of working the quarry top-down, with progressive restoration of the back face and favourable direction of working (Refer to Figure 3.3).

The main site activity including mobile processing plant will be sited on the quarry floor and as such benefit from screening afforded by the existing quarry faces and perimeter berms and hedgerows.

As a natural consequence of the planning and EIA process, alternative schemes in terms of the working phases, face heights, direction of working and site restoration, etc. have been considered. By a process of examination and elimination the final scheme now proposed is considered to be the most appropriate.

3.2.2.3 Description of Size or Scale

The development will consist of the continued use and operation of the existing quarry including deepening of the quarry. Extraction will be confined to the existing permitted quarry area (P.A. Ref. 10/383) comprising an extraction area of c. 14.5 ha within an overall application area of c. 19.6 ha (Refer to EIAR Figures 1.2 and 1.3). The site is located on lands immediately south of Regional Road R430 and has c. 700 m of frontage onto the R430. The site is otherwise bound by agricultural and forested lands.

There are no residences within or abutting the application site. The closest residential property is situated c. 175 m west of the northernmost corner of the application site and is one of a cluster of three residences at Larkin's Cross where the R430 intersects rural roads L7792 and L77921. Two further residences are situated nearby along rural road L77921, while a sixth residence is situated on the L77922 c. 240 m directly across from the site entrance. Because of the intervening hill into which the quarry was driven, the residence situated c. 240 m opposite the site entranceway is the only residence within 250 m that has views of the quarry workings (i.e., No. 4 in Figure 4.1). There has been a long historical association with quarrying at this location and consideration has been given to screening of the development, phasing and direction of working with respect to receptors so as to reduce visual impact, while impacts due to noise and dust are substantially attenuated.

The site is situated in a predominantly rural area of southeast County Laois.

The northern and central area of the quarry site is largely dominated by bare, exposed ground, aggregate stockpiles, and quarry infrastructure with areas of scrub and hedgerow on undeveloped lands around the perimeter. The southeasternmost section of the land holding (c. 4.7 ha), remains as undisturbed scrub and poor grazing land and will remain in place to form a natural screening barrier from views to the east and northeast. The adjacent land to the south is higher than the site and combined with a substantial number of hedgerows, native trees, and forestry along the boundaries, makes the site relatively secluded (Refer to Figure 3.1).

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. Plans and sections of the design and associated restoration are shown on Figure 3.1 and 3.3.

As detailed above (Refer to EIAR Section 3.2.2.1), the quarry development will be phased with development of both the western and eastern quarry areas being developed concurrently to

produce both high quality Clay Gall Sandstone aggregates with the Coolbaun Formation (siltstones and mudstones with occasional sandstones) to be used more as a general fill material and/ or for use in the manufacture of cement at Lagan's cement works at Killaskillen, Kinnegad, Co. Meath.

It is proposed that the quarry will be worked in a series of benches (typically 10 to 20 metres) down to a final depth of 200 m AOD in the western quarry area and 190 m AOD in the eastern quarry area. The development will see the extraction of both the Clay Gall Sandstone Formation and Coolbaun Formation, which overlies the Clay Gall sandstones to the east of the existing quarry sump. The workable reserves have been calculated at c. 5.8 million tonnes.

It is proposed that the average output will be closer to c. 200,000 tonnes per annum, giving an anticipated duration for the extraction of c. 29 years. A further 2 years will be required to implement and complete final restoration of the site to a secure wildlife refuge/ amenity use.

3.2.2.4 Duration of Permission

This application seeks to secure permission on the remaining reserves within the company landholdings. This is extremely important if the site is to be worked in accordance with sound planning practice. In particular, the ongoing restoration of the site needs to be considered as part of a restoration scheme for the whole of the site.

Many extractive operations begin without a long-term strategic vision, principally because of the tendency for granting of short-term permissions only. Such short-term permissions lead to a fragmented approach to site operation and in particular to the site restoration. Site restoration needs to be carried out as part of an overall long-term vision for the site.

The working of minerals generally takes place over medium to long term time scales. Without the certainty of a planning permission of reasonable duration there cannot be a long-term strategy. This application therefore seeks permission on all of the remaining reserves within the landholding.

Operating under short term permissions is not conducive to sound planning of the site or to the implementation of best restoration practice. There are therefore no sound reasons as to why permission should not be granted over those reserves remaining within the land ownership.

It is considered that the planning authority should have regard to the expected life of the reserves within the site. The need for a reasonable duration of planning permission is also recognised within Guidance issued by the Department of the Environment to Planning Authorities i.e., 'Quarries and Ancillary Activities Guidelines for Planning Authorities (April 2004). Section 4.9 – Life of planning permissions states that "*Where the expected life of the proposed quarry exceeds 5 years it will normally be appropriate to grant permission for a longer period (such as 10 – 20 years), particularly where major capital investment is required at the outset. In deciding the length of the planning permission, planning authorities should have regard to the expected life of the reserves within the site*".

In this case, the applicant already has in place much of the necessary infrastructure together with a buoyant market for the aggregate products.

The proposed development is required for a duration of c. 29 years in order to extract the known resource, with a further 2 years to fully restore the site to a secure wildlife refuge / amenity use, in order to justify the capital expenditure, and to provide for local employment and a supply of locally sourced construction aggregates and concrete.

3.2.3 GOVERNMENT POLICY

Government Policy in both the National and Regional contexts with respect to the proposed development, as well as Planning & Development Control, are addressed in Appendix 1.

Laois County Council Planning Authority, Viewing Purposes Only

3.3 EXISTENCE OF THE PROJECT

The description of the existence of the project considers all aspects of the project lifecycle from construction to decommissioning. These include the following:

- Construction;
- Commissioning;
- Operation;
- Changes to the project; and
- Decommissioning.

3.3.1 DESCRIPTION OF CONSTRUCTION

3.3.1.1 Land-Use

The site lies in rolling hilly uplands on the northwestern margin of the Castlecomer Plateau. Topographically, the lands are within the watershed of the River Nore Basin. The quarry has been developed into the northeastern flank of a prominent NW-SE oriented ridge or hill, with elevations reaching 261 m AOD. The hill contains high quality sandstone resources.

The site occurs at a maximum elevation of 261 m AOD along the southern boundary and a minimum elevation of 215 m AOD along the R430 roadway (northeastern boundary). The surrounding lands are largely agricultural with varying degrees of intensity, with a forestry plantation abutting the site to the south.

Hydraulically, there is a divide through the centre of the site with the subcatchments of the River Clogh to the east and that of the River Owenbeg to the west. Both rivers are part of the River Nore Catchment and combine farther downstream. A tributary of the River Clogh rises in the vicinity of the site entrance, flows subparallel to the R430, and ultimately drains into the mainstream of the River Clogh near Swan. Two tributaries of the Owenbeg River, the Knockbaun and Garrintaggart, rise south and north, respectively, of the quarry and flow to the northwest to drain into the mainstream of the River Owenbeg c. 500 m from the site.

The development will consist of the continued use and operation of the existing quarry including deepening of the quarry. Extraction will be confined to the existing permitted quarry area (P.A. Ref. 10/383) comprising an extraction area of c. 14.5 ha within an overall application area of c. 19.6 ha. To date, extraction has taken place in the northern and central sections of the quarry. The quarry comprises predominantly excavated or disturbed ground, with stockpiles of aggregate and upstanding areas of undisturbed ground. The southeasternmost section of the land holding (c. 4.7 ha), remains as undisturbed scrub and poor grazing land and will remain in place to form a natural screening barrier from views to the east and northeast.

Existing site infrastructure, including site access, internal roads, store, wheel wash, weighbridge, aggregate storage bays, refueling hard stand, water settlement ponds and other ancillaries are located in the northwestern corner of the site (Refer to EIAR Figure 3.1).

The development will include provision of new site infrastructure, including portacabin site office / canteen, toilets, concrete batching plant and truck washdown facility, hydrocarbon interceptors, mobile crushing and screening plant, upgrading of the Water Management System, provision of holding tank for wastewater, and other ancillaries. The mobile crushing and screening plant will be located within the quarry void so as to reduce handling of material and will also have the benefit of screening these activities from outside views, and being at depth, will also mitigate impacts associated with noise and dust.

The lands are bounded by the R430 on the northern boundary, with agricultural land and afforestation on the remaining boundaries. The surrounding area is composed typically of agricultural land, mostly pasture, and afforestation, with dispersed farmsteads and diffuse or sporadic ribbon development along roadsides and around villages. There are no large residential settlements close to the site, with the closest at Swan c. 4 km to the southeast. Roads are of a local character and typical of a rural location.

As the quarry has been developed by excavating into the northeastern flank of a hill, the latter screens all views of the workings in an arc from the northwest to west to south. Presently, there are only intermittent views of the workings along the R430 east of the entranceway with most views of the current quarry workings screened by existing perimeter berms and screen planting along the roadside boundary. There are also intermittent, middle-distance views from rural road L77922 and rural road L7792. These limited, intermittent views generally amount to views of the upper quarry face, against the coniferous forest forming the southern site boundary.

Overburden stripped to access the underlying resource has been used to construct peripheral screening berms and for restoration of completed upper sections of the excavation. An earthen berm with screening from mature planting of deciduous trees fringes the c. 700 m northeastern boundary of the quarry site with the R430, while the other boundaries are largely maintained with stock fencing and hedgerows.

There are a number of residences within 1 km of the application site boundary, with 6 residences within 250 m, 9 residences within 500 m, and 36 residences within 1 km. The closest residential property is situated c. 175 m west of the northernmost corner of the application site and is one of a cluster of three residences at Larkin's Cross, where the R430 intersects rural roads L7792 and L77921. Two further residences are situated nearby along rural road L77921, while a sixth residence is situated on the L77922 c. 240 m directly across from the site entrance. Because of the intervening hill into which the quarry was driven, the residence situated c. 240 m opposite the site entranceway is the only residence within 250 m that has views of the quarry workings (i.e., No. 4 in Figure 4.1).

There has been a long historical association with quarrying at this location and 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 saleable aggregate reserves within the proposed extraction area have been calculated following a detailed geological survey and drilling programme (Refer to Appendix 6) conducted by SLR Consulting (SLR 2020). Additional well drilling carried out as part of the hydrogeological assessment of the quarry (Refer to EIAR Section 7.5.4), a geophysical survey by Apex Geophysics (Refer to Appendix 7.3), and mapping of the quarry faces were used to refine the geological model for the site.

An aerial drone survey of the site was used to produce orthorectified images and a centimetre accurate Point Cloud for existing topography of the site. Digital terrain modelling (DTM) software was then used to produce 3D models of the existing topography, geological formations, and quarry design.

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°;
- 3 m Residual benches between subsequent benches;
- 80 m Buffer to Production Well PW2 in northwestern corner of quarry;
- With respect to protecting the river systems to the east of the site, the proposed quarry design makes provision for a 50 m buffer zone set back from the boundary with the R430 Regional Road. There will be no quarrying and no construction activity in this area. The Clogh_010's rising was mapped by the EPA to occur within 30 m of the R430 route. Therefore, an appropriate protection zone is afforded;
- The site will be worked from the existing quarry area in a westerly direction in a series of benches between 206 and 200 m AOD. The quarry design takes into account a requirement identified in the hydrogeological study of the EIAR (Refer to Section 7) to maintain at least a 5 metre buffer above the contact between the Clay Gall Sandstone Formation and Moyadd Coal Formation. This will reduce the amount of water to be managed and discharged off-site (Refer to EIAR Section 7.5.8.4). The western quarry area has already been developed to c. 225 m AOD. The material to be worked in this area comprises the high-quality Clay Gall sandstones;
- At the same time, the quarry will be pushed in an easterly direction with removal of the overlying Coolbaun Formation to expose the underlying Clay Gall sandstones. The eastern quarry area will be developed in a series of typically 10 m benches down to c. 190 m AOD (Refer to Figures 3.1 to 3.3);
- The proposed design shows the progressive deepening of the existing quarry sump as quarrying progresses to 200 m AOD. The final sump for the quarry will extend to a depth of 190 m AOD in the eastern quarry area and is also shown on Figure 3.1 and 3.3.

- As quarrying progresses, a sump with a minimum available volume of 15,650 m³ will be maintained—this could take the form of 75 m by 75 m and an unsaturated depth of 3 m, or equivalent. A freeboard of at least 1 m will be provided above this level; and
- For the purpose of calculations, an average rock density of 2.6 tonnes / m³ was assumed.

The average annual output will be in the order of 200,000 tonnes giving an anticipated duration for the extraction of c. 29 years.

Table 3.2 Details of Quarry Reserves

Bench m OD	Formation	Western Quarry Area		Eastern Quarry Area		Total tonnes
		Cu.m	tonnes	Cu.m	tonnes	
258 to 230	Coolbaun			568,369	1,477,760	2,128,352
230 to 220				250,228	650,592	
225 to 206	Clay Gall			95,778	249,022	3,716,888
206 to 200		427,013	1,110,234			
220 to 210		71,770	186,602			
210 to 200				308,361	801,739	
200 to 190				279,084	725,619	
					247,566	
						5,845,240

3.3.1.3 Preliminary Development Works

The site is an existing hard rock quarry and therefore much of the infrastructure required for this type of extraction operation is already in place. The proposed development will utilise/upgrade the existing in-situ quarry infrastructure, including site access, internal roads, storeroom, wheel wash, weighbridge, aggregate storage bays, refueling hard stand, water settlement pond system, and other ancillaries.

The development will include provision of new site infrastructure, including a portacabin site office / canteen, toilets, concrete batching plant and truck washdown facility, hydrocarbon interceptors, mobile crushing and screening plant, upgrading of the water management system, provision of holding tank for wastewater, and other ancillaries. These facilities will be

sited within the footprint of the existing quarry area and as such there will be no requirement to strip overburden and/or prepare the ground.

The perimeter of the entire working area has been secured in accordance with the requirements of the Safety, Health and Welfare at Work (Quarries) Regulations.

3.3.1.4 Access

It is proposed to use the existing entrance to the site, which has been serving the quarry development for a number of years. Access to the proposed development is directly onto the R430 Regional Road. All materials from the site are transported directly via Abbeyleix 10 km to the west or Swan 4 km to the east.

There is a well set-back, splayed, and paved entrance with large heavy-duty lockable metal gates. The access road surface is composed of wearing course macadam. The access road is 9 m wide with 2 m high palisade double gateway. There is a steel box beam single swing barrier with single swing 3 m the roadside of the gateway. There is a dwell area of 25 m from the regional road edge to the gateway.

The site access junction has existing sight distances of 300–500 m west and east and is located on a slightly curved section of the R430. There is an existing right turning lane for turning into the quarry on the western approach to the quarry access. The junction is located within the 80 km/hr speed limit area.

The internal quarry access roads will have a gradient of 1:10, which is suitable for site vehicles, and will aid reduction in vehicle noise, which can result from revving / braking of vehicles trying to traverse steep gradients.

A wheelwash has been provided to ensure that the wheels and undersides of all vehicles transporting aggregate from the site onto the public road are cleaned. The weighbridge will be recommissioned on site to ensure all vehicles transporting material are weighed prior to exiting site.

Appropriate advance warning signage will also be provided along the R430 at locations to be agreed with the Planning Authority.

The 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.

3.3.1.5 Site Drainage

The working floor of the existing quarried area has an elevation of c. 225 m AOD. The proposed first phase of excavation will involve extraction to a floor level of 200 m AOD within the existing worked area. The applicant intends to progress extraction in a stepped fashion towards the south-eastern area of the site, where a final floor elevation of 190 m AOD is proposed, essentially following the Clay Gall Sandstone dip as described by SLR (2020). The quarry design takes into account a requirement identified in the hydrogeological study of the EIAR (Refer to Section 7) to maintain at least a 5 metre buffer above the contact between the

Clay Gall Sandstone Formation and Moyadd Coal Formation. This will reduce the amount of water to be managed and discharged offsite (Refer to EIAR Section 7.5.8.4).

Constructed settlement ponds are present in the northwestern and southwestern corners of the site. The existing quarry sump occurs in the central portion of the site, which has a footprint of approximately 1 ha.

Rainfall landing in the catchment upgradient of this area drains by gravity to the sump. Rainfall landing in the western half of the quarry drains by gravity either to the sump or towards the northwestern corner of the site, which accommodates the existing water management infrastructure.

It is understood that during previous operations, water was pumped initially from the sump to a series of four interconnected settlement ponds in the southwestern corner of the site (referred to as 'Western Settlement Ponds' in Figure 7.2). These ponds remain in-situ and are fit for use for the management of the quarry's waters in the future (Refer to Plate 7.3). All settlement system ponds at the site are lined with concrete and are impermeable.

The site straddles a mapped surface water catchment boundary that separates lands that drain naturally to the Owenbeg River to the west and the Clogh River to the east. The lands between the site and these watercourses are drained by a network of agricultural field drains and first order streams. The drainage routes connecting the site to both of these rivers was assessed for their potential suitability to safely receive and transmit natural catchment flows plus additional quarry discharge.

With respect to protecting the river systems to the east of the site, the proposed quarry design makes provision for a 50 m buffer zone set back from the boundary road. There will be no quarrying and no construction activity in this area. The rising of the Clogh River is in this zone and is thereby protected.

Hydraulic modelling of the surface water system (Refer to EIAR Section 7), based on cross sections and surveying, has demonstrated that the local area's surface water network can accommodate the predicted dewatering amounts, in combination with flood flows and allowances for climate change. The western route is more suitable for safely transmitting the predicted quarry discharge.

In line with standard practice, discharge surface water should be limited to the pre-quarrying discharge rate in order to mitigate against downstream flooding. As quarrying progresses, a sump with a minimum available volume of 15,650 m³ will be maintained—this could take the form of 75 m by 75 m and an unsaturated depth of 3 m, or equivalent.

Waters will be pumped from the sump to the settlement pond system. The existing settlement ponds have been recommissioned and are now ready to remove particulate matter from waters prior to discharge from site (Refer to Plate 7.3). Additional clarification will be provided in the final settlement ponds prior to discharge. The existing settlement pond systems have been assessed as adequate for the requirement of the proposed development.

Quarry water currently leaves the northwestern half of the quarry by gravity *via* an open ditch that extends northwest from the final clarification pond through the roadside embankment. This ditch has become silted up over time, such that waters now flow along a very narrow channel on the southern side of the R430 before entering a gully. This gully is located 120 m

northwest of the final pond outfall. In the course of pre-planning consultation with Laois County Council, they requested that adequate measures are enacted so as to ensure that stormwater or discharge leaving the quarry does not contribute to road runoff in the area. This can be easily achieved following clear out of Laois County Council's under-road culvert in that area. The current connection between the final outfall pond and the aforementioned gully chamber shall be upgraded by way of a maintained open channel and subsurface pipe connection to the gully manhole.

The discharge to surface water will be subject to a licence to discharge to surface water as required under Section 4 of the Local Government (Water Pollution) Act, 1977.

The quarry floor and its sump settlement system are to be adequately sized to handle the water volumes they will receive. Discharge has been calculated to intercept the equivalent of < 0.1 % of the regional groundwater flow volume. Water management and discharge have been designed with cognisance of enacted Irish Regulations concerning Groundwater, Surface Water, Birds, Habitats and Pearl Mussels. There will be no significant net loss or gain in the GWB system because the volume intercepted and managed at the site represents, by calculated water balance, <0.1 % of the regional groundwater flow volume. Hydraulic response testing of the bedrock suggests that the radial effect will not impact local wells. Washdown water from the concrete batching plant shall be recycled through a dedicated closed loop water recycling system adjoining the batching plant.

There will be no storage of bulk fuels on site. Servicing of vehicles will take place off site. Lubricants and any other hydrocarbons will be stored on spill pallets and appropriate mobile and non-mobile bunds.

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).

Refuelling of mobile plant will be carried out in the main by a licenced third-party contractor. An impermeable hardstanding pad is installed in the former compound area. The hardstanding pad drains to a perimeter ACO-type drain. All hardstanding runoff passes to a hydrocarbon interceptor, which also has silt storage capacity. This interceptor will be cleaned out on a regular basis by a licenced third party contractor. The hardstanding is therefore appropriate for refuelling of mobile plant (e.g., loading shovel), haulage vehicle(s) and emergency repairs, when necessary.

Spill kits will be stored on site and site operatives will be trained in their appropriate usage.

A final protection measure will be provided by means of a hydrocarbon interceptor on the inlet of the final element of the water management system, which is the 2-pond system in the northwestern area of the site.

A holding tank will be provided for wastewater management of foul water effluent. This holding tank will be routinely cleaned out by a licenced waste contractor.

3.3.2 DESCRIPTION OF COMMISSIONING

On some large projects there is a considerable time delay between the end of construction and the commencement of full operation.

The presence of the existing quarry means that there is little development works required apart from re-installing / commissioning, toilets, wheel wash, weighbridge, aggregate storage bays, refueling hard stand, water settlement pond system, and other ancillaries.

The development will include provision of new site infrastructure, including site office / canteen, concrete batching plant and truck washdown facility, hydrocarbon interceptors, mobile crushing and screening plant, upgrading of the water management system, provision of holding tank for wastewater, and other ancillaries. It is envisaged that these facilities will be commissioned over a 3 to 6 month time frame from the recommencement of quarry activity.

3.3.3 OPERATION OF THE PROJECT

3.3.3.1 Management of the Facility

3.3.3.1.1 Technical Competences & Site Management

Lagan intend to appoint a competent quarry manager with relevant experience of extraction, crushing and screening and haulage of construction aggregates. The Company expects that the quarry will require up to three permanent employees at the quarry.

3.3.3.1.2 Environmental Management & Monitoring

Lagan Materials Ltd operates asphalt plants, concrete plants, aggregate quarries, and associated products manufacturing facilities in strategic locations in order to have the ability to service all but the remotest regions of Ireland. The Company's head office is based on the outskirts of Dublin at Rosemount Business Park, Ballycoolin.

The Company has established an environmental management system (EMS) designed to comply with the environmental requirements of the ISO 14001:2015 standard and the Quality Management requirements of 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 FPC Quality Plans incorporate the procedures and controls in place to reflect the quality system for asphalt and aggregate production. 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 Company has implemented a quality assurance system and an environmental management system and has certification to the ISO 9001 and ISO 14001 standards. The

Company's experience and implementation of the systems has identified the advantages of a structured and systematic approach in achieving managerial objectives. The establishment of an IMS will ensure that the objectives and targets that the Company sets themselves in the environmental and quality policies are appropriate.

The Operations Director will implement the company requirements at regional level and is responsible for the establishment of the EMS. The Head of Planning and 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.

A copy of the Environmental Management Plan (EMP) for the Spink Quarry is included in Appendix 10. This will be updated in accordance with any new planning consents or licences.

The EMP contains the following documentation:

1. Environmental Manual;
2. Depot Procedures Manual;
3. Current Planning Permits, Registrations, Licences and Authorisations;
4. Audit and Inspection Sheets; and
5. Environmental Training for Contractors.

The Depot Procedures manual contains procedures and instructions that govern the environment-critical activities of the product/ service in accordance with the stated objectives of the Environmental Manual.

The 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.

Table 3.3 provides a summary of the Depot Procedures that have been put in place for the quarry at Knockbaun.

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 locations of environmental monitoring stations used to inform the EIAR for the proposed development are shown on the Existing Site Plan of Figure 1.3.

Future environmental monitoring programmes for the site will be submitted to Laois County Council for their approval prior to the commencement of quarry activities.

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.

Table 3.3 Depot Procedures

Depot Procedure No.	Depot Procedure Title
DP001	Air Quality & Air Emissions Management
DP002	Energy Management
DP003	Waste Management
DP004	Emergency Preparedness & Response
DP005	Legislation Management
DP006	Fuel oil, Bitumen & Chemical storage
DP007	Oil Interceptor Management
DP008	Water Management
DP009	Ecological Management
DP010	Noise & Vibration Management
DP011	Landscape & Visual Impact
DP012	Traffic Management
DP013	Archaeology Impact Management
DP014	End-of-Life Plant Management
DP015	Site Security
DP016	Contractor Management
DP017	Communications, Incidents & Complaints
DP018	Corrective & Preventive Actions
DP019	Site Inspection Checklists
DP020	Accident Prevention Policy

3.3.3.2 Working Hours

The proposed quarry working hours are:

Monday to Friday:	07:00 to 18:00 hours.
Saturdays:	07:00 to 14:00 hours
Sundays/Public Holidays	No working except in the case of maintenance or emergency.

It is requested that the transportation of aggregates and concrete can continue to commence from site at 07:00 (Monday to Saturday). This is also in line with the planning and development Guidelines for Quarrying and Ancillary Activities issued by the DoEHLG in 2004. An early start-up is required particularly when servicing large construction projects where the concrete pour must be completed in one operation.

3.3.3.3 Duration of the Extraction

It is proposed that the quarry will be worked in a series of benches (typically 10 to 20 metres) down to a final depth of 200 m AOD in the western quarry area and 190 m AOD in the eastern quarry area. The development will see the extraction of both the Clay Gall Sandstone Formation and Coolbaun Formation, which overlies the Clay Gall sandstones to the east of the existing quarry sump. The workable reserves have been calculated at c. 5.8 million tonnes (Refer to Table 3.2 above).

It is proposed that the average output will be closer to c. 200,000 tonnes per annum, giving an anticipated duration for the extraction of c. 29 years. A further 2 years will be required to implement and complete final restoration of the site to a secure wildlife refuge/ amenity use.

3.3.3.4 Management of Topsoil & Overburden Soils

The extraction area has largely been stripped of soils for use in the construction of perimeter screening berms and for restoration of the upper quarry faces along the southern boundary. In general, bedrock is close to or at surface with less than 0.5 m of soils to be removed.

Topsoil and overburden stripping will be undertaken in a progressive manner as new extraction areas are required and will be on-going throughout much of the life of the operation.

Topsoil and overburden, stripped to obtain access to the underlying bedrock, is used in restoration or placed in temporary overburden storage areas for use in future restoration. The storage areas and restoration areas will be vegetated as soon as is possible, to reduce both visual impact and erosion.

Stripping will be 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:

- Within soil stripping areas, topsoil will be stripped with excavator and dumper trucks working from the haulage track;

- For the replacement of subsoil and topsoil, the machinery will work from the haulage track or the exposed subsoil surface and away from the reinstated part of the site;
- Soils will only be handled in dry weather conditions;
- Soils will not be stripped or placed when the moisture content is high, i.e., after heavy rainfall;
- Soils will not be moved in unusually dry and windy weather conditions;
- Soils will be stored within perimeter security/ screening embankment of the site. This is to allow the vegetation of these screening embankments to develop as soon as possible;
- 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; and
- Topsoil shall be stored to a height not exceeding 3 metres to preserve the organic constituents.

3.3.3.5 Method of Extraction

There will be no changes to the method of extraction and processing as a result of this planning application. Drilling and blasting will continue to be utilised with processing of extracted rock using mobile crushing and screening plant located within the quarry void. This will reduce handling of material and will also have the benefit of screening these activities from outside views, and being at depth, will also mitigate impacts associated with noise and dust. The broken rock will be excavated by a combination of either a wheeled loading shovel and/or excavator. Once loaded, the excavated rock will be taken directly to the crushing plant.

The rock will be extracted using the conventional extraction methods for hard rock quarries. There are a number of stages to the extraction process, which occur on a progressive basis as the quarry is developed. Once the bedrock is exposed, it will be worked by blasting, which will be conducted typically on a monthly basis when required. A pattern of shot holes will be drilled prior to the day of blasting by a specialist drilling contractor equipped with a tracked mounted drilling rig using air rotary drilling. A drilling contractor will be mobilised to site as and when required to undertake drilling operations. 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 using slurry-based explosives by a company holding a current explosive licence (i.e., Irish Industrial Explosives). The rock will be fragmented utilising standard blasting procedures that have been long established at this location. The primary objectives of these procedures are to efficiently extract rock from the quarry face, while ensuring safety of all persons and property.

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.

It is proposed that blasting will be carried out in accordance with Condition No. 7 of Planning Permission P.A. Ref. 10/383).

7. *Blasting & Vibration*

- (a) *The developer shall only carry out blasting during 09.00 18.00 hrs, Monday to Friday, except in emergencies or for health & safety reason beyond the control of the developer. The developer shall put in place a procedure for notifying local residents of the date(s) and times of blasting. This documented procedure shall be agreed with the Planning Authority, and be available on-site for inspection by the Planning Authority.*
- (b) *No blast or combination of simultaneous blasts shall give rise to a ground-borne vibration level at the nearest noise sensitive receptor which exceeds a peak particle velocity of 12 mm/ second, as measured in any of the three mutually orthogonal direction about a fixed point.*
- (c) *No blast shall give rise to an air overpressure level at the nearest noise sensitive receptor that exceeds 125 dB (Lin) maximum peak. 95% of all air overpressure levels measured at the nearest noise receptor location shall conform to the specified limit value. No individual air overpressure value shall exceed the limit value by more than 5 dB(Lin).*
- (d) *The developer shall carry out blast monitoring (ground-borne vibration and air overpressure) for each blast. The monitoring locations shall be agreed in advance with the Planning Authority and shall be established prior to commencement of development. Blast monitoring shall be carried out for each blast, unless otherwise agreed in writing with the Planning Authority. The following information shall be recorded for each blast: date; time; location in the quarry; amount of explosive used; maximum instantaneous charge; vibration and air overpressure monitoring results. The results of the monitoring shall be submitted to the Planning Authority four weeks after the end of the quarter being reported on.*

The local community will be informed by the Company of the blasting schedule i.e.,

- Nearby residences within 200 m of the quarry face will be provided with 7 days written notice of intention to blast.
- 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, all of these identified residents will be contacted by phone approximately 1 hour before the blast is due to take place. A clearly audible warning siren is sounded before each blast. When blasting operations are completed an ALL CLEAR siren is sounded.

A copy of the proposed Blast Notification Procedure & Blast Monitoring Programme to be adopted at Spink Quarry is provided (Refer to Appendix 11).

A wheeled loading shovel and/or backhoe excavator will be used to feed the blasted rock to the mobile crushing and screening plant that 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 and will not be visible from outside views.

This is the extraction method that has been in use at the quarry over many years.

Blasting procedures and a description of any potential environmental impacts, mitigation measures and monitoring of blasting operations is provided in Section 10 – Noise and Vibration.

3.3.3.6 Extraction Design & Phasing

The site will be worked from the existing quarry area in a westerly direction in a series of benches between 206 and 200 m AOD. The quarry design takes into account a requirement identified in the hydrogeological study of the EIAR (Refer to Section 7) to maintain at least a 5 metre buffer above the contact between the Clay Gall Sandstone Formation and Moyadd Coal Formation. This will reduce the amount of water to be managed and discharged off-site (Refer to EIAR Section 7.5.8.4). The western quarry area has already been developed to c. 225 m AOD. The material to be worked in this area comprises the high-quality Clay Gall sandstones.

At the same time, the quarry will be pushed in an easterly direction with removal of the overlying Coolbaun Formation to expose the underlying Clay Gall sandstones. The eastern quarry area will be developed in a series of typically 10 m benches down to c. 190 m AOD (Refer to Figures 3.1 to 3.3).

The proposed design shows the progressive deepening of the existing quarry sump as quarrying progresses to 200 m AOD. The final sump for the quarry will extend to a depth of 190 m AOD in the eastern quarry area, and is also shown on Figures 3.1 and 3.3. As quarrying progresses, a sump with a minimum available volume of 15,650 m³ will be maintained—this could take the form of 75 m by 75 m and an unsaturated depth of 3 m, or equivalent. A freeboard of at least 1 m will be provided above this level.

With respect to protecting the river systems to the east of the site, the proposed quarry design makes provision for a 50 m buffer zone set back from the boundary with the R430 Regional Road. There will be no quarrying and no construction activity in this area. The Clogh_010's rising was mapped by the EPA to occur within 30 m of the R430 route. Therefore, an appropriate protection zone is afforded.

Cross sections through the site also illustrate the effectiveness of working the quarry top-down in successive benches, with progressive restoration of the upper back southern face and favourable direction of working to further reduce the visual impact of the development on the surroundings (Refer to Figures 3-1 to 3-3). The proposed development will enable the operator to fully complete the restoration of both the existing quarry and the proposed development to beneficial after-use. Plans and sections of the design and associated restoration are shown on Figure 3.1 to 3.3.

All crushing and processing will be carried out on the quarry floor being screened by the quarry face and perimeter screening berms. The working scheme has been phased with consideration

given to implementation of landscaping proposals and restoration of worked out areas (in particular the upper quarry face) to further reduce the visual impact of the development on the surroundings (Refer to EIAR Section 11 – Landscape).

The main aim of the landscaping & restoration plan is to minimise the impact of quarrying on the existing landscape of the area both now and into the future. A restoration and landscaping plan has been prepared as part of the application (Refer to Figures 3-2 and 3-3).

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 to beneficial after-use.

3.3.3.7 Stability of the Workings

A detailed working scheme/restoration plan (Refer to Figures 3.1 to 3.3) has been prepared. This working scheme was prepared by a qualified mining engineer. In preparing the design, standard criteria were adopted with regard to face heights and slopes, standoffs to site boundaries, etc. (Refer to EIAR Section 3.3.1.2 above).

Excavations at the site will also be subject to the requirements of the Safety, Health and Welfare at Work (Quarries) Regulations. These regulations 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 and will not be visible from outside views.

All crushing and processing will be carried out on the quarry floor, which is screened by the quarry face and perimeter screening berms.

The crushing and screening operation will consist of primary, secondary, and tertiary stages to produce the range of sizes required.

The Geological assessment carried out by SLR (Refer to Appendix 6) indicates that the sandstones of the Clay Gall Sandstone Formation are strong to very strong and are likely to be of high quality, similar or of even greater consistency to those previously worked in the quarry and should be capable of producing a surface dressing chip similar to that previously produced. These lithologies should be capable of producing aggregates in compliance with the specifications below:

- TII Series 500, 600 and 800 unbound fill materials;
- SR21: 2014 + A1: 2016 Annex E Guidance on the use of I.S. EN 13242 unbound fill materials; and
- S.R. 16 Guidance on the use of I.S. EN 12620:2002 Aggregates for concrete products.

The Coolbaun Formation (siltstones and mudstones with occasional sandstones) will likely be used more as a general fill material and / or for use in the manufacture of cement at Lagan's cement works at Killaskillen, Kinnegad, Co. Meath.

The aggregates produced will then be stockpiled and subsequently loaded out by a front-end loader to road trucks for transport off-site to market and / or to the feed bins for the concrete batching plant.

Chips for surface dressing will be washed in a self-contained mobile washing unit, which incorporates a closed loop recycling of process water.

3.3.3.9 Concrete Batching Plant

The concrete batching plant will have aggregate storage bins comprising 5 x 100 tonne capacity, which will be fed directly by front end loading shovels / dumpers. The aggregate will be weighed in a hopper, which underlies the storage bins and transferred to the concrete batching plant via a 1 m wide conveyer.

Cement will be delivered to site in bulk tankers and stored in sealed silos. A dust control system will be used to control any fugitive emissions from the cement silos. The batching unit will be enclosed to further eliminate fugitive dust.

The mixer will be serviced by associated cement storage silos of 3 x 132 tonne capacity. The silos will extend to a maximum height of c. 13 m in elevation, to allow for an inspection gantry and a reverse jet filter. The silo will be filled from ground level, under pressure, through a cement fill pipe. The cement will be moved to the batching house via a cement screw conveyer and combined with the aggregate prior to mixing.

The entire infrastructure associated with the proposed concrete plant will be constructed on a levelled platform. The batching house will be constructed to allow concrete mixer trucks to reverse into the unit and be filled from the batch chute above. The 5 no. aggregate storage bins, the cement silos and the concrete batching plant will be constructed on suitable foundations and concrete slab floors to ensure stability. All hardcore roads and access ramps will be compacted. Refer to Planning Drawing D08 for details of the Concrete Batching Plant and Site Layout Figure 3.1 for location.

A water storage tank will be put in place in close proximity to the concrete plant and will be fed from an existing well and/or topped up with water from the quarry sump.

The aggregates will be weighed out from the storage bins in batch sizes depending on the volume and specification of concrete required. Cement, water, and admixtures are added to the aggregates in the mixer (wet mix). The mixer agitates the mix and then transfers the mixed material from an overhead loading system into typical road concrete trucks for transport from site. The concrete batching process is controlled by computer.

All operations will be controlled from an integral control cabin incorporated within the concrete batching plant facility.

Concrete trucks will be washed out in a dedicated washing bay adjacent to the Concrete Batching Plant (Refer to Planning Drawing D09). The slurry of solids and water washed from the trucks will be recycled through a closed series of settlement tanks. After settlement has occurred the resulting clean water can then be re-used in the washdown bay, for dust suppression and / or concrete production. The solid material from the wash out process will be transferred to a drying bay prior to reuse / recycling as a general fill material. Concrete that is returned to the plant will be made into concrete lock blocks using special moulds.

The power supply to the plant will be provided by the existing 3 phase supply and pole mounted transformer on the northeastern boundary at the R430.

A site layout of the proposed concrete plant is shown on Figure 3.1, while the detailed plant is shown in Drawing D08.

The production of up to 15,000 m³ of readymix concrete per annum will require the importation of cement and fine aggregates to the proposed development. The coarse aggregate and water will be sourced from within the quarry itself. The annual volumes anticipated to be imported by the operator are;

- cement: 4,500 tonnes; and
- fine aggregate (sand): 7,500 tonnes.

This results in a total import of 12,000 tonnes per annum. Using a 24-tonne average load this will be equivalent to 500 import truck movements per annum. The production and export of 15,000 m³ of concrete will be undertaken by concrete trucks with an 8 m³ capacity. This will be equivalent to 1,667 export truck movements per annum.

All admixtures will be contained in 500 litre barrels and positioned on spill pallets. Admixtures are compounds which are added to concrete in small amounts in order to change the properties of the concrete. A typical admixture is added at a rate of 1 litre per cubic metre of concrete.

3.3.3.10 Plant & Machinery

The following are brief descriptions of the plant and machinery used on site:

- Drill Rig (mobilised to site as necessary);
- Wheeled loading shovel feeding the mobile crushing & screening plant;
- Backhoe excavator to feed the primary crushing unit at the quarry face;
- Backhoe excavator and dump truck on an intermittent basis for stripping of overburden;
- Mobile Crushers (Primary, Secondary, Tertiary);
- Mobile Screening units;
- Stacking conveyors for stockpiling of material;
- Road trucks:
 - 4 axle 20 t capacity rigid bodied tippers;

- 4 axle 27 t capacity articulated units; and
- Concrete trucks with 8 cu. m capacity.

3.3.3.11 Waste Management/Recycling

Waste produced from the development will be minimal. Almost all products and by-products arising from processing of aggregates have commercial value. 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.

3.3.3.12 Site Safety & Security

Warning signs are / will be displayed at appropriate intervals along the property and excavation boundary. The 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 access gate will be kept padlocked outside of the normal working hours. Traffic warning signs are to be installed on the approaches along the R430 to the quarry.

The following barrier system has/will be put in place in the interest of public safety and to prevent public access to the quarry.

The barrier system will be as follows:

- The existing landscaped and planted embankment along the R430 Regional Road forms a substantial physical barrier to access to the quarry. It also provides additional screening from outside views;
- The 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;
- The 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;
- The existing hedgerows on the site 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; and
- In order to prevent unauthorised vehicular access, the site entrance has a lockable steel gate which will remain closed and locked outside normal working hours (Refer to Section 3.3.3.2 above).

This barrier is designed to be a permanent, maintenance-free barricade to man and farm animals. Together the berms, existing trees, hedgerows, and all other natural growth will develop into a permanent, dense, and impenetrable barrier. The above measures are considered sufficient to prevent accidental access to the quarry workings.

3.3.3.13 Fuel & Oil Storage

There will be no bulk fuel storage on-site. Refuelling of mobile plant will mainly be carried out by a licenced contractor. An impermeable hardstanding pad is located in the former compound area that drains to a perimeter ACO-type drain. The hardstanding runoff passes to a hydrocarbon interceptor, which also has silt storage capacity. This interceptor will be cleaned out on a regular basis by a licenced third-party contractor. The hardstanding is therefore appropriate for refuelling of mobile plant (e.g., loading shovel), haulage vehicle(s) and emergency repairs, when necessary. Servicing of vehicles will otherwise take place off site.

Lubricants and any other hydrocarbons will be stored on spill pallets and appropriate mobile and non-mobile bunds. All waste oils will be collected and removed offsite 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).

Spill kits will be stored on site and site operatives will be trained in their appropriate usage. The operator will put in place an emergency response procedure for hydrocarbon spills and appropriate training of site staff in its implementation.

A final protection measure will be provided by means of a hydrocarbon Interceptor on the inlet of the final element of the water management system, which is the 2-pond system in the northwestern area of the site (Refer to Plate 7.13).

3.3.3.14 Water Management

The quarry design takes into account a requirement identified in the hydrogeological study of the EIAR (Refer to Section 7) to maintain at least a 5-metre buffer above the contact between the Clay Gall Sandstone Formation and Moyadd Coal Formation. This will reduce the amount of water to be managed and discharged offsite (Refer to EIAR Section 7.5.8.4).

Constructed settlement ponds are present in the northwestern and southwestern corners of the site. The existing quarry sump occurs in the central portion of the site.

Rainfall landing in the catchment upgradient of this area drains by gravity to the sump. Rainfall landing in the western half of the quarry drains by gravity either to the sump or towards the northwestern corner of the site, which accommodates the historic water management infrastructure.

It is understood that during previous operations, water was pumped initially from the sump to a series of four interconnected settlement ponds in the southwestern corner of the site (referred to as the 'Western Settlement Ponds' in Figure 7.2). These ponds remain in-situ and

are usable for the management of the quarry's waters in the future (Refer to Plate 7.3). All settlement system ponds at the site are lined with concrete and are impermeable.

The site straddles a mapped surface water catchment boundary that separates lands that drain naturally to the Owenbeg River to the west and the Clogh River to the east. The lands between the site and these watercourses are drained by a network of agricultural field drains and first order streams. The drainage routes connecting the site to both of these rivers was assessed for their potential suitability to safely receive and transmit natural catchment flows plus an additional quarry discharge.

With respect to protecting the river systems to the east of the site, the proposed quarry design makes provision for a 50 m buffer zone set back from the boundary road. There will be no quarrying and no construction activity in this area. The rising of the Clogh River is in this zone and is thereby protected.

Hydraulic modelling of the surface water system (Refer to EIAR Section 7), based on cross sections and surveying, has demonstrated that the local area's surface water network can accommodate the predicted dewatering amounts, in combination with flood flows and allowances for climate change. The western route is more suitable for safely transmitting the predicted quarry discharge.

In line with standard practice, discharge surface water should be limited to the pre-quarrying discharge rate in order to mitigate against downstream flooding. As quarrying progresses, a sump with a minimum available volume of 15,650 m³ will be maintained—this could take the form of 75 m by 75 m and an unsaturated depth of 3 m, or equivalent.

Waters will be pumped from the sump to the settlement pond system. The existing settlement ponds have been recommissioned and are now ready to remove particulate matter from waters prior to discharge from site (Refer to Plate 7.3). Additional clarification will be provided in the final ponds prior to discharge. The existing settlement pond systems are deemed to be adequate.

Quarry water currently leaves the northwestern half of the quarry by gravity *via* an open ditch that extends northwest from the final clarification pond through the roadside embankment. This ditch has become silted up over time, such that waters now flow along a very narrow channel on the southern side of the R430 before entering a gully. This gully is located 120 m northwest of the final pond outfall. In the course of pre-planning consultation with Laois County Council, the latter requested that adequate measures are enacted so as to ensure that stormwater or discharge leaving the quarry does not contribute to road runoff in the area. This can be easily achieved following clear out of Laois County Council's under-road culvert in that area. The current connection between the final outfall pond and the aforementioned gully chamber shall be upgraded by way of a maintained open channel and subsurface pipe connection to the gully manhole.

The discharge to surface water will be subject to a licence to discharge to surface water as required under Section 4 of the Local Government (Water Pollution) Act, 1977.

The quarry floor and its sump settlement system are to be adequately sized to handle the water volumes they are expected to receive. Discharge has been calculated to intercept the equivalent of < 0.1 % of the regional groundwater flow volume. Water management and

discharge have been designed with cognisance of the enacted Irish Regulations concerning Groundwater, Surface Water, Birds, Habitats and Pearl Mussels. There will be no significant net loss or gain in the GWB system because the volume intercepted and managed at the site represents, by calculated water balance, < 0.1 % of the regional groundwater flow volume. Hydraulic response testing of the bedrock suggests that the radial effect will not impact local wells. Washdown water from the concrete batching plant shall be recycled through a dedicated closed water recycling system adjoining the batching plant.

A holding tank will be provided for wastewater management of foul water effluent. This holding tank will be routinely cleaned out by a licenced waste contractor.

With respect to an on-site supply, the site has three new production wells that can supply the site with potable water. Water quality results suggest that groundwater is of suitable quality for use at the site. Should planning be successfully obtained, it is proposed to convert PW3 to a Production Well (Refer to Figure 3.1 for location). Headworks shall be sealed with a concrete pad. An appropriate water treatment facility, including ultraviolet filter, shall be fitted to ensure water complies with the requirements of the Drinking Water Regulations (2014) prior to supply to staff at the site.

3.3.3.15 Employment

The proposed development of the quarry will directly employ a work force of three persons including quarry manager and general operatives. In addition to these three employees, there will be up to an additional three contractors employed on site with respect to contract crushing, screening and haulage.

3.3.3.16 Transport & Access

Traffic entering and leaving the site will use the existing site access onto the R430 Regional Road. This is the sole access for the delivery of aggregates and readymix concrete from the site and will be maintained for the life of the proposed development.

The site has the benefit of being strategically located on the R430 Regional Road, which connects Abbeyleix c. 10 km to the west with Carlow c. 20 km to the east southeast. The proposed haulage route for all site-related HGV traffic is therefore directly onto the R430 (Refer to Figure 1.1). As such, site traffic will be immediately directed onto the regional road network and thus avoid adversely impacting the local road network.

The R430 near the existing quarry entrance is an unaligned single lane 6–7 m single carriageway with 2 No. 0.5–1 m sloping grass verges. At the quarry entrance, there is a right turning lane provided on the R430 on the west side of the entrance.

There is a well set-back, splayed, and paved entrance with large heavy-duty lockable metal gates. The access road surface is composed of wearing course macadam. The access road is 9 m wide with a 2 m high palisade double gateway. There is a steel box beam single swing barrier with single swing 3 m the roadside of the gateway. There is a dwell area of 25 m from the regional road edge to the gateway.

The site access junction has existing sight distances of 300–500 m to the west and east and is located on a slightly curved section of the R430. There is an existing right turning lane for turning into the quarry on the western approach to the quarry access. The junction is located within the 80 km/hr speed limit area.

The pavement is in good condition, although the line markings of the right turning lane require renewal. Pavement upgrading and repair will be a mitigation of any damage caused by the increased quarry traffic. This improvement to the pavement will be enjoyed by all the road users in the area.

A wheelwash has been provided to ensure that the wheels and undersides of all vehicles transporting aggregate from the site onto the public road are cleaned. The weighbridge will be recommissioned on site to ensure all vehicles transporting material are weighed prior to exiting site. (Refer to Site Layout Figure 3.1).

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 as soon as they notice or are notified that a spillage has arisen. The R430 road in the vicinity of the entrance will be mechanically swept on a regular basis.

Appropriate advance warning signage will also be provided along the R430 at locations to be agreed with the Planning Authority. The proposed development comprises the continued use of an existing quarry for the production of aggregates and the operation of a concrete batching plant. The purpose of the application is for commencement of quarrying operations, although it is expected that output will be c. 200,000 tonnes per annum—substantially less than that prior to closure during the Global Financial Crisis. An annual output of the order of 200,000 tonnes equates to traffic volumes from the development of approximately 38 truckloads (76 truck movements) per day leaving the site on a 48 working week per year basis. These figures also include for the production of 15,000 cu. m of readymix concrete per annum. Refer to EIAR Section 14 for details of traffic generation.

The generated volume split of the proposed development traffic at the R430/N77/N78 junctions is anticipated to be 70% westwards and 30% eastwards along the R430. At the N77 in Abbeyleigh, it is anticipated the proposed development / quarry traffic will move 90% northwards and 10% southwards along the N77. At the N78 at Newtown Cross, it is anticipated the proposed development traffic will move 30% northwards and 30% southwards along the N78, and 40% eastwards along the R430 towards Carlow. While these percentages may vary slightly in the future, they will not change to such a significant extent as to adversely affect the traffic distribution.

Although the traffic impact of the quarry site on the R430 road and on the R430 / quarry access will result in an increase of traffic on the network, it is considered capable of being absorbed within the existing traffic. The projected increase in traffic due to the quarry site is 12.6% of the total traffic at the peak hour given the present and forecasted levels of activity at the quarry.

The volume of traffic generated by the proposed development at Spink Quarry will result in an increase in a daily vehicle flow of 94, i.e., an increase of 6.4%. It has been shown that this increase can be readily absorbed by the adjacent road networks.

There will be no indirect impacts during the construction and decommissioning phases of the development due to the low requirement for mobilisation of earth moving equipment to the site during these phases.

There will be no cumulative impacts resulting from the proposed development during the construction, operation, or decommissioning phases of the proposed development. There are several quarries in the Abbeyleix-Ballinakill area c. 5–8.5 km to the west, while the Lagan clay products facility are located c. 3 km to the east at Swan. As such, it is considered that there will be no significant cumulative impacts with respect to the operation of the proposed development given that the site is removed from any other extractive, industrial or commercial development in the locality.

It is anticipated that the proposed development will incorporate 3 employees and will amount to 6 trips per day. There will be occasional contractor, maintenance & delivery vehicles to / from supporting the needs of the quarry, which will amount to 6 trips per day.

Adequate parking will be provided adjacent to the site office and weighbridge for employees and visitors. Appropriate signage will be provided to direct traffic within the quarry area via a one way system as illustrated on the Site Layout Figure 3.1.

The parking requirements for the proposed development Quarry operation mainly relate to the quarry employees and visitors. It is proposed to provide sufficient parking spaces within the quarry for employees and visitors. The maximum number of direct employees will be 3, while spaces will be provided for with other contractors. Therefore, a car park provision of 8 + 25% for visitors (i.e., 10 spaces) will be provided. Parking for HGV queuing and rest up areas is to be provided on the quarry floor.

3.3.4 SITE INFRASTRUCTURE

The development will include provision of new site infrastructure, including portacabin site office / canteen, toilets, concrete batching plant and truck washdown facility, hydrocarbon interceptors, mobile crushing and screening plant, upgrading of the water management system, provision of holding tank for wastewater, and other ancillaries. The proposed development will utilise / upgrade the existing in-situ quarry infrastructure, including site access, internal roads, storeroom, wheel wash, weighbridge, aggregate storage bays, refueling hard stand, water settlement pond system, and other ancillaries. Refer to Figure 3.1 for location of site infrastructure.

The mobile crushing and screening plant will be located within the quarry void so as to reduce handling of material and will also have the benefit of screening these activities from outside views, and being at depth, will also mitigate impacts associated with noise and dust.

3.3.4.1 Site Utilities

A three-phase overhead power line supplies electricity to the northeastern corner of the property, where a roadside pole-mounted distribution transformer steps down the voltage. An overhead telephone line serving the property crosses the road c. 175 m further south opposite the location of the former site office (Refer to Figure 3.1).

There is no mains water supply to the property, which was previously supplied by a bored well adjacent to the canteen. With respect to an on-site supply, the site has three new production wells that can supply the site with potable water. Water quality results suggest that groundwater is of suitable quality for use at the site. Should planning be successfully obtained, it is proposed to convert PW3 to a Production Well (Refer to Figure 3.1 for location). Headworks shall be sealed with a concrete pad. An appropriate water treatment facility, including ultraviolet filter, shall be fitted to ensure water complies with the requirements of the Drinking Water Regulations (2014) prior to supply to staff at the site.

It is proposed to provide a cesspit holding storage tank that will be emptied and disposed off-site on a regular basis by an approved waste service contractor.

No existing services (water / telephone / power) will have to be relocated as part of the development.

3.3.4.2 Site Lighting

The lighting for this development will be that attached to any mobile equipment, to the processing plant and utilised by the site office. For those short periods when the operation will be working into darkness (i.e., over winter months), the operators will ensure that sufficient lighting is provided to ensure safe operations. All lighting 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 EXCEPTIONAL OPERATIONS

There will be no major servicing of plant and machinery carried out on site apart from routine maintenance and running repairs.

3.3.5.1 Accident Prevention and Emergency Response

As outlined in Section 3.3.3.1.1, the operator has put in place an Environmental Management System (EMS) that will address such matters as Emergency Preparedness & Response in dealing with accident and emergency situations resulting in impacts on the environment.

A copy of the Environmental Management Plan (EMP) for the Spink Quarry is included in Appendix 10. In order 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. The Emergency Preparedness and Response Depot Procedures Manual (DP004) details how this function is managed.

The Company will review and revise, where necessary its emergency preparedness and response procedures. Special emphasis will be placed on such reviews and revisions should an accident or emergency situation actually arise.

In addition to emergency response procedures developed, 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. Lagan also has in place an Accident Prevention Policy (Refer to DP020, Appendix 10).

The purpose of this Accident Prevention Policy (APP) is to set out the policies of the Company in respect of Accident Prevention at Lagan Materials Ltd. sites. The objective of this APP 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.

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3.4 SITE RESTORATION, DECOMMISSIONING & AFTERCARE

3.4.1 SITE RESTORATION

The development will be worked in a phased manner to ensure full implementation of the mitigation and restoration measures proposed. Plans and sections of the design and associated restoration are shown on Figures 3.2 to 3.3.

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.). It also has the added benefit to the operator of spreading out the cost of restoration over the life of the development.

A well-coordinated restoration process (in consultation with the GSI, Refer to EIAR Section 6.6.2) 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.

Cross sections through the site also illustrate the effectiveness of working the quarry top-down in successive benches, with progressive restoration of the upper back southern face and a favourable direction of working to further reduce the visual impact of the development on the surroundings (Refer to Figures 3.1 to 3.3). 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.

The proposed development will enable the operator to fully complete the restoration of both the existing quarry and the proposed development to beneficial after-use. Plans and sections of the design and associated restoration are shown on Figures 3.1 to 3.3.

Grading and planting on completed sections of the upper quarry face will be carried out as shown in Figures 3.1 to 3.3. 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 will subsequently break up the natural harshness of the exposed rock face. This will occur in a progressive manner as quarrying progresses.

This restoration / landscaping plan includes landscaping in areas where the natural topography of the hillside partially screens the quarrying. In these areas, the existing hedgerows will be bulked up as necessary to increase the screening capacity of the hedgerows.

Further information on the restoration scheme is given in Section 3.4.2 below – Final Site Restoration Scheme and Section 11 – Landscape.

3.4.2 FINAL SITE RESTORATION SCHEME

The 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. As discussed in previous sections, restoration of the existing and proposed site will be carried out in a progressive manner over the life of the operation (Refer to Section 3.4. above). Figure 3.2 shows the final layout of the restoration scheme at the cessation of extraction operations, and Figure 3.3 shows sections through this restoration.

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. A detailed restoration and landscaping plan has been prepared as part of the application (Refer to Figure 3.2).

3.4.3 LONG TERM SAFETY, STABILITY & SECURITY

A detailed working scheme / restoration plan has been prepared (Refer to Figure 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.

All components of the barrier system in relation to site protection as outlined in Section 3.3.3.12 above 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 hedgerow 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

The final site restoration will contain a landscaped woodland / 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. Some of the methods to be employed are detailed on the Restoration Plan Figure 3.2.

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 Lagan on other sites or sold as working machinery or scrap.

The former plant areas will be restored using topsoil / overburden and planted with a mixture of native trees and shrubs.

As bulk fuels will not be stored on site, there will be no potential for fuel or oil to cause long-term water pollution following cessation of extraction activities.

3.4.6 AFTERCARE & MONITORING

There will be no on-going requirement for environmental monitoring after extraction operations have ceased.

A final site inspection 2 years after site closure will be carried out to ensure that the final site restoration scheme implemented is functioning and progressing as required.

3.4.7 RESTORATION BOND

Condition No. 19 of planning permission P.A. Ref. 10/383 required the operator to lodge with the planning authority a cash deposit of € 100,000 or a bond of an insurance company of same value. This pertained to the restoration and making safe of the site as required in connection with the development, and provision of road access coupled with an agreement empowering the planning authority to apply such security or part thereof to the satisfactory completion of any part of the development. This bond is in place and will be maintained in compliance with any future planning permission for the continuance of quarry operations at this location.

Given Lagan's record in respect of quarry restoration and its proactive approach to protection of the environment, it is considered sufficient to ensure the company completes the restoration works under the terms of any future planning permission.

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3.5 CHANGES TO THE PROJECT

The proposed development has taken into consideration the landholding as a whole. It is considered that given appropriate stand-offs to sensitive receptors within the area, that the landholding can accommodate the extraction area as proposed. Further development outside of the identified area is restricted by the proximity to residential property and land ownership but would be most feasible in the forested area to the southwest of the site.

Continuation of quarrying operations in accordance with the scheme proposed will provide for the security of the existing business of Lagan for the foreseeable future, i.e., c. 29 years. Spink Quarry is an important component in Lagan's future business model.

3.6 DESCRIPTION OF RELATED PROJECTS

There are no required or apparent opportunities for any further associated developments at this time.

3.7 CUMULATIVE IMPACT

There will be no cumulative impacts resulting from the proposed development during the construction, operation, or decommissioning phases of the proposed development. There are several quarries in the Abbeyleix-Ballinakill area c. 5–8.5 km to the west, while the Lagan clay products facility are located c. 3 km to the east at Swan. As such, it is considered that there will be no significant cumulative impacts with respect to the operation of the proposed development given that the site is removed from any other extractive, industrial or commercial development in the locality.

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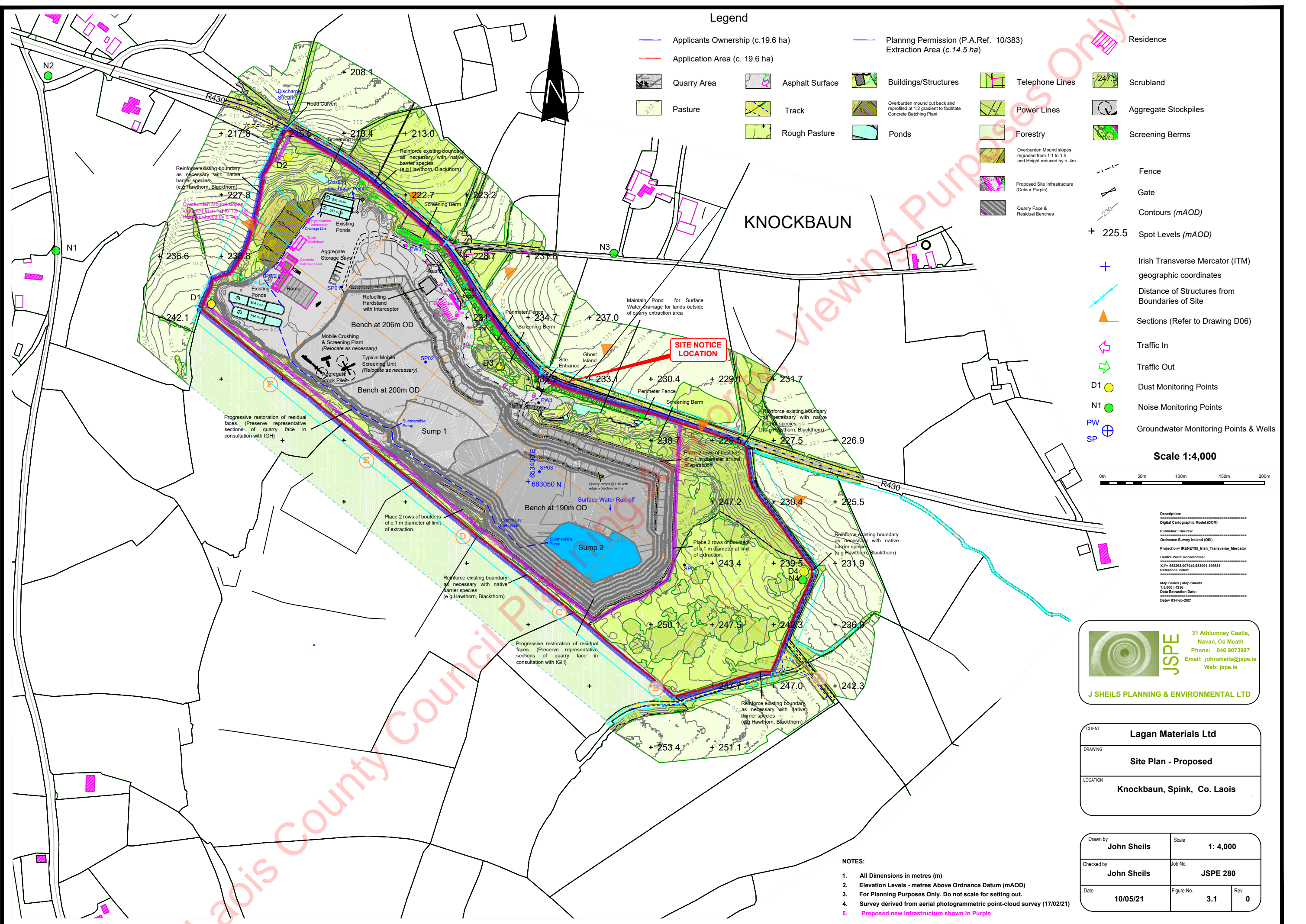
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<https://laois.ie/departments/planning/> Planning Dept., Laois County Council

Laois County Council Planning Authority, Viewing Purposes Only

3.9 FIGURES

Laois County Council Planning Authority, Viewing Purposes Only



Legend

- Applicants Ownership (c.19.6 ha)
- Application Area (c. 19.6 ha)
- Quarry Area
- Pasture
- Asphalt Surface
- Track
- Rough Pasture
- Buildings/Structures
- Overburden mound cut back and reprofiled at 1:2 gradient to facilitate Concrete Batching Plant
- Ponds
- Telephone Lines
- Power Lines
- Forestry
- Overburden Mound slopes regraded from 1:1 to 1:5 and Height reduced by c. 4m
- Proposed Site Infrastructure (Colour Purple)
- Quarry Face & Residual Benches
- Residence
- Scrubland
- Aggregate Stockpiles
- Screening Berms
- Fence
- Gate
- Contours (mAOD)
- Spot Levels (mAOD)
- Irish Transverse Mercator (ITM) geographic coordinates
- Distance of Structures from Boundaries of Site
- Sections (Refer to Drawing D06)
- Traffic In
- Traffic Out
- Dust Monitoring Points
- Noise Monitoring Points
- Groundwater Monitoring Points & Wells

Scale 1:4,000



Description:
 Digital Cartographic Model (DCM)
 Publisher / Source:
 Ordnance Survey Ireland (OSI)
 Projection: IRENET95_Irish_Transverse_Mercator
 Centre Point Coordinates:
 X: 683286.907648, 683091.199831
 Reference Index:
 Map Series / Map Sheets:
 13,000 / 4236
 Data Extraction Date:
 Date: 03-Feb-2021

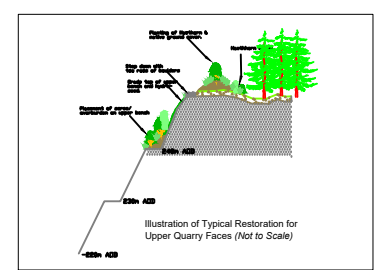
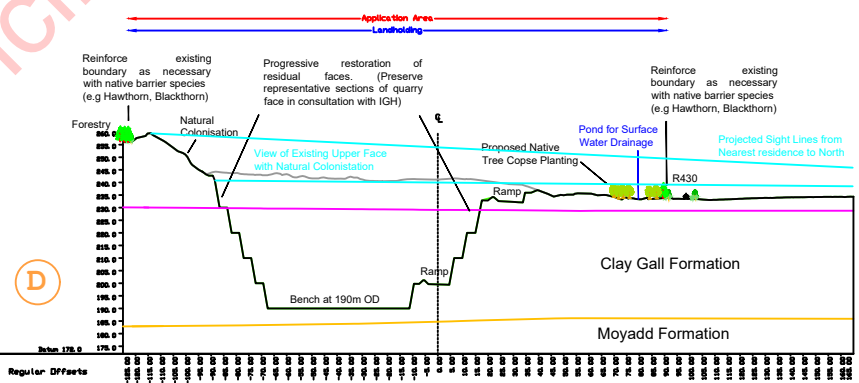
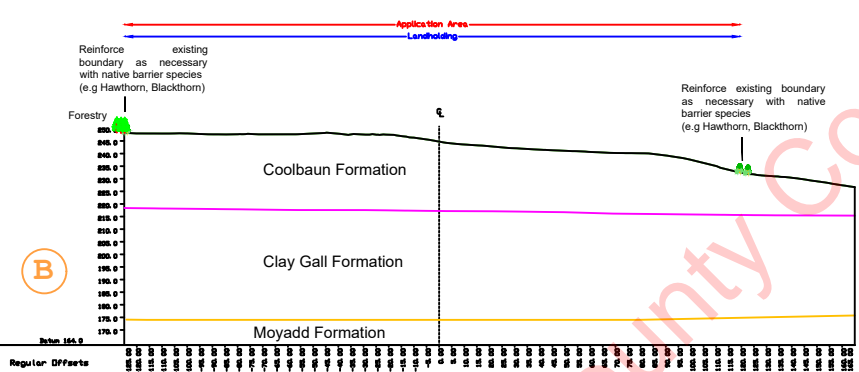
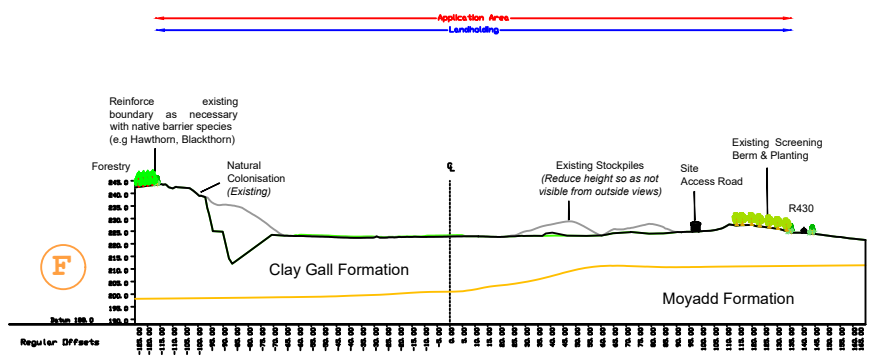
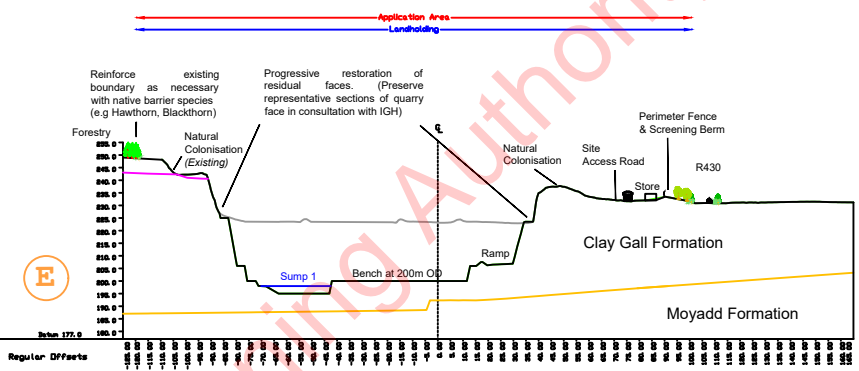
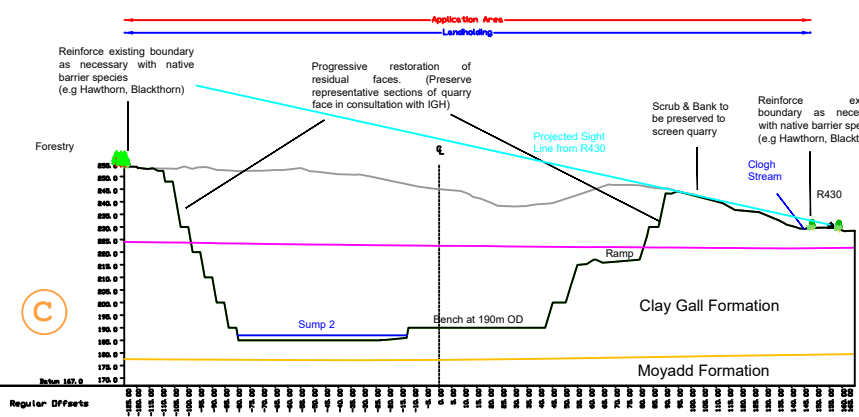
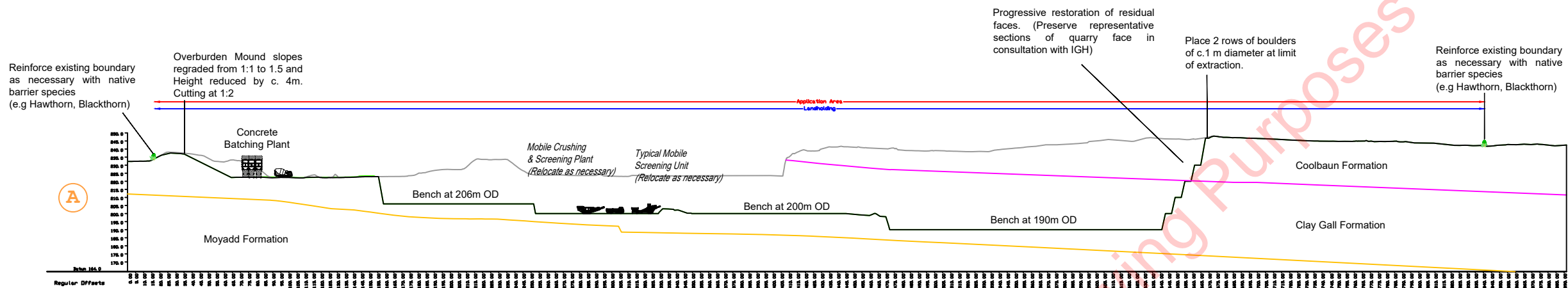
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J SHEILS PLANNING & ENVIRONMENTAL LTD

CLIENT	Lagan Materials Ltd
DRAWING	Site Plan - Proposed
LOCATION	Knockbaun, Spink, Co. Laois

Drawn by	John Sheils	Scale	1: 4,000
Checked by	John Sheils	Job No.	JSPE 280
Date	10/05/21	Figure No.	3.1
		Rev.	0

- NOTES:**
- All Dimensions in metres (m)
 - Elevation Levels - metres Above Ordnance Datum (mAOD)
 - For Planning Purposes Only. Do not scale for setting out.
 - Survey derived from aerial photogrammetric point-cloud survey (17/02/21)
 - Proposed new Infrastructure shown in Purple



- NOTES:**
1. All Dimensions in metres (m)
 2. Elevation Levels - metres Above Ordnance Datum (mAOD)
 3. For Planning Purposes Only. Do not scale for setting out.
 4. Survey derived from aerial photogrammetric point-cloud survey (1/10/2021)
 5. Cross Sections B to E - Centre Line (CL) offset distance from Cross Section A. (Refer to Drawings 003 to 005)

Legend

- Existing Ground Profile (mAOD)
- Extraction Profile (mAOD)
- Final Restoration Profile (mAOD)
- Top of Clay Gall Formation
- Base of Clay Gall Formation

Scale 1:3000



CLIENT	Lagan Materials Ltd		
DRAWING	Cross Sections		
LOCATION	Knockbaun, Spink, Co. Laois		

Drawn by	John Sheils	Scale	1: 3000
Checked by	John Sheils	Job No.	JSP E 280
Date	10/05/21	Figure No.	3.3
		Rev.	0

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