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# **Bryn Quarry Extension, Gelligaer**

## **Non - Technical Summary**

**Prepared on behalf of Bryn Aggregates Ltd**

**August 2020**

**Bryn Quarry Extension, Gelligaer**  
**Environmental Statement**  
**Non-Technical Summary**

Prepared on behalf of Bryn Aggregates Ltd

|              |             |             |
|--------------|-------------|-------------|
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## 1.0 INTRODUCTION

- 1.1 Bryn Aggregates Ltd (the “Applicant”) is applying for retention of, and proposed extension to, existing quarry operations including new drainage system and settlement ponds, landscape bunds and associated works (the “Development”) on Gelliargwellt Farm, Gelligaer (the “Site”). Located within the administrative area of Caerphilly County Borough Council (CCBC), the Site has an area of approximately 29 hectares (ha) and is shown on Figure 1 at the end of this report.
- 1.2 An Environmental Statement (ES) has been prepared to support the planning application. An ES is the report of an Environmental Impact Assessment (EIA) carried out as required by national law known as the “EIA Regulations”. This document forms the Non-Technical Summary of the ES and summarises the content and conclusions of the ES.
- 1.3 Paper copies of the full ES (chapters and figures) and the technical appendices can be purchased at a cost of £150 and £250 respectively. Paper copies of the non-technical summary can be obtained for £15. Copies of the full ES can be obtained on CD for £15. All documents are available from:

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- 1.4 Given the current social distancing restrictions due to the Covid – 19 pandemic, the ES is not available for review in hard copy in a public place at this time. The ES is available on:

[https://publicaccess.caerphilly.gov.uk/PublicAccess/.](https://publicaccess.caerphilly.gov.uk/PublicAccess/)

## 2.0 EIA METHODOLOGY

- 2.1 EIA is a procedure used to assess the likely significant effects of a proposed development on the environment. The results are written in to an ES which is submitted with the planning application.
- 2.2 The ES provides the local planning authority (in this case CCBC) with sufficient information about the potential environmental effects of the development before a decision is made about the planning application. Effects may arise during the construction and operational phases of the development.
- 2.3 The ES has been prepared in accordance with national law, the Town & Country Planning (Environmental Impact Assessment (EIA)) (Wales) Regulations 2017, as amended (the “EIA Regulations”)<sup>1</sup>. Reference has also been made to currently available good practice guidance on EIA including Guidance on Scoping, Environmental Statements and EIA Consent Applications (April 2019) issued by the Welsh Government<sup>2</sup>.
- 2.4 The ES predicts what the significance of each environmental effect would be, which is determined by two factors:
- The sensitivity, importance or value of the environment (such as people or wildlife); and
  - The actual change taking place to the environment (i.e. the size or severity of change taking place).
- 2.5 Most environmental disciplines classify effects as negligible, adverse or beneficial, where those effects are minor, moderate or major. Some disciplines use bespoke criteria based on published guidance. Each chapter of the ES states which effects are considered significant.
- 2.6 The ES includes a description of the current environmental conditions known as the baseline conditions, against which the likely significant environmental effects of the development are assessed.

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<sup>1</sup> The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (2017 No.567) (as amended) (W.136)

<sup>2</sup> <https://gov.wales/sites/default/files/publications/2019-07/environment-impact-assessment-guidance-on-scoping-environmental-statements-eia-consent-applications.pdf>

## EIA Scope

- 2.7 An EIA should only focus on the likely significant effects of a development on the environment during the construction and operational phases. After seeking further clarification on the scope of the EIA, it was formally agreed with CCBC that the following technical issues were to be included within the EIA.
- 2.8 The technical issues scoped into the ES are:
- Landscape and Visual Impact;
  - Biodiversity;
  - Noise;
  - Water Resources;
  - Human Health;
  - Blasting; and
  - Air Quality.
- 2.9 Other environmental issues are covered in standalone documents submitted with the planning application.

## Public Consultation

- 2.10 The planning application has been developed with full collaboration from CCBC, statutory stakeholders and local residents through a public consultation exercise and Pre – Application Consultation (PAC).
- 2.11 A Public Exhibition Drop – in Event was held at Gelligaer Community Centre on 18<sup>th</sup> July 2019, where local residents and Councillors were invited to view the proposed plans and provide comments. The invitation to the exhibition was issued to Councillors, residents nearest the Site, social media channels and displayed via notices published locally.
- 2.12 Further details in relation to the public consultation exercise that was undertaken for the Development is provided within the PAC report, which is submitted separately in support of the planning application. A summary of the of the consultation process undertaken can be found in Chapter 2: EIA Methodology.

### Cumulative Effects

- 2.13 EIA must assess any potentially significant effects of the development that may arise cumulatively (when combined with) other major development with planning permission or under construction in the local area. Government guidance states that 'existing and approved' developments should be considered.
- 2.14 Details of the other developments considered in the ES are included in Table 1 and shown on Figure 2.

**Table 1: Cumulative Schemes**

| Scheme Name and Application Number                                                                | Description                                                                                                     | Planning Status                                                      | Approximate distance from the Site        |
|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------|
| Land at Grid Ref 313945 195746 Winding Wheel Lane, Penallta, Hengoed<br><br>(Ref: 18/0362/FULL)   | Erect residential development and associated works.                                                             | Planning permission granted on 21 <sup>st</sup> of November 2018.    | Approximately 1km south east of the Site. |
| Gelliargwellt Uchaf Farm, Gelligaer Road, Gelligaer, Hengoed, CF82 8FY<br><br>(Ref: 18/0432/CLPU) | Obtain a Lawful Development Certificate for a proposed building for the treatment, storage and removal of dust. | Planning permission was granted on 23 <sup>rd</sup> of October 2018. | Roughly 200m south of the Site.           |

### 3.0 SITE AND DEVELOPMENT DESCRIPTION

#### Site Context

- 3.1 The Site (refer to Figure 1), is located within the administrative boundary of Caerphilly County Borough Council (CCBC). The existing Bryn Quarry sits in close proximity to Gelliargwellt Uchaf Farm. The quarry was opened in the early 1990s to supply the needs of Bryn Farm, but it quickly expanded due to the demand for high quality aggregate products across the UK.
- 3.2 The Site is located in between the villages of Nelson and Gelligaer, and in close proximity to Llancaiach Fawr Manor. The Site is bounded by agricultural land to the south and Parc Penallta Country Park, which comprises an area of public open space and woodland. Penybryn lies to the east of the Site, and contains several residential properties, local shops and Calvary Evangelical Church. In addition, Penallta Industrial Estate is located further to the east, with the Nant Cylla watercourse, the larger settlements of Penpedairheol and Hengoed to the north east and south east, respectively.
- 3.3 Gelligaer Road is located to the north of the Site, which connects Gelligaer and the B4255 together. Pengam Railway Line is located roughly 3km to the east of the Site, providing regular trains to Cardiff and other areas in South Wales.
- 3.4 The land use in the immediate vicinity of the Site is predominantly agricultural and rural in nature. Nevertheless, the Site is not subject to any ecology or landscape designations, but the Waun Rydd Site of Importance for Nature Conservation (SINC) is located immediately adjacent to the north of the Site and borders the southern edge of Gelligaer. Nelson Bog Site of Special Scientific Interest (SSSI) is 350m located to the south of the Site. Coed Gelliau'r – Gwellt SINC is located approximately 550m to the north west of the Site and comprises ancient woodland.
- 3.5 The Rhymney Valley Ridgeway Walk Public Right of Way (PRoW) runs in a west to easterly direction to the south of the Site.
- 3.6 There are two Grade II Listed Buildings roughly 200m west of the Site, being Gelliargwellt Uchaf Farmhouse (Record Number: 25536) and Bee – boles at Gelliargwellt Uchaf (Record Number: 25537). There are also two churches in Gelligaer designated as Grade II Listed Buildings. In addition, there a cluster of Listed Buildings to the south of Penallta Industrial Estate.
- 3.7 According to Natural Resources Wales Development Advice Map, the Site is wholly located

within Flood Zone A, which is '*considered to be at little or no risk of fluvial or coastal / tidal flooding*'. This Development Advice Map is used alongside Planning Policy Wales and Technical Advice Note (TAN) 15 to direct new development with respect to flood risk.

- 3.8 Directly adjacent to the western boundary of the Site, part of the recycling site has been designated as a 'historic landfill site'.
- 3.9 The Site is not located within a Source Protection Zone (SPZ).
- 3.10 The Site does not fall within an Air Quality Management Area (AQMA).

### Site Description

- 3.11 The Site is centred at National Grid Reference (NGR) ST 1305 9637 and is approximately 29 ha in area.
- 3.12 The Site comprises an operational quarry and agricultural land set within Gelliargwellt Farm. Vegetation within the Site includes field boundaries, with some hedgerows and trees.

### Description of Development

- 3.13 The application is for a consolidated application (with the Site boundary being drawn to encompass the permitted area of extraction and the proposed extension site), bringing the current mineral planning permissions at Bryn Quarry with the Development into one overall permission regulating quarrying, ancillary operations and restoration at the overall quarry site, comprising the following:

*"the retention of, and proposed extension to, existing quarry operations including new drainage system and settlement ponds, landscape bunds, associated works, consolidation of mineral planning permissions and an overall restoration scheme".*

- 3.14 The Development seeks to extend the existing quarry with a saleable resource of approximately 2.6 million tonnes of Pennant sandstone. The existing quarry will be extended in a north easterly direction with the phased creation of associated screening bunds and a series of "cuts", which will work the resource in a northerly and then westerly direction beginning at the southern boundary of the Site and extending northwards, throughout the proposed working period and subsequently westwards.

3.15 The basic method of extraction would be as follows:

- site preparation;
- soil stripping;
- excavation; and
- restoration.

3.16 No fixed permanent structures or buildings are proposed as part of the Development.

3.17 The restoration of the Site will be progressed in parallel throughout the life of the mineral operations whilst the final restoration scheme seeks to restore the land to agricultural use. The restoration works will be completed concurrently with excavation phases, some 7 years following the completion of the mineral extraction.

### Green Infrastructure

3.18 The proposed extension area (extraction and operations) will be located in excess of 300m from sensitive land uses as its closest points. In addition, a landscape bund will be constructed around the Site to provide screening. Part of the earth bund has already been granted planning permission (17/0973/FULL).

### Drainage

3.19 The existing surface water attenuation management system will be upgraded with new settling lagoons before connecting into the adjacent watercourse, the details of which are set out within the Hydrogeological Impact Appraisal.

## 4.0 ALTERNATIVES & DESIGN EVOLUTION

4.1 The EIA Regulations require an ES to provide a “*description of reasonable development alternatives (for example in terms of development design, technology, location, size and scale) studied by the Applicant and appellant, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.*” The alternatives considered by the Applicant include:

- The ‘do nothing’ alternative whereby the Development would not be progressed;
- Alternative Locations and Uses; and
- Alternative Design/layouts for the Development.

### The ‘do nothing’ Alternative

4.2 The Site forms part of the Bryn Group’s wider landholding. The Site comprises an existing blue pennant sandstone quarry being worked under a current planning permission. Bryn Quarry is one of only a few quarries in the UK that provide the highest quality aggregate, essential for Local Highway Authorities for use in skid resistant road surfacing.

4.3 Under the ‘do nothing’ scenario, the Development would not be progressed. In this situation, the existing configuration of the Site would not make the most efficient use of the land. In addition, the beneficial and adverse effects outlined in this ES relating to the Development would not occur.

### Consideration of Alternative Locations and Uses

4.4 Bryn Group encompasses the companies owned and managed by the Price family at Gelliargwellt Farm. The wider site provides several interconnected services including Bryn Aggregates, Gelliargwellt Uchaf Farm, Bryn Recycling and Bryn Power (Anaerobic Digestion plant).

4.5 Engagement with the local community has been fundamental to the evolution of the Development. A Public Exhibition Drop-in Event was held at Gelligaer Community Centre on 18<sup>th</sup> July 2019, where local residents and Councillors were invited to view the proposed plans and provide comments. The invitation to the exhibition was issued to Councillors, residents nearest the site, social media channels and displayed via notices published locally.

4.6 Further details of the public consultation exercise that was undertaken for the Development

is provided within the Pre-Application Consultation Report, which is submitted separately in support of the planning application. A summary of the consultation process undertaken can be found in Chapter 2: EIA Methodology.

- 4.7 Taking into consideration the existing use of the Site, the principle of the Development at the Site is acceptable and suitable. The Development is an extension to an operational business and therefore, cannot be located anywhere else. Taking into consideration, the above, no alternative locations and types of land uses were considered. Therefore, the environmental effects of this alternative were not considered.

### Consideration of Alternative Designs

- 4.8 The Development submitted for approval is the result of a thorough analysis of environmental constraints, planning policy designations and opportunities. Consultation with CCBC, the statutory consultees, the local community and other local stakeholders has been a key influence in design evolution.
- 4.9 The physical constraints and opportunities of the Site have been critical in developing a proposal. Aspirations for the Development are to:
- Maximise the extraction of High Specification Aggregate whilst ensuring that environmental and residential amenity are safeguarded.
- 4.10 To achieve these objectives stated above, the key design principles of the Development are:
- The area of quarrying will stay entirely within the Mineral Buffer Zone allocated within the CCBC Local Development Plan;
  - The inclusion of a landscape bund of trees and grazing land to surround the quarry on its northern and eastern side to minimise landscape, noise and dust impacts. The northern bund (to Gelligaer) has been approved by way of Planning Permission Ref: 17/0973/FULL. Improvements to the eastern bund (to Pen y Bryn) will provide additional screening, tree planting and wildlife enhancement areas and a gentler land profile;
  - Preservation and enhancement of biodiversity including the creation of peat cells as a part of the landscape bund and re-wetting of parts of the Waun Rydd Site of Importance for Nature Conservation;
  - Vehicle movements to remain at the same level as the existing quarry;
  - Blasting is to continue within the same parameters as currently approved; and
  - Hours of operation to remain the same as the existing quarry.

## 5.0 DEVELOPMENT METHODOLOGY & PHASING

- 5.1 This chapter is based on reasonable assumptions and experience and allows assessment of the realistic “worst case” development phase effects.
- 5.2 Extraction is anticipated to commence in 2020, subject to gaining planning permission, and span approximately 24 years. Overall, the excavation and restoration process is expected to be completed by 2051/52. Table 5 and Figure 5 show the indicative excavation and restoration phasing programme for the Development.

**Table 5: Indicative Construction Phasing**

| Years | Excavation Phase | Excavation (tonnes) | Restoration Phase | Placement (tonnes) |
|-------|------------------|---------------------|-------------------|--------------------|
| 1     | Phase 1          | 111,200             | A                 | 55,600             |
| 2     | Phase 1          | 111,200             | A                 | 55,600             |
| 3     | Phase 1+2        | 111,200             | A                 | 55,600             |
| 4     | Phase 2          | 111,200             | A                 | 55,600             |
| 5     | Phase 2+3        | 111,200             | B+C               | 55,600             |
| 6     | Phase 3          | 111,200             | C+D               | 55,600             |
| 7     | Phase 3          | 111,200             | D+E               | 55,600             |
| 8     | Phase 3          | 111,200             | E                 | 55,600             |
| 9     | Phase 3          | 111,200             | E                 | 55,600             |
| 10    | Phase 3+4        | 111,200             | E                 | 55,600             |
| 11    | Phase 4          | 111,200             | E                 | 55,600             |
| 12    | Phase 4          | 111,200             | E                 | 55,600             |
| 13    | Phase 4          | 111,200             | E                 | 55,600             |
| 14    | Phase 4          | 111,200             | E                 | 55,600             |
| 15    | Phase 4+5        | 111,200             | E                 | 55,600             |
| 16    | Phase 5          | 111,200             | E                 | 55,600             |
| 17    | Phase 5          | 111,200             | E                 | 55,600             |
| 18    | Phase 5          | 111,200             | E                 | 55,600             |
| 19    | Phase 5          | 111,200             | E                 | 55,600             |
| 20    | Phase 5+6        | 111,200             | E                 | 55,600             |
| 21    | Phase 6          | 111,200             | E                 | 55,600             |
| 22    | Phase 6          | 111,200             | E                 | 55,600             |
| 23    | Phase 6          | 111,200             | E                 | 55,600             |
| Years | Excavation Phase | Excavation (tonnes) | Restoration Phase | Placement (tonnes) |
| 24    | Phase 6          | 63,560              | E                 | 55,600             |
| 25    |                  |                     | E+F               | 166,800            |
| 26    |                  |                     | F                 | 166,800            |
| 27    |                  |                     | F                 | 166,800            |
| 28    |                  |                     | F                 | 166,800            |
| 29    |                  |                     | F+G               | 166,800            |
| 30    |                  |                     | G                 | 166,800            |
| 31    |                  |                     | G                 | 166,800            |

Note the above periods overlap and are indicative dependant on the Main Contractor's desired construction programme.

5.3 Excavation will include the following work:

- Site preparation;
- Soil stripping;
- Excavation; and
- Restoration.

## 6.0 LANDSCAPE AND VISUAL IMPACT

6.1 An assessment of the likely landscape and visual effects that will arise as a result of the Development has been undertaken in accordance with the following:

- Guidelines for Landscape and Visual Impact Assessment (GLVIA), Third Edition (2013);
- Making Sense of Place – Landscape Character Assessment Guidance (2002);
- Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity (2004);
- LANDMAP Guidance Note 3: Guidance for Wales; and
- LANDMAP Information Guidance Note 1: Special Landscape Areas.

### Baseline Conditions

6.2 The Site is currently a mixture of grassland grazed by cattle (bounded and demarcated by some sections of mature field boundary hedgerow or drainage ditches, some with post and wire fences), farm access tracks and disturbed or cultivated ground, including where the initial stages of perimeter mounds have been constructed. The Site is bounded on two sides by established high density residential development at the edges of Gelligaer.

6.3 The Site of the active sandstone quarry is south-east of Gelliargwellt Uchaf farmstead, situated on relatively flat land forming a small plateau above a valley side. This relatively flat land extends northwards all the way to the southern edges of Gelligaer. The valley slopes below the quarry are locally steep and well-clothed with, primarily, mature broadleaved woodland, interspersed with patches of scrub and stands of bracken. The land where the Development will take place is on flatter ground, although there is a gentle rise just beyond the Site to the east of 223m Above Ordnance Datum.

6.4 The north-western field boundary is demarcated by a mature hedgerow with occasional trees. This hedgerow is not continuous and flanks the outer bank of a deep drainage ditch which runs from north-east to south-west. To the north, a line of broadleaved scrub along the outside of the field boundary fence defines the Site boundary to the north of the farm access track. The north-eastern boundary of the land required to accommodate the proposed perimeter screening mounds is largely open, with sporadic willow and hawthorn bushes growing along the line of a substantial drainage ditch which has a post and wire fence flanking it. To the south-eastern side, field boundaries are a mixture of remnant sandstone walls, drainage ditches with patches of scrub vegetation and then a number of mature field boundary hedgerows with significant tree cover.

- 6.5 The existing operational quarry has no permanent structures, but a variable number of items of mobile plant used for extracting, crushing, grading and loading the sandstone material are sited on the floor of the excavations. However, overhead high voltage electricity lines and their supporting steel lattice towers and wood poles are present in the surrounding area.

### Extraction

- 6.6 During the extraction phase, there will be *major–moderate adverse and significant* effects on the landscape of the Site itself and its immediate vicinity, as a result of ground disturbance, temporary site works, movement of machinery such as earthmovers, the creation of temporary access tracks, and the temporary storage in stockpiles of overburden or topsoil. However, disturbance will only be temporary and all the affected surfaces not forming part of the finished scheme following restoration of the Site will be reinstated.
- 6.7 Mitigation measures introduced during the extraction phase to mitigate adverse visual effects include the following:
- Integration of the Site with the Main Site to ensure direct placement of overburden;
  - A number of existing hedgerows - including hedgerow trees - on the south western boundaries of the proposed extension Site are to be retained, and protected during the excavation works, and reinforced where necessary with additional planting.
  - Rolling restoration across the Site to minimise exposure and extent of excavation surfaces;
  - The proposed perimeter screening mounds will be sensitively designed and sited in locations which fit within the existing structure and pattern of the local landscape, wherever practicable. The outer faces towards Gelligaer will be of gentler gradients, for improved visual appearance and to permit subsequent livestock grazing. Some of the outer faces towards Penybryn will be steeper, due to the restrictions imposed by the wayleave requirements for the proper and safe functioning of the overhead transmission line.
  - All of the perimeter bunding is to be completed in advance of the commencement of extraction works on the proposed quarry extension.

### Completed Development

- 6.8 The Site and local landscape are assessed as being of *moderate* landscape sensitivity. In addition, the magnitude of change beyond the immediate surrounds of the Site would be generally *minor* and only *locally moderate* during the operational phase and *not significant*.

- 6.9 Given the *moderate* sensitivity of the landscape receptor and the *moderate* landscape magnitude of change, the predicted resultant level of effect on the landscape of the Site during the operational phase is considered to be *moderate – minor adverse and significant*. However, the level of effect of the completed scheme on the landscape beyond the immediate surrounds to the Site would generally be *minor adverse* and therefore *not significant*.

### Cumulative Effects

- 6.10 Following the assessment of the Development, a review was undertaken of two cumulative schemes within the surrounding landscape, which are described earlier in this report. As the Development is seen in the context of the larger consented Site and consists of mineral extraction, and is set within a series of visually low – key, gently shaped earth bunds with a naturalistic landscape treatment of native tree copses, hedgerows and grassland, it is considered that cumulative visual effects will be *negligible adverse*.

## 7.0 BIODIVERSITY

- 7.1 The biodiversity impacts of the Development have been assessed based on the relevant parts of the 2018 Guidelines for Ecological Impact Assessment in the United Kingdom, which was developed by the Chartered Institute of Ecology and Environmental Management (CIEEM, September 2018). The risk of significant effects has been assessed and appropriate mitigation measures have been identified.

### Baseline Conditions

- 7.2 The baseline conditions of the assessment were informed by various methods, including the findings of consultation, baseline ecological survey work (undertaken between July 2016 and December 2019) and a desk study. Through these methods, the ecological receptors identified to be considered as the baseline conditions include protected sites (both statutory and non – statutory), habitats and species.

- 7.3 The following ecological receptors were included within the scope of the assessment on the basis that they are likely to be affected by the Development:

- The Nelson Bog Site of Special Scientific Interest (SSSI) located approximately 300m to the south–west;
- Waun Rydd Site of Importance for Nature Conservation (SINC) directly adjacent to the Site boundary;
- Land South of Gelligaer Infants School SINC located roughly 580m north east of the Site;
- Tredomen Tip Ponds SINC, roughly 765m north east of the Site;
- Pottery Road Slopes, roughly 775m north east of the Site;
- Coed Penallta and Railway Line SINC, approximately 890m south of the Site;
- Wern Woodland SINC, roughly 995 south west of the Site;
- Poor semi–improved grassland, marshy grassland, hedgerows, standing and running water and drystone walls; and
- Birds, invertebrates, reptiles and common amphibians.

### Extraction

- 7.4 The main likely significant effects during the extraction phase are habitat loss, degradation and fragmentation, and disturbance or displacement of animals / birds. The following mechanisms have the potential to cause these significant effects:

- Digging / soil stripping of existing overburden, requiring removal or disturbance of existing vegetation, dry stone walls and soils;
- Pollution by chemicals associated with the use of heavy plant or mobilisation of suspended solids resulting in toxic effects to plants;
- Removal of hedgerows; and
- Visual, noise or vibration related disturbance from vehicles / heavy plant, lighting and digging.

7.5 However, following implementation of the recommended mitigations measures, it is assessed that impacts would be *minor adverse – negligible*.

### Completed Development

7.6 In overall terms, the operational effects of the Development are judged to be *Not Significant*.

7.7 During the operational phase, it has been assessed that there would *negligible* effects on the pollution / habitat degradation on the Nelson Bog SSSI, the identified SINC's and in general. In addition, it has been identified that there would be a *minor adverse* effect on the disturbance / displacement of waders.

### Cumulative Effects

7.8 The proposed mitigation compensation measures mean that significant adverse cumulative effects are unlikely to arise.

## 8.0 NOISE

- 8.1 An assessment has been undertaken of the potential noise effects of the Development. Impacts have been considered during the extraction and operational phases of the Development.

### Baseline Conditions

- 8.2 An environmental noise survey has been carried out to confirm the baseline noise values and in accordance with relevant policy (Minerals Technical Advice Note 1), the following positions were identified as the nearest noise sensitive receptors (NSRs):

- Position A – Green Acres, Top Hill Farm;
- Position B – Clearwen Estate;
- Position C – Llancaich Isaf Farm; and
- Position D – Brynheulog St / Cefn Llwynau St / Trosnant Crescent.

### Extraction

- 8.3 From a noise level perspective, the extraction activities would include:

- Use of heavy plant machinery;
- Blasting;
- Screening;
- Crushing; and
- Loading of lorries.

### Completed Development

- 8.4 Noise Map modelling (in line with the British Standard – Description and measurement of environmental noise, 1991 – 2003), was used to predict noise from the Development and determine how it would affect the nearest NSRs. It was assessed that the noise limits set in accordance with MTAN1 are all met at all NSRs with the exception of Green Acres (which is under the control of the Applicant).

### Cumulative Effects

- 8.5 Cumulative effects have been considered and because the noise levels from the Site are not

considered to be high in comparison to the existing quarry operations (i.e. small screen inside building screening dust with extract fans), it is considered that cumulative effects are not significant.

## 9.0 WATER RESOURCES

- 9.1 An assessment has been undertaken to determine whether the Development is predicted to cause effects on water resources. Impacts have been considered during all phases of the Development.

### Baseline Conditions

- 9.2 The British Geological Survey indicates that the Site is partially covered by Peat Deposits, which are described as 'a partially decomposed mass of semi – carbonized vegetation, which has grown under waterlogged, anaerobic conditions, usually in bog or swamps'. The geology of the Site comprises of mudstones, siltstones, with well developed coals and pennant sandstones.
- 9.3 The Site is located within the South Wales Coalfield region, and is an area known to have been locally worked for coal.
- 9.4 The Water Framework Directive (WFD) indicates that the Site and the Development area are located within the South East Valley River Waterbody Catchment, which forms part of the River Severn River Basin Management Plan area. There are no WFD designated surface waterbodies across the Development, with the closest waterbody, the Nant Cylla River, located at its closest point approximately 1.4km to the east.
- 9.5 In addition to the above, the Site is located within the Water Framework Directive Cycle 2 Groundwater body: South East Valleys Carboniferous Measures (GB40902G201900), which is listed as having a 'poor' overall status, with a poor chemical status, due to a failure for 'chemical dependent surface water body status'. No 2021 objectives have been set for the betterment for the groundwater body.
- 9.6 The Site is located within the South East Valleys Catchment Abstraction Management Strategy (CAMS) Area.
- 9.7 The site is not at risk of flooding from rivers and seas, or reservoirs. The Site is not within a designated source protection zone (SPZ).
- 9.8 There are a number of surface water springs and surface water features in close proximity to the Development, with the closest up gradient water feature approximately 268m to the northwest of the current quarry area.

## Extraction

- 9.9 The likely significant effects of the extraction and operational phases of the Development are summarised below, with full detail provided in Chapter 9 of the ES.
- 9.10 It is anticipated that the stripping of the overburden and exposing of the unsaturated zone of the sandstone aquifer could have a minor effect on the current local groundwater recharge regime.
- 9.11 To removal of the superficial deposits, as part of the preparatory works is expected to significantly modify natural surface run – off, and evaporation across the Development area.
- 9.12 The use of heavy machinery across the exposed sandstone as part of the Development also increases the risk of any spillages or long – term leakages.

## Completed Development

- 9.13 An assessment was undertaken to determine the likely significant effects during the operational phases of the Development. In the first instance, the current quarry operation is known to actively modify the hydraulic gradient beneath the Site. The zone of influence of dewatering from the Development is not expected to extend to intercept any water features, however, it is expected that dewatering activities will be required throughout the Development lifespan and therefore, the modification of hydraulic gradient will continue until the completed development stage. Therefore, it is anticipated that the potential impact from the modification of the hydraulic gradient is considered to be *minor adverse*.
- 9.14 The Development is also expected to increase the volume of water collected by the dewatering operations, passed through the water management system. Following the restoration phase of the Development, no more dewatering activities will be active, and therefore no additional waters will be discharged. The potential impact from the increased surface water flow due to hydrological loading from dewatering activities is considered to be *minor adverse*.
- 9.15 As previously stated, there have been no known spillages or leakages been recorded at the Site and following the completion of the restoration phases, the Site will be returned to similar ground levels as prior to the Development. Therefore, the potential impact from the increased risk of vertical migrations of contaminants is considered to be *minor adverse*.
- 9.16 The ongoing use of heavy machinery presents an ongoing potential risk from any spillages or leakages allowing the mobilisation of contaminants. Additionally, the increased discharge from

dewatering activities have the potential to increase suspended solids, and consequently, the potential impact from the increased risk of contamination to surface water is *minor adverse*.

### Cumulative Effects

- 9.17 The identified cumulative schemes (listed in Chapter 2 of the ES) are considered to have negligible potential cumulative impacts on the Water Environment together with the Development.

## 10.0 HUMAN HEALTH

- 10.1 An assessment has been undertaken of the likely significant effects of the Development on the environment with respect to human health (including socio-economic effects). These effects include changes to the local economy through direct and indirect employment effects, air quality, ecology and open space, noise levels and wider human health effects once operational.

### Baseline Conditions

- 10.2 The current population and human health baseline conditions comprise:
- According to the Welsh Index of Multiple Deprivation, the area where the Site is located is ranked 454<sup>th</sup> out of 1909 in Wales in terms of employment levels. It is ranked 37 out of the 110 Lower Super Output Area's (LSOA's) in the Caerphilly Local Authority, which places the area in among the 20% - 30% most deprived in Wales.
  - In terms of air quality, baseline monitoring was conducted at the nearest residential properties to help determine the contribution from the Site. The results from the twelve months monitoring indicates that the levels of both PM<sub>10</sub> and PM<sub>2</sub> comply with the Welsh air quality objectives (based on statutory Limit values) and World Health Organisation (WHO) criteria.
  - Areas of green space and ecological networks are important to retain for recreational purposes and the health and well – being of the local community and employees / workers of the Site, and therefore a number of sites were considered in the assessment (referred in paragraph 7.3 of this NTS).
  - The Caerphilly Local Authority area contains 110 LSOAs and of the 10% most deprived LSOA's in Wales, 11 are within the Caerphilly Local Authority area, which accounts for 10% of those in the Local Authority. The Site is located within the St. Cattwg 5 (W01001418) LSOA, which is ranked 325 out of 1,909 LSOAs in Wales, and places it among the 10 – 20% most deprived on the WIMD.

### Extraction / Operational phases

- 10.3 Employment will be generated during the Development, from site management to skilled labour. In addition to jobs created and maintained as a direct effect of the Development as whole, further indirect employment and economic benefit will be experienced as a result of the spin – off and multiplier effects. These include supply chain expenditure, including local provision of meals, refreshments and fuel for the construction workforce.

- 10.4 The air quality impact assessment concluded that there would be a 5% increase in PM<sub>10</sub> annual levels and a 1% increase in PM<sub>2</sub> annual levels. The results from the dispersion model indicate that even without any mitigation, the dust deposition impacts on ecological receptors are likely to be insignificant. Therefore, it is concluded that the Development is anticipated to have a *negligible* effect at all sensitive receptors within the study area.
- 10.5 With reference to Chapter 7 (Biodiversity) and the Heath Impact Assessment (refer to Appendix 10.2 in Volume 2 of this ES), the assessment concluded that no significant direct impacts would arise on the sites discussed in paragraph 10.34. No likely significant effects are anticipated due to the screening bund currently under construction, and the restoration of the quarry extension site will be progressed in parallel through the life of the Development, whilst the final restoration seeks to restore the land to agricultural use open cessation of the quarry use. Therefore, effects on ecology and open space are anticipated to be *negligible*.
- 10.6 The Site currently comprises an operational quarry and agricultural land set within Gelliargwellt Farm. The Site is therefore not in public use. No fixed permanent structures or buildings are proposed as part of the Development. Overall, therefore, negligible wider health effects are anticipated.

### Cumulative Effects

- 10.7 A cumulative assessment has been conducted on the two additional schemes listed earlier in this report and the effects, in conjunction with the Development. These schemes are considered to be beneficial in relation to construction employment and local expenditure. Whereas, the cumulative assessment has identified negligible effects on the population and human health of the closest sensitive receptors, given the nature and location of the Development.

## 11.0 BLAST VIBRATION

11.1 An assessment of the likely blast vibration effects has been undertaken, in line with the following methodology:

- Identify the nearest vibration sensitive premises;
- Undertake vibration monitoring during blasting at existing quarry;
- Determine proposed distance from blast to receptors with extension (approx. 300m);
- Undertake vibration monitoring at 300m from blast;
- Compare results with criteria in planning condition with MTAN1; and
- Provide advice on mitigation measures where excess occurs.

11.2 There are no documented significance criteria for the assessment of vibration from mineral workings at residential receivers and therefore, the assessment compares vibration levels against limits set out in the Local Planning Authority's existing permission condition.

### Baseline Conditions

11.3 Results of monitoring undertaken by the blast team (EPC UK) and CCBC for all blasts in 2018 are set out in Appendix 11.1. All measured results fall well below both the 4mm/s limit for 95% of blasts in a 6 month period and the 8mm/s limit for any individual blast as outlined in the planning condition.

### Extraction / Completed Development

11.4 Blast monitoring was undertaken at a distance of 300m on 28<sup>th</sup> May 2020 as detailed above, and at a location which was deemed representative of likely blast vibration levels at the nearest receptors to the Development. The results of this assessment concluded that the vibration levels from blasting at the Site are indicated to remain below the limits set out in the planning condition.

### Mitigation Measures

11.5 Practical measures to reduce vibration and air overpressure from blasting are included in BS 5228 – 2:2009 under section 8.6.9.2;

- a) "taking particular care with the development of faces and with trial blasts at a quarry or opencast coal pit, as anomalous vibration levels

might be produced when there is no free face to relieve the energy produced;

- b) ensuring appropriate burden to avoid over or under confinement of the charge;
- c) accurate setting out and drilling;
- d) appropriate charging;
- e) appropriate stemming with appropriate material such as sized gravel or stone chippings;
- f) using delay detonation to ensure smaller maximum instantaneous charges (MICs);
- g) using decked charges and in-hole delays;
- h) blast monitoring to enable adjustment of subsequent charges;
- i) designing each blast to maximize its efficiency and reduce the transmission of vibration;
- j) avoiding the use of exposed detonating cord on the surface in order to minimize air overpressure – if detonating cord is to be used in those cases where down-the-hole initiation techniques are not possible, it should be covered with a reasonable thickness of selected overburden.”

- 11.6 EPC – UK have advised that the Site's operations and the Development continue to follow the best industry practice and always conforms to the mines and quarries Regulations 1999.

### **Cumulative Effects**

- 11.7 None of the cumulative scheme are in close proximity to the Development to cause any further additional effects upon the blasting results.

## 12.0 AIR QUALITY

- 12.1 Air quality impacts from the Development have been predicted using ADMS 5.2, which is an advanced dispersion model widely used in the UK for EIA. The assessment considers the significance of the change in particle exposure likely to arise intended to provide a general indication of the likely impact. Impacts have been assessed in accordance with the non – statutory professional Guidance published by the Institute of Air Quality Management (IAQM).

### Baseline Conditions

- 12.2 The Applicant appointed by Enviro-Technology (an independent specialist air quality monitoring company) to conduct baseline monitoring at the nearest residential properties to the proposed extension between November 2018 and October 2019. The particle monitoring included the health related fractions PM<sub>10</sub> and PM<sub>2.5</sub> along with wind speed and direction, to help determine the contribution from the existing quarry and materials recycling facility. The results from the twelve months monitoring indicate that the levels of both PM<sub>10</sub> and PM<sub>2.5</sub> comply with the Welsh air quality objectives (based on statutory Limit values) and World Health Organisation (WHO) criteria. The highest levels of particulate air pollution occur when the wind is from the east and north-west. Levels of particulate air pollution are actually lower when the wind is blowing from the quarry to the nearest residential properties.

### Extraction / Operational Phases

- 12.3 The assessment assessed three different scenarios, all assessing the worst-case scenario against the nearest sensitive human receptors include the settlements of Penybryn, Gelligaer and Nelson. The air quality impact assessment concluded that there would be a 5% increase in PM<sub>10</sub> annual levels and a 1% increase in PM<sub>2.5</sub> annual levels. The results from the dispersion model indicate that even without any mitigation, the dust deposition impacts on ecological receptors are likely to be insignificant.
- 12.4 Therefore, it is concluded that the Development is anticipated to have a negligible effect at all sensitive receptors within the study area in terms of the IAQM / EPUK assessment framework. Taking this into consideration, it is considered that the increase in emissions will not have any significant effects on human health.

### **Cumulative Effects**

- 12.5 The assessment considers the contribution from background, the worst case existing operational impacts and the impacts from the Development. No other significant contribution to current or future exposure has been identified. Cumulative impacts on local air quality are therefore likely to be negligible.

## **13.0 SUMMARY AND RESIDUAL EFFECTS**

13.1 In summary, the Development will result in the following beneficial residual effects:

- The Site will be restored to a gentle naturalistic contours and the land to a broadly agricultural use with the incorporation of land intended to meet nature conservation objectives.
- A minor beneficial effect resulting from habitat creation and long term management (for peatland habitats, pond and ditches, reptiles, invertebrates and wading birds).
- Benefits to the local economy, from employment generation during both the extraction and operation period of the Development.

13.2 In summary, the Development will result in the following adverse residual effects:

- Some minor effects on landscape and visual during the operational phases of the Development.
- Minor adverse effects on water resources during extraction and operational phases.

**FIGURE 1:**  
**SITE LOCATION PLAN**



**KEY:-**

Application area —

Land controlled by applicant —

|                                                                                                                     |                      |                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                     |                      |                                                                                                                                                |
| A                                                                                                                   | 15-08-19             | Red Line Planning Application Limits amended                                                                                                   |
| REV/N                                                                                                               | DATE                 | AMENDMENT                                                                                                                                      |
| <b>J P C E Limited</b>                                                                                              |                      |                                                                                                                                                |
| <b>CLIENT</b><br>BRYN AGGREGATES Ltd<br>GELLIARGWELLT FARM<br>GELLIGAER ROAD<br>GELLIGAER<br>CAERPHILLY<br>CF82 8PY |                      | <b>JOHN PERKINS</b><br>CONSULTING ENGINEER<br>Bronhaul,<br>Abernant Road<br>Aberdare CF44 0PY<br>Tel 07889 644649<br>e-mail jpce@hotmail.co.uk |
| <b>DRAWING TITLE &amp; SCHEME</b>                                                                                   |                      |                                                                                                                                                |
| <b>PROPOSED NEW QUARRY EXTENSION<br/>AT BRYN QUARRY GELLIARGWELLT<br/>FARM, NELSON</b>                              |                      |                                                                                                                                                |
| <b>Site location plan</b>                                                                                           |                      |                                                                                                                                                |
| Drawing Number<br>BAL-NQE-2017-50m-018revA                                                                          |                      | Drawn By :<br>B M Jones                                                                                                                        |
| Date :<br>JAN 2019                                                                                                  | Scale<br>1:50,000@A4 | Checked :<br>J R Perkins                                                                                                                       |