



Environmental Impact
Assessment

Glan Lash Extension
Revised

August 2024

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1.0 Introduction

Bryn Bach Coal Ltd is applying to Carmarthenshire County Council for permission to mine by surface mining operations nearly 85,000 tonnes of premium quality anthracite from the proposed Glan Lash Extension Revised. The existing site was granted full planning permission by Carmarthenshire County Council on the 25/01/2012 permission No E/24681. An application (E/39917) to Carmarthenshire County Council to extend permission E/24681 was refused on the 14th September 2023. This revised application will endeavour to mitigate and counter the reasons for this refusal.

The Extension Revised site boundary covers 10.03 hectares of land to the north of the current Glan Lash Mine Site and is centred at E261560 N213900. We have adjusted the excavation limit of the proposed extension and thereby reduced the excavation area which now covers 5.92 hectares in order to mitigate the environmental impacts of the proposed extension and protect areas of important natural and built heritage. Further visual and noise attenuation can be provided by the positioning of topsoil & subsoil mounds around the site boundary.

The extension revised area can be found in a secluded area of land isolated from human habitation. The extension revised area is separated from the Waunfarlais Road by a topographical ridge that rises 14m above the proposed extension and then falls 19m to Waunfarlais Road. The settlement of Waunfarlais is 440m from the centre of the extension. Blaenau is 900m to the west of the extension and will be shielded by the existing overburden mound. The overburden mound will remain in situ until the restoration phase of the extension. To the south of the extension area is the existing site and washery complex. Llandybie is 840m to the north of the extension.

The proposed revised extension is a continuation of the current development and therefore the impacts on the nearby environment and the local amenity can be confidently assessed using data gathered during the operational phase of the current site.

Environmental impact mitigations measures include the creation of an area of riverside woodland which will cover 2.53 hectares of agricultural grade fields that are currently used for grazing and the addition of 1,103m of new hedgerow to be constructed on the restored Tir y Dail Colliery Tip recreating the original field boundaries circa 1879 prior to the establishment of the Tir y Dail Colliery in 1898. The woodland plantation & hedgerow construction will take place immediately on gaining all the relevant permissions. These mitigation measures are in addition to the replacement of these features during the restoration phase of the proposed extension.

Furthermore, we will manage in accordance with an approved ecological management plan the 3.358 hectares of marshy grassland to the north of the excavation limit. These unimproved grassland fields located are of high ecological quality and largely support NVC M25 Purple Moor-grass – Tormentil mire with areas of M24 Purple Moor-grass - Meadow Thistle fen meadow, the latter being an uncommon type and of particular conservation interest. These fields were identified in the 1980's by CCW (predecessor to NRW) to be of SSSI quality and were included in their list of proposed SSSIs but in recent years have become rank and overgrown due to the cessation of adequate management.

The Glan Lash Extension Revised scheme will include, at the start of the scheme, the restoration of these grasslands to their former status, which will be followed by their management to maintain this status over a period totalling at least seventeen years. Management advice will be sought from authorities such as the County Council's Mynydd Mawr SAC Conservation Officer in order to return them to favourable conservation status and ultimately to their former SSSI quality.

The extension will not require an increase in plant levels or production hours.

The Town and Country Planning (Environmental Impact Assessment England & Wales) Regulations 1999 is a "technique for drawing together in a systematic way, expert quantitative analysis and qualitative assessment of the project's environmental effects, and presenting the results in a way which enables the importance of the predicted effects, and the scope for modifying or mitigating them, to be properly evaluated by the relevant decision-making body before a decision is given".

Schedule 1 of the above regulations, states that an Environmental Impact Assessment (EIA) will only be required if a quarry or opencast mine exceeds a surface area of 25 hectares. Although the Glan Lash extension revised & the existing site has a total surface area of 19.39 hectares and therefore falls outside the requirements of Schedule 1, an EIA assessment has been produced following consultations with Carmarthenshire County Council, various statutory bodies and specialist consultants in order to fully address the developments environmental effects.

This Environmental Impact Assessment will use expert analysis to describe the existing situation, the potential environmental impacts, the proposed mitigating measures to be used and an assessment of the likely effects.

Bryn Bach Coal Ltd accepts that a modern mining development does not only need to provide employment, a supply train for the life of the development and a mineral resource to meet society's needs but should also aim to achieve the following criteria:

- Protect areas of natural and built heritage importance
- Minimise the environmental impacts of mineral extraction
- Achieve a high standard of restoration and beneficial after-use of the mine site
- If possible, to remediate land damaged by shallow coal workings or mine waste
- The extension development's long-term aim is to improve the local environment, enhance the landscape and biodiversity of the area and make provision for public access and recreation.

2. Background to this Application & Site Selection (Ref GLER-01)

Bryn Bach Coal Ltd has developed a unique business strategy for small, compact, low impact mine operations. We believe we have proved that a small opencast mine can be worked in an environmentally considerate manner and that environmental impacts can be minimised by thoughtful operational design.

In 2006 Bryn Bach Coal Ltd purchased the Glan Lash Washery and entered into a lease agreement with the land owner. After extensive refurbishment the washery became operational in 2007 and was used to process anthracite from our Cwm y Onen Colliery development on the Mynydd y Betws. The Glan Lash Washery is a separate entity with its own Planning Permission, Environmental Permits, Discharge Licence and Rateable Value/Rating Listing for business rates.

In 2012 Bryn Bach Coal Ltd was granted planning permission to work the existing Glan Lash Mine Site. Anthracite mined from this development has been processed at the Glan Lash Washery which covers 2.64 hectares and is centred on E216300 N213500. The Glan Lash Washery is presently fully operational.

National Coal Board correspondence showed that the original Glan Lash Site was proposed by the Ministry of Fuel & Power in 1948. A much larger scheme was considered by the National Coal Board in 1962 and our existing site and the proposed extension formed part of that larger scheme. The National Coal Board decided instead to proceed with the nearby Glyn Glas Site and subsequent northern and southern extensions.

Bryn Bach Coal Ltd has failed to recover the drilling information from the National Coal Board or the British Geological Society regarding the proposed 1948 & 1962 sites and therefore commissioned a small drilling programme to determine the extent of the anthracite reserve within the extension area.

This drilling programme proved that the Lower Pumpchwart, Lower Trichwart and Stinking anthracite seams do occur, with the seams gently rising to the north. The Lower Trichwart and Stinking seams crop out at the interface of the solid strata and the glacial drift deposit. The solid strata are overlain by glacial drift which varies in thickness from 4m in the north/west to 23m in the south/east of the proposed revised excavation area.

The drilling programme has provided descriptions of the strata which were encountered and groundwater strikes. The solid geology comprises of the Lower Pumpchwart, Lower Trichwart and Stinking seams, these seams are separated by mudstones and siltstones. This sequence is located within the lower coal measures, along the northern crop of the South Wales geo-synclinal coalfield. These measures represent the basal horizons which have been historically mined in the South Wales Coalfield.

The results of the drilling programme have been used to define an area that can be worked at an economic mineral/overburden ratio. The site boundary provides enough room for subsoil and topsoil storage, these mounds can be positioned to provide both noise and visual impact mitigation.

The revised site layout also retains and protects existing landscape features that surround the extension area. The revised excavation area of 5.92 hectares will now exclude: -

1. The marshy grassland to the north of the excavation area which covers in total 3.358 hectares this will remain in situ and untouched. Although 1.402 hectares will be within the site boundary.
2. A 20m woodland buffer zone extending to 0.5933 hectares. This woodland buffer zone will now protect 96% of trees (64/67 Oaks) that can be categorised as mature or noteworthy.
3. The woodland boundary & hedge bank extending to 395m which will now remain in situ and untouched.
4. Field Enclosure D will now remain in situ and untouched this enclosure extends to 0.9313 hectares, as shown on plan GLER- 04.

The Glan Lash Extension revised provides an area of premium quality anthracite that has the required economic anthracite/overburden ratio to enable the full restoration of the existing and the proposed extension.

Following an assessment of the operational requirements and environmental impacts of our proposal, discussions with our specialist consultants and giving consideration to the objections raised by Carmarthenshire County Council, the Glan Lash Extension Revised layout and development configuration is our preferred option.

Bryn Bach Coal Ltd is a local firm that employs local labour and uses a local supply chain. We are the smallest opencast coal mining operation in Wales and even our fiercest critics at planning stage have since admitted "if they had known it was going to be like this, they would not have objected".

The Glan Lash Extension revised development will continue to fit our business strategy in that we have developed a niche non-thermal market for premium quality anthracite with the consistent quality associated with a small mining operation a fundamental requisite.

Whilst in college 40 years ago a lecturer stated that "in generations to come we will look back on the burning of anthracite for power generation or to heat space as a crime, it is such a valuable resource and it can do so much more than that". This philosophy has driven our business strategy to pursue and secure customers that use anthracite for its non-thermal mineral properties.

Bryn Bach Coal Limited is an "exception" to the normal opencast operation that South Wales has been accustomed to, as 75% of the anthracite produced from the original Glan Lash Site has had a non-thermal/non fossil fuel end use.

In light of the local demand for our anthracite and letters of intent for supply we are able to ensure that 100% non-thermal-non/fossil fuel use will be achieved should planning permission be granted.

This can be monitored by submission of yearly declarations from our customers stating tonnages purchased and its end use.

This 'exception' has been achieved as a consequence of the following

- Bryn Bach Coal Limited being the largest supplier of anthracite to the British brick manufacturing industry, the consistent quality of anthracite produced and the development of working practises to eliminate certain contaminants which can cause major problems during the process of manufacturing bricks is a primary reason why we are the preferred supplier.
Between 0.5-1.0% anthracite is used in the clay mix within each brick to react with the clay and add colour & carbon should the clay require additional carbon. This use as a brick colourant means the anthracite is not burnt and therefore does not release CO₂ into the atmosphere.
- Bryn Bach Coal Limited is a supplier to the water filtration industry where the anthracite is used as a filter medium in the water industry, the anthracite from the original Glan Lash site supplied three local Ammanford based Filter Media businesses. The anthracite is used in filter beds to purify drinking water, in de-salination plants and sewage beds. Again, the anthracite use is non-thermal and does not release CO₂ into the atmosphere.
- Developing markets for non-thermal-non fossil fuel uses are emerging especially using anthracite as a substitute for graphite which is a critical mineral essential to achieve Net Zero by 2050 (Glan Lash anthracite has 92% fixed carbon, natural graphite has 100% fixed carbon). The demand for graphite will increase from the current 1.6m tonnes per year to 8m tonnes per year if we are to achieve Net Zero by 2050 (World Bank 2020). The International Energy Agency estimates a 400% increase in graphite production will be required by 2040.

It would not make economic sense for Bryn Bach Coal Ltd to change market strategy as poorer quality cheaper anthracites can be used as a fossil fuel. **It can therefore be stated that this is not a fossil fuel application as the anthracite will not be used as an energy source, this is an application to mine a mineral.**

Wardell & Armstrong published a report for the Welsh Government titled Coal Extraction Wales: The Existing Impact Evidence 2019. In sourcing data comparing CO₂ emissions related to locally mined coal compared to imported coal section 3.36 states "In recent planning applications for surface coal mines in the north east of England, the reduction in CO₂ emissions from just the transportation of coal (from mine to the steel or power plant) was calculated to be at least 47% less compared to freight emissions

from the transportation of imported coal (from the main importing countries Russia, China, USA, Australia and Columbia).

The Glan Lash Revised Extension provides an opportunity to calculate a definitive amount of CO₂ emitted by the additional transportation requirements when importing the replacement tonnage of anthracite from China or Columbia. For this calculation we will assume that the mining of the mineral wherever that occurs will emit the equal amount of CO₂ and the minerals final destination will remain the same. The emission rates of grams of CO₂/tonne/km have been obtained from GOV.UK- Transport and Environment Statistics 2022.

Below are the calculations to determine the amount of CO₂ in tonnes that will be saved from being emitted by mining the Glan Lash Revised Extension compared to importing an equivalent tonnage from China or Columbia.

Anthracite Imported from China

Additional Transportation	Distance Km x	CO ₂ /tonne/km	= CO ₂ per tonne
Mine to Port (Estimate)	100km	105grms	0.0105 tonnes
China Port – UK Port	23,600km	25grms	0.59 tonnes
UK Port to Llandybie (Est)	100kn	105grms	0.0105 tonnes
Total =			0.611 tonnes

Glan Lash Revised Extension tonnage=84,896 tonnes x 0.611t of CO₂ per imported tonne= **51,871 tonnes of additional CO₂** through importing anthracite from China compared to mining anthracite at the Glan Lash Revised Extension.

Anthracite Imported from Columbia

Additional Transportation	Distance Km x	CO ₂ /tonne/km	=CO ₂ per tonne
Mine to Port (Estimate)	100km	105grms	0.0105 tonnes
Columbia Port – UK Port	8,400km	25grms	0.21 tonnes
UK Port to Llandybie (Est)	100kn	105grms	0.0105 tonnes
Total =			0.231 tonnes

Glan Lash Revised Extension tonnage=84,896 tonnes x 0.231t of CO₂ per imported tonne=**19,611 tonnes of additional CO₂** through importing anthracite from Columbia compared to mining anthracite at the Glan Lash Revised Extension.

It should be noted that all of our intended markets are exempt from the HMRC Climate Change Levy, and it can therefore be concluded that the use of the anthracite from this development will not result in significant CO₂ release and will have a positive impact on CO₂ emissions compared to imported anthracite, consistent with the Bryn Bach Coal Limited business strategy.

The Glan Lash Mine site ceased mining operations in 2019. Since then, Bryn Bach Coal Ltd has purchased between 10,000-14,000 tonnes/year of anthracite to process at the Glan Lash Washery from various sources. These have included anthracite from Celtic Energy Ltd, Russia, Germany, Vietnam, Energybuild Ltd, China and Columbia. Bryn Bach Coal Ltd processes this externally sourced anthracite and it is then sold on to local customers. Unfortunately, the externally sourced anthracite is not of sufficient quality to supply the 3 local filter media companies as they require premium quality anthracite. If Wardell & Armstrong's data is correct then the imported tonnage Bryn Bach Coal has processed has resulted in a 47% increase in CO₂ emissions. However, if we are forced to import an equivalent tonnage a further 19,611-51,871tonnes of CO₂ will be emitted rather than mining this resource from the Glan Lash Extension with all the benefits of this development.

Bryn Bach Coal would argue that to refuse planning permission based on the impact our proposal will have on Climate Change or Carbon emissions would be globally irresponsible in contradiction to the Well-being of Future Generations (Wales) Act 2015.

3. Proposed Development

3.1 Landscape and Land Use (Ref GLER-02)

The extension covers 10.03 hectares of land within the site boundary and consists 4.73 hectares of 4 semi-improved neutral grassland fields which are enclosed with associated hedgerows. The remaining areas consists of 2.53 hectares of broad-leaved woodland, 1.402 hectares of rush dominated grassland with some small areas of purple moor grass dominated mire.

The sward within the enclosed fields is species-poor and is dominated by common grasses and is of limited ecological significance. These pasture fields can be assessed under the National Vegetation Classification as MG7 or MG6 and have been used for grazing by sheep, cattle and horses.

Hedgerows divide the fields and comprise of generally dense bushy growth. The hedgerows have not been regularly managed and the majority are not fenced as to prevent grazing, but do include a post and wire fence to ensure they are stock -proof.

The woodland extends to 2.53 hectares within the site boundary. This woodland is wet with a lowland mix of deciduous trees mainly Common Alder, Hazel, Grey Willow, Birch and some hedge bank boundary Oaks. The woodland has been extensively harvested for timber and previously a fell licence has been issued by Carmarthenshire CC.

In 1988 Lister & Whitbread did not identify this central woodland as an Ancient Woodland during their national assessment. However, in 2011 it was listed as a historic woodland by the CCW/NRW and then by the West Wales Biodiversity Information Centre as it used the 2011 inventory as its source.

A detailed investigation has been carried out by Pryce Ecologists and Heritage Recording Services Wales using the Tythe Map of 1842 and Ordinance Survey plans from 1886 onwards. This investigation clearly demonstrates that this woodland has been wrongly identified by the CCW/NRW in 2011 and that the 1988 assessment is correct. A detailed explanation can be found in the Ecological Impact Assessment annexed to this report.

3.2 Geology & Slope Stability

The site comprises a relatively thick cover of Glacial Drift deposits (which thin towards the north) beneath which coal bearing Coal Measures strata occur. The extension excavation limit covers 5.92 hectares of land within which mining operations will take place.

The mining operations will involve the removal of the over-lying glacial drift deposits and over-lying shales and mudstones. The extraction of three anthracite seams, Stinking, Lower Trichwart and Lower Pumpchwart, which are generally inclined towards the south will then take place in a phased operation.

The sequence of solid strata has been disturbed by approximately east / west orientated, low angle, thrust faulting along with normal upright north north west / south south east trending faulting, associated with which localised areas of steeply upturned strata area likely to occur.

The current site has been significantly affected by the east / west trending thrust faulting noted above, which has continually resulted in regular failures in the northern excavation faces.

To overcome this problem, the operating scheme which is proposed for the extension will entail excavation commencing at the far north western end of the excavation area. It is proposed to develop north / south orientated working (dip cut) panels which will be worked in a southerly direction and advanced towards the east. This method will ensure that the thrust affected strata will be inclined into not parallel to the excavation faces, thereby significantly improving stability.

3.3 Hydrology and Hydrogeology

A Planning Application was submitted seeking to extend extraction to the north of the current operations at the Glan Lash opencast site, Llandybie, Carmarthenshire. A large amount of assessment was undertaken to characterise ground conditions and the associated water environment, both prior to, and following, the planning submission.

The Planning Application was refused by Carmarthenshire County Council, one of the principal reasons being the perceived potential for impact upon habitat that is potentially suitable for Marsh Fritillary butterflies. The area of butterfly interest is located to the north of the proposed limit of extraction, separated from it by a 20 metre (m) exclusion zone and woodland boundary containing historic field drainage channels.

A report authored by R N Humphries and R E Leverton of Blackmere Consultants Ltd had concluded that the ecology of the potential habitat located immediately to the north of the proposed extension area is solely surface water dependant. This report is annexed to this application. A conceptual model was provided for the relationship between the Mynydd Mawr SAC and the proposed extension. It has been accepted that there would be no impact on the SAC. This conceptual model is annexed to this report.

Carmarthenshire Council commissioned Rob Low of Rigare Consultancy to comment on the water-related content of the Planning Application and subsequent data submission by Bryn Bach Coal Limited. Rob Low advised that the previous Eco-Hydrological Impact Assessment (E-HIA) submitted in support of the Planning Application did not provide a conceptual model based on sufficient data for an adequate assessment of impacts upon the potential butterfly habitat.

Hafren Water has been commissioned to undertake a more comprehensive assessment of the potential impact of the proposed development upon the extant water environment with particular focus on the area immediately to its north.

As well as providing an impact assessment of the proposed development as per the usual scope of a HIA, the secondary focus of this report is on the potential for a hydraulic connection between groundwaters underlying the site and the potential butterfly habitat.

The Hydrogeological Impact Assessment can be found annexed to this application.

3.4 Soils & Field Enclosures (Ref GLER-03)

The extension excavation limit covers 5.92 hectares of land within the site boundary, and consists of 3 semi-improved neutral grassland fields which are enclosed with associated hedgerows. There is an area of woodland that extends to 2.53 hectares within the site boundary however only 1.9345ha is within the revised excavation limit. This woodland is wet with a lowland mix of deciduous trees mainly Common Alder, Hazel, Grey Willow, Birch and some hedge bank boundary Oaks.

All topsoil and subsoil removal will be in accordance with the existing approved Ecological Management Plan and in accordance with the existing approved Archaeological Scheme of Investigation. The topsoil and subsoil will be stored within the site boundary but outside the excavation limit.

The Revised Extension plan will alleviate any need to translocate areas of marshy grassland to the north of the excavation limit.

Field Enclosure A

Field A covers 1.2773 hectares of semi-improved neutral grassland of which 0.6125 hectares is within the revised extension excavation limit. This field has been used as rough grazing pasture and has an Agricultural Land Classification of ALC Grade 5. In order to determine the depth of topsoil and subsoil, excavation of 10 sample trial holes spread across the field have been evaluated. The topsoil varies in

thickness between 0.13m-0.16m the average thickness over the 10 sample holes is 0.145m. The subsoil is an upper layer of weathered glacial drift. The drift has a higher percentage of larger stones as the depth increases. The upper layer which can be described as subsoil extends to a depth of 0.5m. A soil analysis report has been commissioned and the results show the soil to be very low in potassium, magnesium and phosphorus with a pH Of 5.3. In total it is proposed that 888m³ of topsoil from within the excavation limit and an additional 729m³ of topsoil outside the excavation limit will be stripped from Field A and placed in the western topsoil mound in order to accommodate the sub-soil mound. The 0.5m of subsoil will also be recovered from Field A and 3,063m³ will be placed in the western subsoil mound.

Field Enclosure B

Field B covers 0.8129 hectares of semi improved neutral grassland within the revised extension excavation limit. The field has been used as rough grazing pasture and has an Agricultural Land Classification of ALC Grade 5. In order to determine the depth of topsoil and subsoil, excavation of 10 sample trial holes spread across the field have been evaluated. The topsoil varies in thickness between 0.13m-0.15m the average thickness over the 10 sample holes is 0.140m. The subsoil is an upper layer of weathered glacial drift. The drift has a higher percentage of larger stones as the depth increases. The upper layer which can be described as subsoil extends to a depth of 0.5m. A soil analysis report has been commissioned and the results show the soil to be very low in potassium, magnesium and phosphorus with a pH Of 5.5. In total it is proposed that 1138m³ of topsoil from within the revised excavation limit will be stripped from Field B and placed in the western topsoil mound. The 0.5m of subsoil will also be recovered from Field B and 4,065m³ will be placed in the western subsoil mound.

Field Enclosure C

Field C covers 1.7104 hectares of semi improved neutral grassland within the extension site boundary. The revised excavation limit covers 1.0905 hectares of Field C. The field has been used as rough grazing pasture and has an Agricultural Land Classification of ALC Grade 4. In order to determine the depth of topsoil and subsoil, excavation of 10 sample trial holes spread across the field have been evaluated. The topsoil varies in thickness between 0.15m-0.18m the average thickness over the 10 sample holes is 0.170m. The subsoil is an upper layer of weathered glacial drift. The drift has a higher percentage of larger stones as the depth increases. The upper layer which can be described as subsoil extends to a depth of 0.5m. A soil analysis report has been commissioned and the results show the soil to be very low in potassium, magnesium and phosphorus with a pH Of 5.3. In total it is proposed that 1,716m³ of topsoil from within the excavation limit and 546m³ of topsoil from outside the excavation limit will be stripped from Field C and placed in the eastern topsoil mound this will allow the eastern subsoil mound to be constructed. The 0.5m of subsoil will also be recovered from Field C and 5,047m³ will be placed in the eastern subsoil mound.

Field Enclosure D

Field D covers 0.9313 hectares of semi improved neutral grassland within the site boundary. The field has been used as rough grazing pasture and has an Agricultural Land Classification of ALC Grade 5. In order to determine the depth of topsoil and subsoil, excavation of 10 sample trial holes spread across the field have been evaluated. The topsoil varies in thickness between 0.10m-0.14m the average thickness over the 10 sample holes is 0.120m. The subsoil is an upper layer of weathered glacial drift. The drift has a higher percentage of larger stones as the depth increases. The upper layer which can be described as subsoil extends to a depth of 0.5m. A soil analysis report has been commissioned and the results show the soil to be very low in potassium, magnesium and phosphorus with a pH Of 5.5. The revised excavation limit has resulted in Field D being excluded from the proposal and will remain unaffected.

Woodland Enclosure W

The woodland covers 2.5278 hectares within the site boundary. This woodland is wet with a lowland mix of deciduous trees mainly Common Alder, Hazel, Grey Willow, Birch and some hedge bank boundary Oaks. The topsoil is wet and thin and varies in thickness in undisturbed drier areas between 0.06m-

0.10m the average thickness over the 10 samples holes is 0.08m. The subsoil is a grey/brown coloured clay with a high percentage of large stones. This layer which can be described as subsoil extends to a depth of 0.5m. However, it has been noted in some areas of standing water the topsoil can extend to 0.3m. A soil analysis report has been commissioned and the results show the soil to be very low in potassium, magnesium and phosphorus with a pH Of 5.5.

The revised excavation limit proposes a 20m woodland buffer zone extending to 0.5933 hectares. This woodland buffer zone will now protect 94% of trees (64/67 Oaks) that can be categorised as mature or noteworthy. This has resulted in a reduction in woodland loss to 1.9345 hectares and comprises of mainly Alder, Hazel, Grey Willow and Birch which are generally less than 20 years old due to previous licenced tree clearances.

In total it is proposed that 1548m³ of woodland topsoil will be stripped from within the revised excavation limit and placed in the western topsoil mound. The 0.5m of subsoil will also be recovered and 9673m³ stored in the western subsoil mound. This woodland buffer zone also includes 395m of woodland boundary & hedgerow there by reducing the length of hedgerow that will be required to be removed and stored temporarily to a total of 441m.

Marshy Grassland MG

The marshy grassland area consists of rush dominated pasture with areas of Purple Moor-grass and extends in total to 3.358 hectares of which 1.402 hectares is within the site boundary. The revised extension method of working has excluded this area from the revised excavation limit and will remain unaffected by this proposal. A further 1.956ha of marshy grassland can be found to the north of the site boundary. These unimproved grassland fields located to the north of the working site are of high ecological quality and largely support NVC M25 Purple Moor-grass – Tormentil mire with areas of M24 Purple Moor-grass - Meadow Thistle fen meadow, the latter being an uncommon type and of particular conservation interest. The fields were identified by CCW (predecessor to NRW) to be of SSSI quality and were included in their list of proposed SSSIs but in recent years have become rank and overgrown due to the cessation of management. The Glan Lash Extension Revised scheme will include, at the start of the scheme, the restoration of these grasslands to their former status, which will be followed by their management to maintain this status over a period totalling at least seventeen years. Management advice will be sought from authorities such as the County Council's Mynydd Mawr SAC Conservation Officer in order to return them to favourable conservation status and ultimately to their former SSSI quality.

In summary all the topsoil and subsoil from the extension area will be stripped and stored as follows: -

Area	Topsoil (m ³)	Subsoil (m ³)
Western Storage	4,303	16,801
Eastern Storage	2,262	5,047

Hedgerows

The above field enclosures and woodland are divided by hedgerows and ditches. The hedge banks vary in size from 2m(base) X 1m (ht) x 0.3m (top) to 0.5m(base) x 0.5m (ht) x 0.1m (top). A detailed survey and analysis can be found in both the Ecology and Archaeology Reports. The soil material from the hedge-banks within the excavation area will be lifted in accordance with our Ecological Management Plan and under the watching brief of our site Archaeologist. The hedge-bank material will be stored alongside our existing hedge-bank storage mound. It has been calculated that 441m of hedge-bank will be removed and this will result in approximately 175m³ of hedgerow to be stored alongside the existing Glan Lash hedgerow soil mound.

3.5 Ecology

The revised Extension Site proposals do not directly affect any statutory or non-statutory sites designated for the protection of biodiversity. However, the closest part of the Caeau Mynydd Mawr Special Area of Conservation (SAC), a site designated to conserve the Marsh Fritillary butterfly (a European Protected Species), is located some 3.5km to the south-west and the Cernydd Carmel SAC, a site designated for the presence of the only turlough in Britain together with its important mosaic of woodland, grassland, mire and heathland habitats which support floral and faunal assemblages of international significance, is some 2.2km to the north-northwest. Although present on both these SACs, Dormouse (another European Protected Species) is not cited as a qualifying reason for their selection.

The Glanlash Extension Revised site is also located close to the Afon Lash, a tributary of the Afon Llŵchwr which flows into the Carmarthen Bay and Estuaries SAC. One of the qualifying features for the designation of this SAC is to protect the population of European Otter which is present in the SAC and used the riparian habitats of these rivers for cover, foraging and travelling.

These are areas of ecological importance in a European context but it is judged that proposed site operations will not directly or detrimentally impact upon any of these SACs or the features for which they have been designated but that the Glanlash scheme will be of positive benefit to the Mynydd Mawr SAC by restoring and managing habitat which supports an element of the metapopulation of the Marsh Fritillary butterfly (the qualifying feature for which this SAC was selected).

No other protected sites will be affected by the proposals.

Marsh Fritillary butterfly, Dormouse, bats and Otter are listed at annex II of the European

Habitats Directive and occur within or in the vicinity of the application site.

Marsh Fritillary butterflies and larval webs were recorded within the northern fields of the Extension site during the 2017 surveys where suitable habitat is present but is mostly in sub-optimal condition. No adult butterflies or larval webs have been recorded on this land since, although surveys have been carried out in several years during the appropriate months including the 2024 survey. As part of the Glanlash Extension Revised scheme, it is proposed to restore this habitat which is currently in poor condition. The habitat will be restored soon after planning permission is granted and will be brought under conservation management for the duration of the operational phase (7 years) plus the aftercare period (10 years), a total of 17 years.

After the 2017 Marsh Fritillary survey Carmarthenshire CC Ecology decided that these adult butterflies and larval webs were part of the Caeau Mynydd Mawr metapopulation and therefore warranted a precautionary approach regarding planning. This despite the fact that the Core Management Plan of the Caeau Mynydd Mawr SAC states "a metapopulation must be within 2km for the metapopulation to function (AP Fowles 2006). In addition, the Supplementary Planning Guidance of the Caeau Mynydd Mawr SAC also states a precautionary approach must be taken within a 2km radius. The Glan Lash Extension Revised is between 3.5-4km from the Caeau Mynydd Mawr SAC.

Dormouse has been recorded 2.6km from the Glanlash site in the past but no signs of the presence of Dormouse were found during the 2016 nut survey and, as yet, there have been no signs during the 2024 tube survey. The woodland, scrub, hedgerows and bramble within the site and, to a lesser extent, the Purple Moor-grass-dominated area, provide habitat that has potential to support the species. The negative survey results cannot be taken to indicate the absence of Dormice and it has therefore been assumed that, as the habitat is suitable and animals have been recorded in the area, Dormice will be present and compensatory habitat will be required to mitigate for habitat losses.

Trees with potential to harbour roosting bats are present within the application site although only one Common Pipistrelle Day roost has been found during the surveys. No buildings are located within the site so there is no potential for bat species that roost in buildings to roost within the site. Bat foraging habitat is present within the site and Common pipistrelle, Soprano pipistrelle, Natterer's bat and Noctule bat were recorded foraging. Mature hedgerows and woodland edges which have potential to provide flight-lines for those species that obligately use such features are also present within the site.

It is anticipated that Otters will not be adversely affected by the scheme.

No signs of Badger were found during the surveys although the drier land is likely to occasionally be used by foraging animals.

Nesting birds occur commonly throughout the site. No habitat with potential to harbour nesting birds will be cleared during the nesting season (March-August inclusive). The restoration scheme will provide suitable habitats in compensation for those temporarily lost to the mining operation.

A Reptile survey showed a small number of Slow-worms and a Grass Snake were recorded in the 2024 survey and a Common Lizard during the 2017 survey. It is proposed that the small number of these animals are removed prior to each mining phase using standard reptile displacement techniques or, if not feasible, by capture and translocation to standard methodology. No amphibian breeding ponds are located within the site.

Several habitats of conservation significance are present within the site. These include Molinia meadows on chalk and clay (Eu-Molinion) listed at Annex I of the EC Habitats Directive, together with several Habitats of Principal Importance listed under Section 7 of the Environment (Wales) Act 2016.

These are Wet woodland, Lowland mixed deciduous woodland, Hedgerows and Purple Moor-grass – rush pastures. The revised excavation limit proposes a 20m woodland buffer zone extending to 0.5933 hectares. This woodland buffer zone will now protect 94% of trees (64/67 Oaks) that can be categorised as mature or noteworthy. This has resulted in a reduction in woodland loss to 1.9345 hectares and comprises of mainly Alder, Hazel, Grey Willow and Birch which are generally less than 20 years old due to previous tree clearances.

Areas of Eu-Molinion and Purple Moor-grass – rush pastures located in the north of the site which have now be completely removed from the excavation area as well as the semi-improved agricultural field in the north of the site.

No designated Ancient Woodlands are located within the site or will be impacted by the scheme.

The hedgerows within the site qualify as Important Hedgerows under the Hedgerow Regulations 1996.

The site has been redesigned in the light of the findings of the ecological surveys to, as far as possible, retain and preserve significant ecological features. Retained habitats will be managed to enhance their attractiveness to all protected, concern and non-designated species but, where it is impossible to retain habitats in situ during site operations, habitat translocation will be undertaken using experienced, specialist contractors.

Corscadden Associates have been commissioned to undertake a comprehensive Green Infrastructure Assessment in compliance with Planning Policy Wales 12. The definition of Green Infrastructure in the Annex Chapter 6 Planning Policy Wales 12 October 2023 is 'Green infrastructure is the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect places.

Component elements of green infrastructure can function at different scales. As the landscape scale green infrastructure can comprise entire ecosystems such as wetlands, waterways and mountain ranges. At a local scale, it might comprise parks, fields, public rights of way, allotments, cemeteries and gardens. At smaller scales, individual urban interventions such as street trees, hedgerows, roadside verges, and green roofs/walls can all contribute to green infrastructure networks.

The Environment (Wales) Act 2016 provides a context for the delivery of multi-functional green infrastructure. Its provision can make a significant contribution to the sustainable management of natural resources. Green infrastructure is capable of providing several functions at the same time and as a result, offers multiple benefits, for social, economic and cultural, as well as environmental resilience, and responds to challenges presented by the climate emergency.

A Step Wise Approach is required to be demonstrated in the Green Infrastructure Statement to assess impacts on habitats and species:

Step 1 Avoid

Step 2 Minimise

Step 3 Mitigate/Restore

Step 4 Compensate on site

Step 5 Compensate off-site

Steps 1-4 Relevant steps that require enhancement

Step 5 Long Term Management Plan

These steps will indicate how Net-Benefit-for-Biodiversity is achieved and a Net Biodiversity Gain % can be calculated.

3.6 Archaeology

An Archaeology Impact Assessment has been undertaken by Heritage Recording Services Wales (HRSW) for Bryn Bach Coal Limited on land 1.1 km northwest of Ammanford, positioned alongside the former Llanelli Railway (Mountain Branch), known locally as the 'Shand's Road'.

The work entailed a site visit and a desk-based assessment of all readily available historical and archaeological documentary sources for the immediate area and land surrounding the proposed development site up to a radius of 1km.

The desk-based assessment and site visit of the proposed extension to the presently operating Glan Lash Small Mine, identified the existence of 89 heritage assets in total within the 1km radius. Of this number, 26 sites were identified within the boundary of the proposed extension area. Of the sites within the proposed extension boundary and those on the edges, all but three (3) sites were post-medieval in date, of which all are either associated with the former early 20th century Ty Uchaf Colliery, the Llanelli Railway, a WWII Pillbox, or else 18th and 19th century field boundaries.

Earlier heritage assets include the remains of two potentially medieval field boundaries that presently enclose a wooded area and part of a reputed Iron Age defended enclosure. The most significant sites identified within the boundary of the proposed extension area are the reputed Bryncoed Iron Age defended enclosure and the Bryncoed WWII Pillbox, both positioned at the far east side of the proposed extension boundary but outside the excavation limit. The Archaeological Impact Assessment can be found annexed to this application.

3.7 Rights of Way

There are no rights of way that pass over the current Glan Lash mine site, the proposed extension area, the Tir y Dail restoration site or the Shand's Road. The closest footpaths are to the west of the Tir y Dail restoration site along the access road to Glyntai Fawr Farm and a short section north/west of the houses along Waun-Farlais Road.

Since 2014 and the completion of the Tir y Dail Colliery Tip Restoration by Bryn Bach Coal Limited, public access has been allowed over the Shand's Road and along the newly constructed path that meanders across the restored colliery tip. Both are frequently used and are considered by all users as an important addition to the amenity of the area.

As part of the original planning application for the Glan Lash Mine site Bryn Bach Coal Ltd offered a 21-year lease at a nominal fee of £1.00 to Carmarthenshire CC for the adoption of the Shand's Road and the footpath that crosses the restored Tir y Dail tip as a cycleway and public footpath. Further negotiations have taken place and terms for a permanent adoption have been agreed, however this agreement has not been actioned as yet, but the offer will remain in place for the duration of the extension should we be successful with this application.

4.0 Working Proposals

4.1 Plant Requirements & Hours of Work

The working of the Glan Lash Extension Revised will require no change to the existing permitted hours of work:

Monday - Friday 7.30am – 5.30pm

Saturday 7.30am – 1.00pm

There will be no work undertaken on Sundays or Bank Holidays. All plant repairs, site maintenance, plant movements and site operations will take place within the above hours.

Similarly, the Glan Lash Washery complex will not require an alteration to the existing permitted hours of working:

Monday - Friday 7.00am – 6.00pm

Saturday 7.00am – 12.00pm

The excavation of all glacial drift, shales and mudstones within the revised extension excavation limit will be undertaken by a Cat 374 (80 tonne) tracked hydraulic excavator. The Cat 374 excavator will load 3 Cat 740 (40 tonne) ADT's. The 2 X Cat 730 will be utilised for haulage of the anthracite and as cover for mechanical breakdowns. When used for anthracite haulage the Cat 730 will haul from the operational cut over the washery weighbridge and to the washing plant.

After allowing for meal breaks, mechanical breakdown, utilisation due to rainfall and Bank Holidays it is anticipated that overburden production can be achieved for an average of 38 hours per week. The Cat 374 has proven that despite very poor production in the hard shale above the Lower Pumpchwart seam the excavator can achieve an average hourly overburden production of 182 m³/hr. Therefore, the average weekly overburden production will be: -

$$38 \text{ hrs} \times 182 \text{ m}^3/\text{hr} = 6,916 \text{ m}^3 / \text{week}$$

The extension has an overburden/anthracite ratio of 21.1m³:1. This means an average weekly anthracite production of 328 tonnes can be anticipated. This level of production will result in a production period of 259 weeks or 5.4years.

The cleaning & excavation of the various anthracite seams will be undertaken by a Cat 319(20 tonne) tracked hydraulic excavator. The anthracite will be loaded directly from the seam into the Cat 730 ADT. The anthracite will be hauled from the operational cut across the existing Glan Lash site over our washery weighbridge to the washing plant. The Cat 319 has a quick bucket release mechanism and this allows a quick interchange between mining operations and soil stripping.

General site maintenance and tipping operations will be undertaken by a Cat D6R tracked dozer. This size dozer has proven itself ideal for a small compact operation.

Dust suppression will be carried out by a water bowser towed by our JCB telehandler. This set up has proved successful in controlling dust within the site and our washery complex.

Our site office, car parking area and welfare facilities have been established within the Glan Lash washery alongside the washery site entrance. There is no requirement to alter this set up for the revised extension. Gas oil will be stored in an Environment Agency double skinned storage tank positioned within a concrete bund. Lubricants and greases will be stored in a lockable store and form part of the washery & plant maintenance area.

4.2 Method Statement & Phasing of Development (Ref GLER-04)

The method statement for the working of the Glan Lash Extension Revised has been structured so as to maximise the resource but minimise the area of land required to work the reserve. The Glan Lash Extension Revised is a classic box cut operation, which will be phased into 6 individual panels running North-South. The panel width at the base seam the Lower Pumpchwart will be 30m, each panel will be worked in a series of individual cuts.

The method of work used in working the Glan Lash original site has involved excavation faces advancing from East to West with extensive sections of the North wall open at any one time. The exposed shales were disturbed and failed. As a consequence, this has removed support from the overlying drift which has resulted in sliding movements. It is proposed, in the extension, to alter the method of working such that the operation will be conducted as 30m full dip panels (base seam) working from North to South. This method of work will result in any thrust plane encountered dipping into the excavation face, rather than out of them as currently happens. The proposed working method for the extension has been designed by our site geotechnical consultant in order to reduce the impact of the existing thrust zone and any others that might be encountered on our working area.

The site boundary extends to 10.03 hectares. The excavation area covers 5.92 hectares from which the 84,896 tonnes of anthracite will be mined. The additional hectares within the site boundary will be required for soils storage and ecological management.

The Total General Excavation Quantities (within excavation limit)

	Quantity (m ³)	Translocated (m ³)
Topsoil	6,565	Nil
Subsoil	21,848	Nil
Glacial Drift	833,428	
Shale / Mudstone	927,620	
Recoverable Anthracite	60,640	
Total General Excavation	1,850,101	

Working Overburden/Recoverable Anthracite Tonnage Ratio:

$$(1,850,101\text{m}^3 - 60,640\text{m}^3) / 84,896\text{ tonnes} = \mathbf{21.1\text{ m}^3: 1\text{ tonne}}$$

Anthracite Quantities

The seam area will be multiplied by the seam thickness, then by a 95% recovery factor and finally by a conversion factor of 1.4 tonnes/m³. A 30% recovery of coal volume within the old mine workings has been estimated.

Seam	Volume (m ³)	Conversion	Total (tonnes)
Stinking Seam	8,308	x 1.4	11,631
Lower Trichwart Seam	18,093	x 1.4	25,330
Lower Pumpchwart Seam	34,239	x 1.4	47,935
Total			84,896

Plant

The overburden production and coal excavation will be undertaken using the following plant. These plant items have been used to work the existing site and there is no requirement to increase the size or number of plant items to work the extension.

Plant	Quantity	Use
CAT 374 Hydraulic Excavator (80 tonne)	1	Overburden production
CAT 740 Articulated Dump Truck (40 tonne capacity)	3	Overburden production

CAT 730 Articulated Dump Truck (30 tonne capacity)	2	Mineral haulage & breakdown cover
CAT D6R XL Dozer	1	Overburden production
Hitachi 350 LC Hydraulic Excavator (35 tonne)	1	Overburden & Mineral excavation plus breakdown cover
CAT 319 Hydraulic Excavator (20 tonne)	1	Seam cleaning & topsoil excavation
Total	9	

Preliminary works to be carried out at the Glan Lash Extension Site before commencement of overburden production are:

- The site boundary will be completely fenced to BS 1722-2 specification
- The existing 11KV power line that crosses the excavation area will be diverted along the Shand's Road to release the operational area.

The Initial Void 1A- (Ref GLER- 04/1)

The topsoil which has a recoverable depth of 0.14m will be stripped using our Cat 319 hydraulic excavator under the watching brief of our site archaeologist. In total 1766 m³ of topsoil from within the excavation limit and 586m³ from beneath the western subsoil mound will be placed to the adjacent western topsoil mound.

The 0.5m of recoverable subsoil will also be excavated and 5931m³ will be placed to the adjacent western subsoil mound.

Overburden production will now commence within the Initial Void Cut 1 (GLER-04/1). The excavation will establish a 1:8 main ramp as shown until intersecting the Lower Pumpchwart seam in the north east corner of the Initial Void Cut 1A. This main ramp will use the existing Glan Lash Void to access the restored level within the Glan Lash site. By limiting the operation to the area shown on GLER-04/1, this will delay the removal of woodland and reduce the amount of disturbed ground to an absolute minimum.

Excavation quantities on completion of the Initial Void Cut 1A

Excavation	Progressive Quantities	Translocated	Destination
Topsoil	1,766m ³		Topsoil Mounds
		Nil	
Subsoil	5,931m ³		Subsoil Mounds
		Nil	
Shale / Mudstone / Drift	220,504m ³		Final Void Existing Glan Lash
Coal	7,446 tonnes		Glan Lash Washery

Required Operational Void

233,520m³

Production Period

33 weeks

The final void of the existing Glan Lash site has an operational capacity of 431,727m³ below the extension restoration contours. However, as we are using this void to access the extension panels 1-6

the operational capacity will reduce to 257,708m³. Therefore, all the overburden production from the Initial Void Cut 1A can be accommodated within the existing Glan Lash void.

As soon as the Lower Pumpchwart seam has been mined from within the Initial Void Cut 1A progressive backfilling of overburden can commence. The worked Initial Void Cut 1A will be backfilled up to the Lower Trichwart seam level on the advance eastern face, a 10m bench will be left and backfilling will continue up to restoration level. This method will ensure a stable tipping area and minimise the amount of overburden that will be required to be placed above restoration level. However, as a consequence this will necessitate an additional amount of re-handle, this has been allowed for in the production estimates.

Intermediate Void Cut 4B (Ref GLER-04/2)

The main south/north access ramp will be used to access the Lower Pumpchwart seam in the north/east corner of Cut 4B. The main access ramp will again use the existing Glan Lash void to ramp out to the restored level as shown on GLER-04/1. Intermediate Void Cut 4B is the maximum void stage of the operation due to length and depth of panel 4. After the completion of the Initial Void Cut 1A and allowing a bulkage factor of 8% on the excavation a further 19,564m³ of overburden can be accommodated within the Glan Lash Void and 838,862 m³ of tipping room will become available within the extension's operation Cuts 1A-4A. Allowing an 8% bulkage factor on the excavation between Cut 1A & Cut 4B, a balance of 109,179 m³ will be required to be placed above ground as an extension to the Glan Lash overburden mound. The overburden will be tipped as an easterly extension to the existing Glan Lash overburden mound and will be kept 10m below the existing overburden mound ridge line. This design will avoid the occurrence of any visual or noise impacts encountered during the construction of the overburden mound in the early stages of the existing Glan Lash site. The eastern extension of the overburden mound will be 120m x 65m x 14m in size and will be constructed over the backfilled final void of the existing Glan Lash site.

Excavation	Quantities to date	Translocated	Destination
Topsoil	3,258 m ³		Topsoil Mounds
		Nil	
Subsoil	13,568m ³		Subsoil Mounds
		Nil	
Shale / Mudstone / Drift	1,116,434m ³		Glan Lash Final Void & Cuts 1A- 4A
Coal	52,339 tonnes		Glan Lash Washery

Required Operational Void 335,570m³

Production Period 164 weeks

Final Void 6B (Ref GLE 04/3)

The main south/north access ramp will be used to access the Lower Pumpchwart seam in the north/east corner of 6B. The main access ramp will again use the existing Glan Lash void to ramp out to the restored level as shown on GLER-04/3. As the maximum void stage occurred in Cut 4B the excavation of the overburden between Cuts 4C-6B can be progressively backfilled within the exhausted Cuts 4B-6A.

Excavation	Quantities to date	Translocated	Destination
Topsoil	6,565 m ³		Topsoil Mounds
		Nil	
Subsoil	21,848 m ³		Subsoil Mounds
		Nil	
Shale / Mudstone / Drift	1,761,048 m ³		Cuts 1A-7A & Overburden Mound
Coal	84,896 tonnes		Glan Lash Washery

Required Operational Void 323,772m³

Production Period 259 weeks

4.3 Mineral Processing & Marketing.

The anthracite seams within the operational cut will be excavated using the Cat 219 which will load the anthracite directly from the seam into the Cat 730 ADT's. The Cat 730's will haul the anthracite across the existing Glan Lash site over the Shand's Road via the existing mine site entrance into the washery site. Once within the washery site the Cat 730's will be weighed and the anthracite tipped directly into the washery feed bin or into stock. All the anthracite mined from the existing site has been transported to the washery using this method and there is no requirement for a change to this operation.

The anthracite will then be processed using our existing washery facility. The processed anthracite will then be transported by road vehicles along the Shand's road to access the B4556 at our existing entrance. Currently our customers use HGVs from 30 to 44 tonne GVW. There will be no change to this requirement or the frequency of use by vehicles during the working of the extension. To date we have not received any complaints concerning any impacts our current operations have had on the B4556 or its users.

Bryn Bach Coal Limited is an "exception" to the normal opencast operation that South Wales has been accustomed too as 75% of the anthracite produced from the original Glan Lash Site has had a non-thermal/non fossil fuel end use.

We have completed a comprehensive assessment of the % tonnages used to date.

Period	Domestic Thermal Use	Industrial Non- Thermal Use
2012- 2014	40.5%	59.5%
2014-2016	39.3%	60.7%
2016-2018	34.7%	65.3%
2019	24.6%	75.4%
Glan Lash Revised Extension	Nil	100%

In light of the local demand for our anthracite and letters of intent for supply we are able to ensure that 100% non-thermal-non/fossil fuel use will be achieved should planning permission be granted. This can be monitored by submission of yearly declarations from our customers stating tonnages purchased and its end use. It would not make economic sense for Bryn Bach Coal Ltd to change market strategy as poorer quality cheaper anthracites can be used as a fossil fuel. **It can therefore be stated that this is not a fossil fuel application as the anthracite will not be used as an energy source this is an application to mine a mineral.**

This exception has been accomplished firstly as Bryn Bach Coal Limited being the largest supplier of anthracite to the British brick manufacturing industry. Between 0.5-1.0% anthracite is used in the clay mix within each brick to react with the clay and add colour & carbon should the clay require additional carbon. This use as a brick colourant means the anthracite is not burnt and therefore does not release CO₂ into the atmosphere. The consistent quality is a primary reason why we are the preferred supplier. We have also developed working practices to eliminate certain contaminants which can cause major problems during the process of manufacturing bricks. Ibstock Brick PLC is a long-standing customer and we have been supplying anthracite since 2005. A letter of support has been included and it must be noted that with the UK Government pledging to build 1.5 million new homes demand for bricks will undeniably increase.

Secondly Bryn Bach Coal Limited is a supplier to the water filtration industry where the anthracite is used as a filter medium in the water industry, the anthracite from the original Glan Lash site supplied three local Ammanford based Filter Media businesses. The anthracite is used in filter beds to purify drinking water, in de-salination plants and in sewage beds. Again, the anthracite use is non-thermal and does not release CO₂ into the atmosphere. There are 3 Ammanford based filter media manufacturers and jointly employ over 100 people. The 3 filter media manufactures are long standing customers and with Celtic Energy having ceased operations there is a desperate shortage of premium quality anthracite. Letters of support annexed to this report.

Thirdly developing markets for non-thermal-non fossil fuel uses are emerging especially using anthracite as a substitute for graphite which is a critical mineral essential to achieve Net Zero by 2050 (Glan Lash anthracite has 92% fixed carbon, natural graphite has 100% fixed carbon). The demand for graphite will increase from the current 1.6m tonnes per year to 8m tonnes per year if we are to achieve Net Zero by 2050 (World Bank 2020). The International Energy Agency estimates a 400% increase in graphite production will be required by 2040. Durrans Ltd would be a new customer and their letter of support has been annexed to this report.

LCC Group Ltd is an independently owned family company which provides a range of services spanning various energy sectors across the world. Since 2019 LCC Group Ltd has assisted Bryn Bach Coal Ltd in sourcing anthracite from across the globe. However, should we be successful in our planning application LCC Group Ltd would be interested in securing a percentage of our production to supply existing LCC Group customers. LCC Group Ltd would now become a new customer and their letter of support has been annexed to this report.

4.4 Employment

The Glan Lash Extension mine site will provide employment for an additional 7 full time employees. This level of employment will be maintained for both the production period of 5.4 years and the restoration period of 9 months.

Currently have 4 employees at the washery site.

Therefore, should this application be successful 7 additional jobs will be created and it will also secure continued employment for the 4 full time employees currently working for Bryn Bach Coal Ltd.

It is company policy to employ local labour and to use local hauliers, suppliers and sub-contractors. The Glan Lash Extension will also create 6.2 years of work, supplies and orders which will also have a positive impact on employment in the area. The Minerals Technical Advice Note 2 states "for every 100 jobs in coal production, between 50 and a hundred jobs are supported elsewhere in Wales". We therefore conclude that the Glan Lash Extension will provide employment for 11 full time employees and support between 5-10 jobs elsewhere in Wales.

4.5 Site Liaison Committee

The Glan Lash Liaison Committee was formed and held its first meeting in September 2012. The meetings have been held every 3 months and include representatives of Bryn Bach Coal Ltd, Carmarthenshire County Council, local County Councillors, Llandybie Community Council, Bleanau Community Council and 4 local residents. A site report has been presented at each meeting describing current operations, future work to be undertaken and any complaints that have been received.

Discussions then take place about site operations, restoration, traffic movements and any other relevant business. A record is kept of all proceedings and copies of that record are distributed to each organisation and the individuals that attend. Bryn Bach Coal has kept the committee informed of the progress being made towards an application to work the extension and the committee has made a visit to the site of the proposed extension. The Liaison Committee has been an important part of the pre-application public consultation process.

As part of Bryn Bach Coal's commitment to the local community we have paid £5,000 per year into a fund that is administered by the Liaison Committee. The funds are then distributed to local good causes so that a positive impact can be made locally. To date £35,000 has been paid into the fund by Bryn Bach Coal Ltd and this has been distributed to local good causes by the Liaison Committee.

Should this application be successful then the Liaison Committee will continue through until the restoration of both the existing and extension sites.

Bryn Bach Coal Ltd also pledges a further 7 yearly contributions of £5,000 into the fund, which will continue to be administered by the Glan Lash Liaison Committee allowing further distribution of funds to local good causes.

5. Environmental Impacts

The following texts should be read in conjunction with Section 3 of this statement, which considers the existing situation of the proposed development and its surroundings. This Environmental Impact section will consider:

- 1) The existing situation
- 2) Potential impacts of the proposed development
- 3) Mitigation measures that already exist, or have been designed into or would be implemented during the operational phase
- 4) An assessment of the scale of the impacts of the proposed development

The environmental impacts will be addressed under the following sections:

- 5.1 Visual Impact.
- 5.2 Ecological Impact.
- 5.3 Noise Impact.
- 5.4 Dust Impact.
- 5.5 Hydrogeological Impact, Flood Consequence Assessment.
- 5.6 Water Treatment.
- 5.7 Blasting & Site Illumination.
- 5.8 Archaeological Impact.
- 5.9 Rights of Way.

5.1 Visual Impact

In order to predict and judge the magnitude and significance of the effects that the Glan Lash Extension may have on the landscape character and visual amenities of the area, we will describe the existing landscape situation, potential impacts, mitigation measures and an assessment of the visual impact from various viewpoints. The Visual Impact Sight Line Location Plan GLER-05/1 shows the extension site and the various sight lines that form the basis of our assessment. Visual Impact Cross Sections have been drawn to show the surrounding topography, any natural mitigation and the changes to the landscape that the Glan Lash Extension will bring during production and following restoration.

Existing Situation (Ref GLER-05/1)

The Extension covers 10.03 hectares of land to the north of the current Glan Lash Mine Site and is centred at E261560 N213900. The extension area can be found in a secluded area of land isolated from human habitation. The extension area is separated from the Waunfarlais Road by a topographical ridge that rises 14m above the proposed extension and then falls 19m to Waunfarlais Road. The settlement of Waunfarlais is 440m from the centre of the extension. Blaenau is 900m to the west of the extension and will be shielded by the existing overburden mound. The overburden mound will remain in situ until the restoration phase of the extension. To the south of the extension area is the existing site and washery complex. Llandybie is 840m to the north of the extension.

Potential Impacts

The Glan Lash Extension Revised proposal has the potential to change the landscape. Any changes will be temporary during the operational period but permanent following restoration. The following issues have been identified as potential impacts: -

- Any change to the landscape
- Visual Impact of operational areas and activity on settlements and individual properties
- Visual Impact of operational areas and activity on users of the B4556
- Visual Impact following restoration of the Extension site on settlements and individual properties

Mitigation Measures

The design objective of the Glan Lash Extension Revised proposal has been to avoid and reduce any unavoidable effects on landscape or on any viewpoints by using the following methods: -

- Site selection and design has ensured a shielded location.
- The Glan Lash Extension Revised proposal has been integrated into the local surroundings.
- The design of the Extension has made maximum use of the surrounding topographical landscape features, field enclosures, tree lines and hedges to shield the proposal.
- By phasing the site and keeping the disturbed operational area to an absolute minimum.
- The topsoil and subsoil mounds have been sited to provide visual attenuation, these mounds will be graded and grassed to shield operational areas and provide additional mitigation.
- The aim of the restoration proposal as illustrated by our restoration plan is to integrate the restoration of both the existing and proposed site into the surrounding landscape and restore the land form as close to existing as possible. The strategy will include the creation of habitats and aim to enhance and extend the present range of habitats and the structural diversity of vegetation. Appropriate features will be designed into the scheme to provide foraging, roosting, nesting and refuge sites. Neutral grassland will be provided enclosed within hedge-banks and hedgerows broadly reflecting the previously existing hedgerow pattern. The scheme will offer new broad-leaf woodland and scrub plantings. Open marshy grassland areas and glades will be created across a valley feature that will be formed to allow for the material used in the restoration of the Tir y Dail Tip. This valley feature will direct all surface water run off towards a newly created pond feature adjacent to Shand's Road. Any water seepages from the restored backfill will occur at this location. This pond will be managed for biodiversity and habitat enhancement during the restoration and aftercare periods.

Assessment

The visual impact assessment has been undertaken from various viewpoints as shown on Plan GLER-05/1. The assessments will be based on the view from the upper storey when the sight line is from an adjacent property and from 2m above ground level when based on the view of a pedestrian. The cross sections will show how the visual impact of the proposed development is mitigated by topography and natural features such as tree lines, woodland and rising ground. The cross sections will also show how mitigation is obtained by design through the positioning of the topsoil and subsoil mounds. The properties Pen-y -Waun- Hafog, Garth Farm and Penllwynhelig are all owned by Davies & Lumber Ltd a major beneficiary of the Glan Lash Extension development and have therefore not been included in the assessment.

Visual Cross Section A- (Ref GLER-05/A B & C)

This cross section shows the sight line from the first floor of Ty Uchaf Farm which is 410m from Cut 4B, the centre of the proposed extension. The extension area is naturally shielded by rising ground, the central woodland and various tree lines, these deflect the sight line above the surface level of the proposed extension.

Further mitigation can be achieved by design and operational phasing. The retention of the 20m woodland buffer zone will deflect the sight line well above the surface of the proposed extension area. The phasing of the proposal will also result in the retention of the majority of the woodland until the

final Cuts of the proposed extension. This retained woodland will provide additional mitigation which has not been shown on cross section A.

It is our assessment that the visual impact on Ty Uchaf Farm will be **negligible** in the early stages of the development but can be considered **minor** for the final stages of the proposed extension. After restoration of the extension due to the rising ground deflecting the sight line above the restoration surface, it is considered there will be **no impact** on Ty Uchaf post restoration.

Visual Cross Section B- (Ref GLER-05/A B & C)

This cross section shows the sight line from the first floor of a house situated on Mackays Road which is 700m from Cut4B, the centre of the proposed extension and houses on the lower section of Waunfarlais Road. The ground rises from the Afon Marlas and the extension area is naturally shielded with various tree lines deflecting the sight line above the surface level of the proposed extension. However, the existing overburden mound is visible at a distance of 930m from Mackays Road.

Further mitigation can be achieved by design and operational phasing. The retention of the 20m woodland buffer zone will deflect the sight line well above the surface of the proposed extension area this will result in reducing the visual impact of the existing overburden mound. The phasing of the proposal will also result in the retention of the northern part of the woodland until the final Cuts of the proposed extension are to be worked. The retained woodland will provide additional mitigation which has not been shown on cross section A.

It is our assessment that during the operational phase the visual impact of the proposed extension on houses situated on Mackays Road and the lower section of Waunfarlais Road will be **minor**. After restoration of the extension due to the rising ground deflecting the sight line above the restoration surface, it is considered there will be **no impact** on any houses on Mackays or the lower section of Waunfarlais Road post restoration.

Visual Cross Section C- (Ref GLER-05/A B & C)

This cross section shows the sight line from the first floor of the property Bryn Cadno which is situated on Waunfarlais Road and is 410m from Cut4B, the centre of the proposed extension. The ground rises and then falls away to the extension area, field enclosures and a substantial block of woodland exists between Bryn Cadno and the proposed extension. The natural topography and the intermediate woodland deflect the sight line well above the surface level of the proposed extension.

It is our assessment that the visual impact of the operational phase of our proposed extension on Bryn Cadno and this section of Waunfarlais Road is that there will be **no impact**. After restoration of the extension due to the rising ground and intermediate woodland deflecting the sight line well above the restoration surface, it is considered there will be **no impact** on Bryn Cadno and this section of Waunfarlais Road post restoration.

Visual Cross Section D- (Ref GLER-05/D E & F)

This cross section shows the sight line from the first floor of the property Golwg-y-Mynydd which is situated on Waunfarlais Road and is 410m from Cut4B, the centre of the proposed extension. The ground rises to an intermediate topographical ridge line at 230m from Golwg-y-Mynydd and then falls away to the proposed extension. There are also substantial trees present in field hedge banks between the property and the proposed extension area. The natural topography and the intermediate ridge line and tree lines deflect the sight line well above the surface level of the proposed extension.

It is our assessment that the visual impact of the operational phase of our proposed extension on Golwg-y-Mynydd and this section of Waunfarlais Road is that there will be **no impact**. After restoration of the extension due to the rising ground and intermediate tree lines deflecting the sight line well above the restoration surface, it is considered there will be **no impact** on Golwg-y-Mynydd and this section of Waunfarlais Road post restoration.

Visual Cross Section E -(Ref GLER-05/D E & F)

This cross section shows the sight line from the first floor of Rhiw Marlais which is situated on the junction between Waunfarlais Road and Aberlash Road and is 430m from Cut4B, the centre of the proposed extension. The ground rises to an intermediate topographical ridge line at 250m from Rhiw Marlais and then falls away to the proposed extension. There are also substantial trees present in field

hedge banks and a block of woodland between the property and the proposed extension area. The natural topography, the intermediate ridge line and block of woodland deflect the sight line well above the surface level of the proposed extension.

It is our assessment that the visual impact of the operational phase of our proposed extension on Rhiw Marlais and this section of Waunfarlais Road is that there will be **no impact**. After restoration of the extension due to the rising ground and intermediate block of woodland deflecting the sight line well above the restoration surface, it is considered there will be **no impact** on Rhiw Marlais and this section of Waunfarlais Road post restoration.

Visual Cross Section F- (Ref GLER-05/D E & F)

This cross section shows the sight line from the first floor a property which is situated in Rhodfa Frank and is 1100m from Cut4B, the centre of the proposed extension. The restored Tir y Dail Colliery tip and rising ground deflect the sight line well over the surface level of the proposed extension.

It is our assessment that the visual impact of the operational phase of our proposed extension on Rhoda Frank is that there will be **no impact**. After restoration of the extension due to rising ground and the restored Tir y Dail Colliery tip deflecting the sight line well above the restoration surface, it is considered there will be **no impact** on Rhoda Frank post restoration.

Visual Cross Section G -(Ref GLER-05/G H &I)

This cross section shows the sight line from the first floor of Glyntai Fawr Farm which is 880m from Cut4B, the centre of the proposed extension. Rising ground to the north of the Afon Lash and the existing Glan Lash topsoil storage area deflect the sight line above the surface level of the proposed extension. Although the proposed extension is shielded the existing overburden mound is visible from Glyntai Fawr and therefore any activity when extending the overburden mound will be visible although it will be at a distance of 820m.

It is our assessment that the visual impact of the operational phase of our proposed extension on Glyntai Fawr Farm is that there will be **no impact**. However, during the working of Cuts 4 & 5, overburden will be required to be placed above ground, during this limited period we assess the visual impact as **moderate**. After restoration of the extension due to rising ground to the north of the Afon Lash deflecting the sight line well above the restoration surface, it is considered there will be **no impact** on Glyntai Fawr Farm post restoration.

Visual Cross Section H- (Ref GLER-05/G H &I)

This cross section shows the sight line from the first floor of 61 Dyffryn Road which is 1350m from Cut4B, the centre of the proposed extension. The sight line is deflected by extensive areas of dense woodland at 250m and 600m before the ground falls away to the Afon Lash then rising to the proposed extension area. The areas of woodland deflect the sight line above the surface level of the proposed extension.

It is our assessment that the visual impact of the operational phase of our proposed extension on 61 Dyffryn Road and this section of Dyffryn Road is that there will be **no impact**. After restoration of the extension due to the intermediate block of woodland deflecting the sight line well above the restoration surface, it is considered there will be **no impact** on 61 Dyffryn Road and this section of Dyffryn Road post restoration.

Visual Cross Section I (Ref GLE-05/G H &I)

This cross section shows the sight line from the first floor of Penrhiw on Waun Hafog Road which is 570m from Cut4B, the centre of the proposed extension. The ground falls away to the Afon Lash before rising to the proposed extension. There are 2 intermediate blocks of woodland at 120m and 230m either side of the Afon Lash and the existing overburden mound. These existing features deflect the line of sight above the surface level of the proposed extension.

Further mitigation can be achieved by design with the placement of topsoil and subsoil in the western storage area. This will deflect the line of sight above the northern limits of panels 1-5.

It is our assessment that the visual impact of the operational phase of our proposed extension on Penrhiw and this section of Waun Hafog Road is that the visual impact will be **negligible**. After restoration and the removal of the soils in the storage area and the main overburden mound the intermediate blocks of woodland will deflect the sight line above the restoration surface, it is considered there will be **no impact** on Penrhiw or this section of Waun Hafog Road post restoration.

Visual Cross Section J- (Ref GLER-05/J & K)

This cross section shows the sight line from the first floor of 165D Blaenau Road which is 900m from Cut4B, the centre of the proposed extension. The houses on this section of the Blaenau Road have a south/east facing aspect whilst the sight line is due east. None of the houses in this area have windows that face east therefore the only way to view the sight line would be at ground level outside the house. This view can be found alongside the cross-section J. The ground falls gently towards the proposed extension. There are 2 lines of trees at 300m and at 500m that deflects the sight line upwards, however the surface of the northern limits of Cuts 1-7 will still be visible albeit at a distance of 900m.

Further mitigation can be achieved by design with the placement of topsoil and subsoil in the western storage area. This will deflect the line of sight further and reduce the extent that the northern limits of Cuts 1-7 can be viewed.

It is our assessment that the visual impact of the operational phase of our proposed extension on 165D Blaenau Road and this section of Blaenau Road (if this sight line was feasible) is that the visual impact would be **moderate**. However, as there are no first-floor windows facing east and the only way to view this sight line would be from ground level outside the house, the intermediate blocks of woodland now deflect the sight line well above the surface level of the proposed extension. Therefore, the visual impact assessment can be reduced to **minor**. After restoration and the removal of the soils in the storage area and the main overburden mound, the intermediate blocks of woodland will deflect the sight line above the restoration surface, it is considered there will be **no impact** on 165D Blaenau Road or this section of Blaenau Road post restoration.

Cross Section K- (Ref GLER-05/J & K)

This cross section shows the sight line from Blaenau Road at the closest point to the proposed extension. There are no residential properties in this locality therefore the sight line has been taken from a pedestrian view point. This location is 300m from Cut4B, the centre of the proposed extension. Although the surface level of the proposed extension is lower than this view point there are intermediate tree lines and a substantial block of woodland that deflect the sight line well over the surface level of the proposed extension.

It is our assessment that the visual impact of the operational phase of our proposed extension on this section of the Blaenau Road is that the visual impact will be **minor**. After restoration of the extension, due to the intermediate block of woodland deflecting the sight line well above the restoration surface, it is considered there will be **no impact** on this section of the Blaenau Road post restoration.

Visual Impact on the Bannau Bryncheiniog National Park.

This Visual Impact Assessment has been assessed as **Negligible**. The report can be found annexed to this application.

5.2 Ecology

Pryce Consultant Ecologists have been commissioned by Bryn Bach Coal Ltd to undertake an ecological assessment of the proposed development. The assessment, its findings and conclusions can be found annexed to this report. The assessment establishes the wildlife conservation significance of the proposal and its importance in International, National and Local contexts. The report also informs of any mitigating disturbance to ecological features and identifies constraints to the proposal as a result

of the report's findings. The report also proposes a restoration scheme for the Glan Lash Extension and a revised restoration scheme for the existing Glan Lash mine site.

European Protected Sites

The revised Extension Site proposals do not directly affect any statutory or non-statutory sites designated for the protection of biodiversity. However, the closest part of the Caeau Mynydd Mawr Special Area of Conservation (SAC), a site designated to conserve the Marsh Fritillary butterfly (a European Protected Species), is located some 3.5km to the south-west and the Cernydd Carmel SAC, a site designated for the presence of the only turlough in Britain together with its important mosaic of woodland, grassland, mire and heathland habitats which support floral and faunal assemblages of international significance, is some 2.2km to the north-northwest. Although present on both these SACs, Dormouse (another European Protected Species) is not cited as a qualifying reason for their selection.

The Glanlash Extension Revised site is also located close to the Afon Lash, a tributary of the Afon Llŵchwr which flows into the Carmarthen Bay and Estuaries SAC. One of the qualifying features for the designation of this SAC is to protect the population of European Otter which is present in the SAC and used the riparian habitats of these rivers for cover, foraging and travelling. These are areas of ecological importance in a European context but it is judged that proposed site operations will not directly or detrimentally impact upon any of these SACs or the features for which they have been designated but that the Glanlash scheme will be of positive benefit to the Mynydd Mawr SAC by restoring and managing habitat which supports an element of the metapopulation of the Marsh Fritillary butterfly (the qualifying feature for which this SAC was selected).

No other protected sites will be affected by the proposals.

Species/species groups of European significance

Marsh Fritillary butterfly, Dormouse, bats and Otter are listed at annex II of the European Habitats Directive and occur within or in the vicinity of the application site. They are subject to special protection measures under UK law. Dormouse, bats and Otter are also designated as European Protected Species/species groups (EPS). Positive wildlife-conservation management has been practiced at the Tirydail Tip reclamation site since the start of the existing Glanlash scheme and will continue. Restoration of both Glanlash and Tirydail Tip will result in the creation and maintenance of habitats which have the potential of supporting all these European protected species.

Marsh Fritillary butterflies and larval webs were recorded within the northern fields of the Extension site during the 2017 surveys where suitable habitat is present but is mostly in sub-optimal condition. No adult butterflies or larval webs have been recorded on this land since, although surveys have been carried out in several years during the appropriate months. As part of the Glanlash Extension Revised scheme, it is proposed to restore this habitat which is currently in poor condition. The habitat will be restored soon after planning permission is granted and will be brought under conservation management for the duration of the operational phase (7 years) plus the aftercare period (10 years), a total of 17 years.

Dormouse has been recorded 2.6km from the Glanlash site in the past but no signs of the presence of Dormouse were found during the 2016 nut survey and, as yet, there have been no signs during the 2024 tube survey. The woodland, scrub, hedgerows and bramble within the site and, to a lesser extent, the Purple Moor-grass-dominated area, provide habitat that has potential to support the species. The negative survey results cannot be taken to indicate the absence of Dormice and it has therefore been assumed that, as the habitat is suitable and animals have been recorded in the area, Dormice will be present and compensatory habitat will be required to mitigate for habitat losses.

Natural Resources Wales (NRW) will expect that the scheme will result in no adverse impacts to Dormice and that the final site restoration will potentially provide twice the area of suitable habitat than at present. Compensatory habitat will therefore be provided in sufficient time for it to be in a mature condition and suitable to receive displaced animals before any existing habitat is disturbed. The site restoration scheme will result in the provision of over 2½ times the area of woodland and scrub when compared to that removed as a result of the mining operation. Initial compensatory plantings were undertaken in 2017-18 at the Tirydail Tip Restoration site to ensure that they will be mature when the mining operation commences.

The mitigation scheme proposed in the *Landscape and Ecology Management Plan* and detailed in a *Dormouse Mitigation and Management Plan* will need to be approved by NRW before they issue a development licence which will permit the scheme to proceed. The Plan will ensure that no Dormice will

be disturbed and that all Dormouse habitat lost will be mitigated as required by NRW. The overall result of the scheme will therefore result in an increase in habitat capable of supporting the species and therefore a net biodiversity gain.

Trees with potential to harbour roosting bats are present within the application site although only one Common Pipistrelle Day roost has been found during the surveys. No buildings are located within the site so there is no potential for bat species that roost in buildings to roost within the site. Bat foraging habitat is present within the site and Common pipistrelle, Soprano pipistrelle, Natterer's bat and Noctule bat were recorded foraging. Mature hedgerows and woodland edges which have potential to provide flight-lines for species that obligately use such features are also present within the site. Suitable replacement roost features together with compensatory foraging habitat will be provided prior to the commencement of the extension site mining operations and additional potential bat habitat will be provided in the restoration scheme as detailed in the Landscape and Ecology Management Plan.

It is anticipated that Otters will not be adversely affected by the scheme.

No disturbance to European Protected Species or their habitats will be commenced before appropriate licences have been procured from Natural Resources Wales. The licencing process will require detailed and comprehensive mitigation proposals which will be implemented prior to the disturbance of existing habitats in order to compensate for any perceived adverse impacts on these species.

UK/nationally protected species that occur within or in the vicinity of the application site include Badger, nesting birds, reptiles and amphibians.

No signs of Badger were found during the surveys although the drier land is likely to occasionally be used by foraging animals.

Nesting birds occur commonly throughout the site. No habitat with potential to harbour nesting birds will be cleared during the nesting season (March-August inclusive). The restoration scheme will provide suitable habitats in compensation for those temporarily lost to the mining operation.

A Reptile survey showed small numbers of Slow-worms and a Grass Snake were recorded in the 2024 the survey and a Common Lizard during the 2017 survey. It is proposed that the small number of these animals is removed prior to each mining phase using standard reptile displacement techniques or, if not feasible, by capture and translocation to standard methodology.

Amphibians Great Crested Newts are not known to occur in Carmarthenshire.

There are no water bodies located within the assessment site that are of significance for breeding amphibians although the attenuation ponds within the original Glanlash site support breeding Common Toad, Common Frog and probably Palmate Newt.

Numerous terrestrial phase Common Toads were recorded from the application site during the 2024 reptile survey and the 2017 survey found terrestrial-phase Common Toads using the Purple Moor-grass-dominated land in the north. Few Common Frogs and only one Palmate Newt were recorded at that time and few Common Frogs have been recorded in 2024. The existing attenuation ponds will be retained for the duration of the mining phase and will be replaced by new ponds during the restoration scheme. Furthermore, habitat creation and enhancements to mitigate losses to Marsh Fritillary and Dormouse habitat will ensure that the total extent of habitat that is also suitable to support amphibians is not diminished. It is proposed that terrestrial phase amphibians are removed prior to each mining phase using standard displacement techniques or, if not feasible, by capture and translocation using standard methodology.

Several habitats of conservation significance are present within the site. These include Molinia meadows on chalk and clay (Eu-Molinion) listed at Annex I of the EC Habitats Directive, together with several Habitats of Principal Importance listed under Section 7 of the Environment (Wales) Act 2016. These are Wet woodland, Lowland mixed deciduous woodland, Hedgerows and Purple Moor-grass – rush pastures. Areas of Eu-Molinion and Purple Moor-grass – rush pastures located to the north of the excavation area and currently in poor condition will be subject to restoration and conservation management for the duration of the mining operation plus the aftercare period, a total of 17 years.

No designated Ancient Woodlands are located within the site or will be impacted by the scheme.

All hedgerows within the application site qualify as Important Hedgerows under the Hedgerow Regulations 1996.

Plant species of significance that were recorded from the application site include Bluebell which is partially protected under schedule 8 of the Wildlife and Countryside Act 1981(as amended). Whorled Caraway and Ivy-leaved Crowfoot are included in category A of the Countryside Council for Wales' List of Globally Threatened Plant Species. Several additional species are considered to be of county or local significance.

Faunal Species of Principal Importance included under section 7 of the Environment (Wales) Act 2016 and other species of conservation concern additional to the designated species included above, were also recorded during the surveys and include, for instance Tree Pipit, Grasshopper Warbler, Song Thrush, Dunnock, and Bullfinch.

Retained habitats- The site has been redesigned in the light of the findings of the ecological surveys to retain, protect, restore and preserve significant ecological features. These include all of the Purple Moor-grass - Rush Pasture vegetation together with the hedgerows and mature trees that bound its southern side. Furthermore, the hedgerow and mature trees on the eastern side of the excavation area including the large oak at its eastern corner will be retained and protected.

Retained habitats will be managed to enhance their attractiveness to all protected, concern and non-designated species but, where it is impossible to retain plants of significance in situ during site operations, they will be translocated as detailed in the Landscape and Ecology Management Plan.

It should not be forgotten that the Glanlash scheme is temporary, whereas most other developments in the area will result in the permanent loss of habitats, habitat connectivity and niches for species to occupy. At Glanlash, after the mined area is restored, the result will be a very significant addition to habitats of biodiversity value when compared to the situation before the mining operation started. This can already be seen at the Tirydail Tip reclamation site where the habitats already provide a significant biodiversity gain which will only increase as they mature over time.

The Restoration Scheme is detailed in the Restoration Plan and the Landscape and Ecology Management Plan will provide a phased approach to the restoration of the application site as the anthracite reserve is worked-out. New habitats designed to maintain and enhance the capability of the site to support local floral and faunal populations will be created and maintained. The scheme will also continue to address the part-completed Tirydail Tip Restoration by extending and continuing to manage recently created habitats. Aftercare maintenance will continue for ten years following the completion of the seven-year mining operation, a total of 17 years.

The proposed layout and operations of the mining operations are detailed in the Landscape and Ecology Management Plan and species-specific management plans and will be finalised in consultation with the site ecologist in order to minimise disturbance to habitats of particular interest. Where appropriate, prior to the commencement of site operations (including, in particular, all enabling works), the site ecologist will identify on the ground, features which will be retained and protected or translocated.

Invasive Non-Native Species No Japanese Knotweed or Himalayan Balsam has been found within the application site although a few plants of knotweed are present at TN2454 in the current mine site and balsam occurs to the west of the site. Both species also occur along Shand's Road. The site operators will continue to take appropriate steps to control these species and any other INNS where necessary.

In addition to the requirements of NRW Protected Species Licences, further checks will be made prior to the commencement of extension site operations to determine the up-to-date status of populations of UK/nationally protected species including Badger and reptiles, which might be disturbed by site operations. All trees with bat roost potential which will be affected by site operations, will be examined by a qualified bat surveyor prior to works being started and will only be felled or lopped in September or October or as advised by the bat ecologist.

As far as possible, all clearance and disturbance to vegetation will be undertaken in September or October as potential disturbance to breeding birds, bats, Dormice and reptiles will be minimized at this time.

The requirements of NRW Protected Species Licences will dictate the timings of habitat removal where European Protected Species are concerned. In addition, no works will be commenced during the bird-breeding season (March to August inclusive) unless, immediately prior to the commencement of such works, it is judged by a qualified ornithologist, that the area does not support any nests. Furthermore, in potential reptile habitat, eg open, sunny, south-facing grassy areas, vegetation clearance will be carried out in September and October but only when temperatures are between 9C and 20C when reptiles will be active.

There will be input from a qualified ecologist at all stages of the project. Careful planning and supervision of site personnel will seek to ensure that disturbance to all existing habitats and species is kept to an absolute minimum. Future site maintenance will bear due regard to the well-being of all habitats, flora and fauna.

All site personnel will be made familiar with the ecological requirements of the site at induction courses and tool-box talks.

Attention is drawn to additional recommendations made at section 27 of this document.

No other significant ecological issues were identified during the assessment.

Green Infrastructure Assessment

Corscadden Associates have been commissioned to undertake a comprehensive Green Infrastructure Assessment in compliance with Planning Policy Wales 12. The definition of Green Infrastructure in the Annex Chapter 6 Planning Policy Wales 12 October 2023 is 'Green infrastructure is the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect places.

Component elements of green infrastructure can function at different scales. As the landscape scale green infrastructure can comprise entire ecosystems such as wetlands, waterways and mountain ranges. At a local scale, it might comprise parks, fields, public rights of way, allotments, cemeteries and gardens. At smaller scales, individual urban interventions such as street trees, hedgerows, roadside verges, and green roofs/walls can all contribute to green infrastructure networks.

The Environment (Wales) Act 2016 provides a context for the delivery of multi-functional green infrastructure. Its provision can make a significant contribution to the sustainable management of natural resources. Green infrastructure is capable of providing several functions at the same time and as a result, offers multiple benefits, for social, economic and cultural, as well as environmental resilience, and responds to challenges presented by the climate emergency.

A Step Wise Approach is required to be demonstrated in the Green Infrastructure Statement to assess impacts on habitats and species:

Step 1 Avoid

Step 2 Minimise

Step 3 Mitigate/Restore

Step 4 Compensate on site

Step 5 Compensate off-site

Steps 1-4 Relevant steps that require enhancement

Step 5 Long Term Management Plan

The Glanlash Extension Revised application site has an overall area of 10.03Ha. The operational works area has been reduced when compared with the 2019 Glanlash Extension site so that an area of 3.14Ha of the Revised application site (approximately a third) is retained intact. A large section of this retained area is dominated by Purple Moor-grass habitat which has supported a population of Marsh Fritillary butterfly in the past and, with restoration and conservation management, has potential to support the butterfly in the future. This area is augmented by the inclusion of a large area of similar habitat adjacent and north of the application site which will also be restored and managed and is also under the control of the Applicant.

The 6.85Ha of land affected by the operational works when the scheme is completed and the site restored will show an increase in the areas of woodland, hedgerows, scrub and marshy grassland habitats.

New features will be ponds a watercourse and reed beds. The agricultural grasslands are the only features which are reduced in area. Additional woodland planting and new hedgerows are provided in the restoration scheme at the mine site and also at the Tirydail Tip Restoration site. All this land is under the control of the Applicant. Refer to CA Glan Lash Habitat Measurements 7August2024 for the detail breakdown of the site habitat assessment. The proposed management plan will improve retained habitat features that are currently in suboptimal condition and ensure restored areas are established and maintained in good condition.

Molinia Grasslands are in current poor condition and retained, they brought into positive management for the benefit of the Marsh Fritillary Butterfly and this is considered a net gain.

The overall Biodiversity Net Gain for the Revised Extension Site, land under the Control of the Applicant and the Tirydail for this revised application is 47.25% detailed calculations can be found in the GIS Glan Lash Infrastructure Statement.

The hedgerows calculated separately in linear metres and have an overall 82% net gain as the removed hedgerows were replaced by more than double their length and net gain takes into account existing hedgerows in the Revised Extension Site. Having considered the location of the site, the phased 7-year operational working method and the 10-year aftercare period management plan, overall, the operational and restoration proposals will result in the Glanlash Extension Revised site providing a substantial biodiversity net gain to the area.

The Green Infrastructure Assessment can be found annexed to this report.

5.3 Noise

Bryn Bach Coal Ltd has commissioned Kevan Walton Associates Ltd to undertake a noise assessment of the proposed extension development and to assess the likely noise impact on the closest dwellings, the report can be found annexed to this application. The calculations forming the basis of the assessment have been carried out in accordance with:

- B.S. 5228 1984 Noise Control on Construction and Open Sites.
- Calculation of Road Traffic Noise.
- MPS2 Controlling and Mitigating the Environmental Effects of Mineral Extraction and The Control of Noise at Surface Mineral Workings.
- B.S. 4142 1990 Method of Rating Industrial Noise Affecting Residential and Industrial Areas: - Assessment of background noise.

The most appropriate index for assessing noise level is LAeq. This measurement will define the equivalent continuous steady sound level that would produce the same sound energy as a fluctuating sound over the same period. Background noise has been measured as LA90, being the noise level exceeded for 90% of the time. Noise levels for the plant to be used have been obtained from the plant used at our current operations at the existing Glan Lash mine site. The noise levels associated with the coal washing plant have been obtained while washing coal from the existing Glan Lash mine site.

Guidance notes MPS2 defines day and night working. Day- time working is defined as between the hours of 07:00 and 19:00, therefore daytime values are applicable to this application. MPS2 also states that noise levels at noise sensitive properties should not exceed the background noise by more than 10dB(A), subject to a maximum of 55dB(A)LAeq.

Construction work and preparatory work such as topsoil stripping are recognised as short- term operations and as such higher levels noise levels are permissible for up to 8 weeks in any year. The stripping of topsoil and subsoil and the subsequent placement in mounds around the perimeter of the extension would be considered as construction and preparatory work.

Existing Situation

The background noise levels were measured at various noise sensitive properties surrounding the proposed extension. For each position LAeq, LA10, LA50 and LA90 were taken and observations of significant noise sources noted, these findings can be found under clause 5.2 of the Kevan Walton Associates Ltd Report. The following values of LA90 have been calculated to represent the background noise:

Location	Background Noise (dLA90.1hr)
Pen-y-Waun Hafog	36

Llwyn Celyn	40
Tylegwyn	33
Nirvana	34
Ty Uchaf Farm	31

Potential Impacts

- The presence of earth moving equipment will inevitably lead to an increase in noise levels at short distance range.
- The operations with most noise tend to take place in the early stages of each operational cut when plant is working in exposed surface locations such as soil stripping and soil mound construction.
- This increase in noise will affect the local environment and could exceed operational guidance levels at noise sensitive properties.

Mitigation Measures

- Site Selection- secluded area of land away from major settlements.
- Site Design- Box cut method will result in operations being confined at depth. The operation will move slowly through cut sequence 1-6, the noise impact will therefore be spread as a function of distance from nearby properties.
- Site Scale- Small compact operation with limited number of plant items.
- Modern plant fitted with the latest efficient silencers.
- Positioning of soil mounds and overburden mound to offer noise attenuation
- Topography- Site is shielded by topographical ridges that offer natural noise attenuation.
- Woodland- The site is surrounded by dense woodland and hedgerows these offer soft ground attenuation. The exclusion of a 20m central woodland barrier for the revised proposal has increased the soft ground attenuation.
- The proposed development is a continuation of an existing operation. Noise impacts can be assessed with confidence.
- Operational activity will be mainly below ground level and behind existing and proposed overburden, topsoil and subsoil mounds.

Assessment

Noise levels for each operating plant item have been used with allowance made for the mobility and duration when used for various activities. Attenuation has been allowed for when operations occur behind excavation faces, mounds, natural topography and soft ground attenuation items such as trees, woodland and hedgerows.

Predicted noise levels during topsoil and subsoil removal and storage at the closest locations have been determined. Overburden production at the surface and overburden and coaling operations within the operational void have also been predicted.

Pen-y-Waun Hafog

Soil stripping at the closest position will be below background levels.

Overburden production at the surface will be below background levels.

Overburden and coal production within the operational void will be below background levels.

The assessment is therefore **No Impact**.

Llwyn Celyn

Soil stripping at the closest position will be below background levels.

Overburden production at the surface will be below background levels.

Overburden and coal production within the operational void will be below background levels.

The assessment is therefore **No Impact**.

Tylegwyn

Soil stripping at the closest position will be 9 dLA90.1hr above background levels. This will be only for a very limited period.

Overburden production at the surface will be 5 dLA90.1hr above background levels. This will be for a limited period.

Overburden and coal production within the operational void will be below background levels.

The assessment is therefore **Minor**.

Nirvana

Soil stripping at the closest position will be 3 dLA90.1hr above background levels. This will be for a very limited period.

Overburden production at the surface will be 1 dLA90.1hr above background levels. This will be for a limited period.

Overburden and coal production within the operational void will be below background levels.

The assessment is therefore **Negligible**.

Ty Uchaf Farm

Soil stripping at the closest position will be 9 dLA90.1hr above background levels. This will be for a very limited period.

Overburden production at the surface will be 7 dLA90.

Overburden and coal production within the operational void will be below background levels.

The assessment is therefore **Negligible-Minor for the majority of time, but Moderate for limited periods in years 4-5 of the proposed development**.

In conclusion, the extension to the present mine site, to the North and North East will be undertaken using the same or similar equipment to that used at the existing Glan Lash mine. The depth of the excavations will be similar, in places deeper than the present excavations and this deepening will serve to further attenuate the noise from the operations.

In addition, overburden will be removed from the new extension to backfill the void in the existing site and therefore surface working will be limited. There will be a short period of time when the overburden mound will be extended but this will be shielded by the existing overburden mound. The revised excavation limit has now excluded Field Enclosure D, this has increased the operational distance between the mine site and Ty Uchaf farm by a further 97m. The exclusion of a 20m central woodland barrier for the revised proposal has also increased the soft ground attenuation.

It is therefore not anticipated that the noise impact of the extension will be significantly different to the existing operations.

5.4 Dust

A report has been compiled by Kevan Walton Associates Ltd in order to assess the base line conditions and likely additional airborne dust as a result of the mining activities associated with the proposed Glan Lash Extension. This report can be found annexed to this application.

Existing Conditions- Actual dust levels depend not only on agricultural and industrial activities but also on meteorological conditions. The surrounding area is predominately agricultural and mainly permanent pasture. Meteorological data has been used from stations at Llandeilo and Mumbles. The predominant wind direction is from the west and west south west with a minor prevalence from the east. The lowest incidence of wind is from the south and south/south west. The average number of rain free days during a year is 147.

Potential Impacts - Most operations associated with surface mining have the potential to create dust.

- Soil stripping and storage
- Overburden excavation and haulage
- Overburden backfilling
- Off-site haulage
- Restoration activities
- Drilling and Blasting (not applicable in this application)
- Erosion of bare ground

The likelihood of dust causing a nuisance to properties closest to the development will be a product of the probabilities of wind speed, direction, dry ground conditions and the failure of mitigating measures.

Mitigation Measures

- Site selection
- Site design and layout
- Meteorological conditions
- Minimisation of material handling
- Natural moisture content of excavated materials
- Operations shielded by excavation profiles associated with box cut
- All plant to have upward discharging exhaust systems
- Limited plant numbers and haul lengths
- Wetting of haul roads by towed water bowser

A dust assessment dated 10th March 2011 was undertaken for the existing operations, only four of the properties assessed are relevant to current operations, these being Pen-y-Halog, Tylegwyn, Nirvana and Llwynhelyn.

The assessment took the form of a meteorological investigation into the prevalent wind direction and, combined with number of dry days and proposed mitigation, an assessment made of those days where dust from the operations could impinge on surrounding properties. The assessment concluded that properties close to the excavations could be subject to dusty days on no more than 2 to 3 days per year with the overall dust impact **low to moderate**.

During the course of the current excavations, over a period of 6 years, no dust impact incidents have been recorded, suggesting that the dust controls implemented have been effective.

As part of the planning condition, dust monitoring stations using the "Dustscan" method were undertaken in accordance with a scheme agreed with the planning authority. The locations chosen for the dust monitoring are presented in the Report under Appendix E. The monitoring has been undertaken since May 2012.

The monitoring recorded 2 parameters. The "Actual Area Coverage" (AAC%) can be used to assess the overall dust impact and the direction of the coverage. The Effective Area Coverage (EAC%) takes into account the colour of the dust and can be used to assess the dust impact. In both cases, and the combined case, the dust impact was "Very Low". On only one occasion in 2012 did the EAC value give a "Low" Nuisance Potential possibly from the coal preparation plant.

The method of extraction and excavation will use the same or similar plant to the existing operations and the overall dust impact is anticipated to be of similar magnitude, i.e. Low.

The Dust Impact Report considers the impact of dust from our proposed operations on dust sensitive properties.

The only additional surface works will be the placement of top soil and sub soil to the West, North East and South East of the proposed excavations. Although closer to the dwellings than the excavations, such materials tend to be relatively high in moisture content and less susceptible to the generation of fugitive dust. In addition, the formation of these mounds will be of short duration.

Standard dust control measures, including damping down, spraying roads and reducing height of drop of materials should be adequate to control fugitive dust emission. Experience suggests that 90% effectiveness of these controls can be achieved.

Current research suggests that properties at a distance from dust sources greater than 200 metres are unlikely to be affected by fugitive dust from the mining operations. None of the nearby dwellings are within 200m of the coal extraction site. On average, there are only likely to be 1-4 days per year when control methods for coal extraction activities are not effective and when meteorological conditions are appropriate to fugitive dust affecting the nearest properties.

Without effective mitigation the impact of the mining operations has been assessed to be **Negligible to Slightly Adverse** and with the proven controls will be **Negligible** in all cases.

5.5 Hydrogeological Impact, Flood Consequence Assessment & Water Treatment.

Hydrogeological Impact Assessment

Bryn Bach Coal is seeking Planning Permission for an extension to the open-cast workings at Glan Lash. The economic mineral at the site comprises a high-grade anthracite sourced from the Stinking, Trichwart and Pumpquart coal seams. The end use of the economic mineral is for production of carbon filters, and none will not be burnt as a fuel source.

Although there are no statutorily designated water-supported ecologically sensitive sites within 2 km of the Application Area boundary, the previously submitted planning permission for the extension was refused due to the perceived potential for impact upon a potential habitat for marsh fritillary butterflies. A report authored by R N Humphries and R E Leverton of Blackmere Consultancy concluded that the ecology of the potential habitat is supported solely by surface water. The area of ecological interest is located to the north of the proposed limit of extraction, separated from it by a 20 m exclusion zone and woodland boundary containing historic field drainage channels. As such the field drainage boundaries act to channel surface water drainage from the Application Area towards the catchments of the Afon Marlas and the Afon Lash, thereby by-passing the Ecological Area.

Carmarthenshire Council commissioned Rob Low of Rigare Consultancy to comment on the water-related content of the Planning Application and subsequent data submission by Bryn Bach Coal Limited. On assessment of this report Carmarthenshire Council concluded that the Planning Application required a Hydrogeological Impact Assessment (HIA) for the proposed development. Due to the presence of a drainage ditch network in the north, the Application Area is located mainly within the catchment of the Afon Marlas, via an unnamed watercourse that parallels the north of the Ecological Area towards the northeast. A smaller proportion of the Application Area is within the catchment of the Afon Lash, via another unnamed watercourse that flows southwards nearby the western boundary. Both rivers join the River Loughor approximately 700 m to the southeast.

The Application Area is underlain by a substantial thickness of Glacial Till, which thins northwards from approximately 20 m at the worked face to approximately 4 m in the north of the Application Area. Sub-cropping beneath is the Carboniferous mudstone, siltstone, seat-earths, coal/anthracite and minor sandstones of the Carboniferous South Wales Lower Coal Measures Formation (SWLCM). The anthracite within this Formation comprises the economic mineral at the site. The Carboniferous strata dip by up to 20 degrees towards the south and are heavily faulted beneath the Application Area.

Groundwater monitoring of the Ecological Area proves the existence of two distinct piezometric surfaces within deep and shallow boreholes. The deep boreholes have a response zone within the predominantly argillaceous Carboniferous strata, whereas the shallow boreholes have a response zone within the low permeability Glacial Till. An additional piezometric surface is observed within

shallow dip wells installed within the low permeability topsoil. The third surface often coincides with the level from the Glacial Till, indicating local confinement of the superficial deposits. As such, there are at least two distinct hydro stratigraphic units beneath the Application Area, with no hydraulic connection between the shallow groundwaters within the superficial deposits and the deeper groundwater within the Carboniferous strata.

Groundwater contours suggest that the shallow groundwater within the Glacial Till and topsoil flows towards either one of the two unnamed watercourses present along the northern and western boundaries of the Ecological Area. As such, the majority of the flow is towards the northeast and the catchment of the Afon Marlas, with a minor component towards the west and the catchment of the Afon Lash. Assessment of groundwater flow within the bedrock is less conclusive due to the high degree of anisotropy within the Carboniferous system.

Chemical analyses of the groundwater suggest the recharge to the bedrock to be local, with the redirected Afon Lash to the north being a likely source.

The Ecological Area is hydrologically isolated from surface water derived from the Excavation Area and hydraulically separated from groundwater within the Carboniferous bedrock. As such, it is considered that there is no potential for the proposed operation to affect the surface water supported ecology within the area. Therefore, the magnitude of the impact upon the Ecological Area is considered to be '**Negligible**' giving a '**Negligible**' significance of the impact.

The anthracite seams will be extracted from within six cuts that progress eastwards. Each cut is divided into panels, which will be progressed north to south. The topsoil, subsoil, overburden and inter-burden will be stored temporarily close to the operational area, while the extracted anthracite will be transported to the existing processing plant south of Shands Road. The cuts will be restored progressively, when operations move onto the next. The voids will be restored approximately to the pre-existing stratigraphic succession using the stored materials. Final restoration levels would approximate to the pre-existing elevations. The total area to be extracted amounts to 6 ha out of the 10 ha of the Application Area. The operational period is estimated to be 259 weeks.

The current water management system will be maintained for the proposed extension; run-off collecting in a sump within the operation void is pumped to a settlement lagoon to the southeast of the void. Here the water is settled before being conveyed to and discharged into the Afon Lash. The discharge is regulated by NRW (ref: EPR/RP3920XW). Water within the processing area south of Shands Road also passes through settlement lagoons therein, before being discharged into the Afon Lash. This discharge is regulated under a separate permit (ref:EPR/PP3123KV).

An assessment of the potential impacts associated with the proposed development has been made with consideration to groundwater and surface water flows and quality, proximity to local areas of ecological interest and water abstractions. The potential impacts have been assessed against the extant conditions.

Treated run-off water discharged off-site is strictly regulated to set compliance criteria. The proposed development therefore has no means to impact water features outside the curtilage of the site. The significance of impact of the proposed extraction is therefore considered to be **Minor/Negligible**.

It is considered that there will be **no cumulative impacts** associated with the Proposed Development. The full Hydrogeological Assessment can be found annexed to this report.

Flood Consequence Assessment

Hafren Water has been commissioned to undertake a comprehensive assessment of the flood risk associated with the revised extension. The site is located entirely within Flood Zone 1 on Natural Resources for Wales (NRW's) Flood Map for Planning. Flood Zone 1 is land designated as having an annual probability of fluvial flooding of less than 0.1% (<1 in 1000). The flood risk at the site has been assessed and the potential impacts identified, together with mitigation measures, where necessary.

The Assessment concludes that the proposed development will not increase flood risk at the site or elsewhere. As such, the proposed extraction satisfies the flood risk requirements of national policy, associated technical guidance and local policy.

The Flood Consequence Assessment can be found annexed to this report.

Hydrogeological Impact Assessment on the Marshy Grassland.

A report authored by R N Humphries and R E Leverton of Blackmere Consultancy concluded that the ecology of the potential habitat is supported solely by surface water. After reviewing the Hafren Hydrogeological Impact Assessment Dr R N Humphries concluded that his report was based on the eco-hydrological field assessment of the soils they undertook and the hydrological information provided for the site application along with our 35 years professional and practical experience of natural ecosystems and their supporting soil hydrology in the Coalfields of Wales.

They concluded that the marshy grassland habitats were not maintained by groundwater but by the rainfall directly received and the impeded surface/sub-surface soil-water drainage within the upper glacial drift. They noted that the marshy grassland habitat was drying and deteriorating, bringing its longer-term viability into question with the adverse effects of climate change.

“Our assessment was challenged by Dr Low of Rigare who was of the view that without an instrumented investigation the habitat could be maintained by groundwater within the Coal Measures and adversely affected by the mining. However, our description and functional assessment of the soils within the study area were not disputed and remain definitive. In response to Dr Low, Hafren Water has undertaken a detailed investigation which included the installation of monitoring boreholes in both the Carboniferous bedrock and glacial deposits, as well as shallow dip wells to measure soil water depth. They demonstrate that the marshy grassland habitats are maintained by the surface water (rainfall and runoff) and the soil wetness caused by the poorly draining soils of the glacial till, and not the groundwater of the underlying Carboniferous bedrock. Importantly, Hafren Water concluded, as we did, that the proposed mining will **not have any adverse hydrological effect on the marshy grassland**. Their investigations support the opinion we give in the original Report. Hence, we have refrained from amending out original text.”

R. Neil Humphries BSc MA PhD CBiol CSci FRSB FBSSS FIQ

The full Hydrogeological Impact on the Marshy Grassland Assessment can be found annexed to this report.

5.6 Water Treatment

Water treatment facilities already provided in the north eastern part of the existing Glan Lash site will remain operational and all site water will be pumped to the water treatment facilities prior to discharge.

Progressive restoration of the existing operation will continue, in accordance with Restoration Plan (GLER-06). Restoration operations will include contour berms along slopes in order to arrest surface water flow. Berms will be constructed at 10m vertical intervals, with a fall of 2%, and drain into the main arterial watercourse.

Flow rates on the operational site will be controlled by in-cut pumping initially, as well as through provision of the surface attenuation pond. Discharge from this attenuation pond will be via a low-level small diameter 'throttle' pipe to the two settlement lagoons. These lagoons will work in parallel, discharge flow rate controlled by the 150mm discharge pipe from the attenuation pond.

The scale of working in the proposed extension will remain the same as in the currently operational site. **Therefore, it is considered that the existing treatment regime will still be appropriate for use in the extension.**

Calculations and specific details of pipe diameters, discharge flow rates, etc. are detailed below: -

It is not our intention to employ the continuous use of a pump within the surface water management scheme. The in-cut sump will act as additional attenuation as well as allowing us to waive the need for a high-level storm overflow on the ground level attenuation pond, as flow rates can be well managed.

Pumping rates are anticipated to be at a maximum rate of 200m³/hr (55l/s). Pumping will only take place when adequate capacity exists in the ground level water treatment system.

Discharge rates have been reassessed using Q2 values as requested. This changes the maximum greenfield run off rate to 252 l/s. This is the product of maximum unit discharge rate multiplied by the 14 hectares the site catchment area or maximum disturbed ground at any one time.

Return Period	Peak Flow Rate (m ³ /s)	Unit Discharge Rate (l/s/Ha)
Q2	1.4	18
Q5	1.8	23
Q10	2.0	26
Q25	2.3	30
Q50	2.5	32

Total Catchment Area (Ha)	2-year Return Flow Rate (l/s)	10-year Attenuation Volume (m ³)	20-year Attenuation Volume (m ³)	Settling Lagoon 2 hour Volume (m ³)	Settling Lagoon Surface Area (m ²)
14	252	1830	2275	2313	869

The attenuation volume and surface area will remain the same.

Flow from the attenuation pond to the settlement lagoons will be controlled by a low-level discharge pipe of 150mm. The invert of the discharge pipe will be 2m below the maximum water level in the attenuation pond.

Discharge to the settlement lagoons will therefore be at a rate calculated using the formula: -

$$Q = 2.1 \times D^2 \times H^{0.5}$$

$$Q = \text{lagoon outflow (m}^3\text{/s)}$$

$$D = \text{orifice diameter (m)}$$

$$H = \text{static head (m)}$$

$$Q = 67 \text{ l/s}$$

Settlement is provided by the parallel operation of two lagoons of some approximately 800m² each (20m×40m) giving a settlement area available of 1600m².

$$Q = \text{Settlement Rate (m/s)}$$

$$Q = \text{lagoon outflow (m}^3\text{/s)}$$

$$A = \text{lagoon surface area (m}^2\text{)}$$

Gives a site-specific settlement rate of 4×10^{-5} m/s. During times of high flow rates, it will be necessary to use polyelectrolyte to assist settlement rates.

For clarity, it is anticipated that final site discharge will be a maximum of 67 litres per second.

Safe System of Work Discharge

This safe system of work is designed to detail the daily procedures that will be followed to ensure that all environmental risks identified with specific regard to the collection, treatment and discharge of surface water, have been adequately addressed. This includes: -

Maintenance and maintenance record keeping

Training of staff (where applicable);

Log of complaints/accidents;

Procedure in an emergency or breakdown

- The water treatment facilities will be inspected daily. The results of the inspection will be recorded on the daily inspection sheet. Any defects identified will be brought to the attention of the manager or supervisor, and remedial actions will be identified and recorded. On completion of the remedial action, the defect will be 'signed off'. The completed inspection forms will be kept in the site office for the duration of operations.
- The person carrying out the daily inspection will be appointed by the site manager. The appointed person must be fully conversant with his duties under this scheme, as well as the obligations imposed by EA discharge consents and planning permissions.
- All site personnel will, as part of the site induction, be made aware of the water treatment facilities, and in particular, the action to be taken in the event of an emergency.
- All complaints or accidents will be recorded on the daily inspection sheet and investigated with the results of the investigation, and any remedial action taken, noted.

Types of emergencies may include:

- Mechanical breakdown of the sump pump
- Oil spills or other chemical contamination
- Failure or blockage of drainage ditches or lagoons

Any mechanical breakdown must be reported to the mine manager / supervisor. During the excavation phase of the site, it is unlikely that this will prove critical, due to the large containment in the excavated void. However, the manager / supervisor will arrange for the repair or replacement of the faulty pump as soon as required.

Oil spills or other chemical contamination must be reported immediately to the mine manager / supervisor. Operators who see a risk of contamination of the any watercourse must try to contain the spill, where safe to do so. Sufficient spill kits will be kept at appropriate locations, as well as on site vehicles. All operatives will be familiar with the location and use of spill kits through the site induction process.

Any failure of drainage ditches or lagoons, which has not been identified by the daily inspection, must be reported immediately. Immediate remedial work to remove obstructions, etc. must be carried out where safe to do so.

Any failure of the system that could or does lead to an accidental non-consented discharge to the off-site watercourse must be reported to the NRW and to the local authority. Contact numbers will be kept in the site office.

Environmental Risk Assessment

Step 1 – Identify the risks

The predominant risk is the uncontrolled discharge of site run off polluted with unacceptably high levels of suspended solids. These solids will be mainly coal fines. Diesel fuel is used on site for plant operation. There is a risk associated with the potential for uncontrolled spillage. These risks have been assessed with reference to H1: Annex D Surface Water Discharges, H1: Annex C Accidents, H1: Annex J Groundwater.

Step 2 – Assess the risks

Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	Overall Risk
Uncontrolled discharge of site run off	Local watercourse Afon Lash	Surface water drainage system	Provision of correctly designed and constructed water treatment facility Implementation of Site Safe System of Work	Very unlikely	Contamination of local watercourse	Not significant
Leak from gas oil storage tank or plant fuel tank	Local watercourse Afon Lash	Surface water drainage system	Provision of bunded storage tanks Implementation of Site Safe System of Work	Very unlikely	Contamination of local watercourse	Not significant

Step 3 – Justify appropriate measures

The final design of the water treatment system has been arrived at after following Environment Agency guidelines and industry best practice. The site Management System is designed to be a practical tool for site management to ensure correct use and maintenance of the water treatment system, as well as providing direction on the procedure to follow in the event of an emergency.

5.7 Blasting & Site Illumination

Blasting

Despite the shale above the Lower Pumpchwart Seam being extremely difficult to excavate efficiently Bryn Bach Coal Ltd will continue with our commitment not to blast due to the possible nuisance impact

this may cause on our closest neighbours. The reduced production has been reflected in the hourly production rate of 182m³/hr for the Cat374 hydraulic excavator. We conclude that we will not blast the overburden above the Lower Pumpchwart for efficient overburden excavation. Therefore, a potential impact has been totally mitigated by site selection, design and considerate operational decision making.

Site Illumination

We will not require any alteration to the existing consented working hours. There has been no need to illuminate the working area whilst working the existing site, we have shortened the working shifts to allow for the dark evenings during the mid-winter period. We have allowed for these shorter working hours in our anticipated 38hrs weekly average utilisation target. Therefore, a potential impact has been totally mitigated by site selection, design and considerate operational decision making.

5.8 Archaeological Impact

Bryn Bach Coal Ltd has commissioned Heritage Recording Services Wales to compile a report, which entailed a site visit and a desk-based assessment of all readily available historical and archaeological documentary sources, for the immediate area and land surrounding the proposed extension up to a 1km distance. This report can be found under Appendix B of this Environmental Statement. The assessment identified 89 heritage assets within the 1km radius. Of these 26 sites were identified within the boundary of the proposed extension area. The most significant sites within the boundary of the extension area are the reputed Bryncoed Iron Age defended enclosure and the Bryncoed WW2 Pillbox both positioned at the far east of the proposed development, both outside the limit of excavation.

In terms of direct physical impact, the assessment has identified 21 instances where the heritage assets will be directly affected. The severity of the direct effect on these assets will be **Major**. Mitigation can be achieved by an archaeological watching brief during the removal of all field banks, turf removal, topsoil and subsoil stripping in order that records can be kept and any archaeological features encountered during the above works.

In terms of potential indirect effects, no High Value designated sites within the prescribed 1km radius have been identified. However, the undesignated WW2 Pillbox is considered to be a High Value site. The sensitivity of this monument is considered to be high (of national and regional importance in terms of research objectives) and the indirect visual magnitude of effect is considered to be **Major**. As such, the overall significance of effect on this monument would also be **Major and Adverse**, however only temporary throughout the lifetime of the proposed extraction work. Once the extraction work has been completed, the excavation area will be restored.

In terms of recommendations, it is advised that prior to any ground works commencing, a field evaluation should be undertaken in the area at the east end of the proposed extension area, with a series of trial trenches strategically placed in the anticipated positions of the probable continuation of the Bryncoed Iron Age defended enclosure (PRN: 850). The results of this evaluation will then inform decisions as to whether to re-design parts of the scheme in order to avoid any potentially significant buried features, or to mitigate the development impact through preservation by record.

It has also been advised that an archaeological watching brief be maintained in the area of the proposed extension, during the removal of all of the field banks in the area, during all turf, top soil stripping and sub soil stripping, in order that records can be kept of any known and unknown archaeological features and deposits that may be encountered during groundwork.

The assessment has also advised as a mitigation measure, that the Bryncoed WWII Pillbox, positioned at the far southeast end of the extension area be protected by adequate fencing to a distance of at least 20 meters from the structure. This will ensure that the site is adequately protected from heavy plant, accidental damage from straying heavy plant, vibration and land slippage and collapse from both the extraction area and the proposed top soil mound.

5.9 Rights of Way

There are no rights of way that pass over the current Glan Lash mine site, the proposed extension area, the Tir y Dail restoration site or the Shand's Road. The closest footpaths are to the west of the Tir y Dail restoration site along the access road to Glyntai Fawr Farm and a short section north/west of the houses along Waun-Farlais Road.

Since 2014 and the completion of the Tir y Dail Colliery Tip Restoration public access has been allowed over the Shand's Road and along the newly constructed track that meanders across the restored colliery tip. Both are frequently used and are considered by all users as an important addition to the amenity of the area.

As part of the original planning application for the Glan Lash Mine site Bryn Bach Coal Ltd offered a 21-year lease at a nominal fee of £1.00 to Carmarthenshire County Council for the adoption of the Shand's Road and the footpath that crosses the restored Tir y Dail tip as a cycleway and public footpath. Although agreement has been reached for the permanent adoption of the Shand's Road the project has failed to progress so far but the offer will remain in place for the duration of the extension should we be successful with this application.

It is our assessment that the proposed extension will have **No Impact** on any rights of way and that in the long term the impact will be positive.

6.Glan Lash Mine Site & Extension Restoration.

Restoration Strategy (Ref GLER-06)

The aim of the restoration proposal as illustrated by our restoration plan is to integrate the restoration of both the existing and proposed site into the surrounding landscape and restore the site to as close to existing as possible. The strategy will include the creation of habitats and aim to enhance and extend the present range of habitats and the structural diversity of vegetation. Appropriate features will be designed into the scheme to provide foraging, roosting, nesting and refuge sites. Neutral grassland will be provided enclosed within hedge-banks and hedgerows broadly reflecting the previously existing hedgerow pattern. The scheme will offer new broad-leaf woodland and scrub plantings, on completion of the extension proposal there will be nearly 4 times the area of deciduous woodland than existed before mining operations commenced. Open marshy grassland areas and glades will be created across a valley feature that will be formed to allow for the material used in the restoration of the Tir y Dail Tip. This valley feature will direct all surface water run off towards a newly created pond feature adjacent to Shand's Road. Any water seepages from the restored backfill will occur at this location. This pond will be managed for biodiversity and habitat enhancement during the restoration and aftercare periods.

Method Statement

The restoration plan (GLER-06) has been designed to achieve a balance of excavated overburden, coal extraction, bulkage and material above the proposed restoration level. Figures shown with a + prefix will be used to reduce the operational void, whilst figures with a – prefix will increase the operational void.

Restoration	Volume (m ³)	
Existing overburden above proposed restoration level	+	262,830
Existing subsoil above proposed restoration level	+	60,824
Existing topsoil above proposed restoration level	+	6,500
Volume of coal to be extracted from extension	-	60,640
Drift Topsoil & Subsoil excavation (extension) 861,841 x 0.08% bulkage	+	68,947
Solid excavation (extension) 927,620 x 0.08% bulkage	+	74,210
Net gain between surface level and lower Rest'n level	+	29,730
Total + balance	+	442,401

Existing void Glan Lash to proposed restoration level -431,727m³

The restoration profile will be unable to replicate original ground contours due to the soil forming material that has been used for the restoration of the Tir y Dail Tip. A valley feature will be created to allow for the short fall in material.

Overburden Backfilling & Soil Replacement

Due to the compact nature of the mine site only a limited area of progressive restoration will be possible before the completion of coaling. The plant used during the production phases will be tasked with excavating the overburden from the main overburden mound and backfilling the final void. Due to the loose nature of the material to be excavated and short haulage distances, a weekly production figure of 9,460m³ is achievable when excavating from the main overburden mound. The final void will be backfilled in 40 weeks. The restoration formation level will be established 0.62m below the final contours to allow for the replacement of soils. The backfilling strategy is for the mudstones and

siltstones to be backfilled at depth with the top 5m of the backfill profile to be glacial drift. Soil replacement will take place in 5m panel widths in a retreat pattern from the northern site boundary. The formation profile will be ripped to a depth of 1.0m, all large stones greater than 0.3m will be buried. This operation will be carried out by the Cat 319 and limited to a 5m width panel. Subsoil will be transported by dump truck and tipped alongside the prepared panel. The soil will be spread using the Cat 319 with power fork attachment to a depth of 0.5m. This process will be repeated with the topsoil and will be spread to a thickness of 0.12m, any stones greater than 0.10m will be removed by the power fork and buried. The plant items will be confined to defined routes and the soil replacement will take place in a retreat pattern. Soil replacement will be completed in 8 weeks.

Hedge-bank Replacement

Material stored in the designated mound will be transported by dump truck to the replacement location. Plant will be confined to formation level areas and will not be allowed to travel on replaced soils. A hedge-bank 2.5m x 0.8 x 0.8 will be constructed using the Cat 319 in accordance with the restoration plan. Hedge-bank replacement will take a further 2 weeks.

Field Enclosures

The topsoil from the improved grassland areas will be spread within the enclosures intended to return to neutral grassland. The topsoil from the remaining areas will be spread within the enclosures intended to return to broad-leaved woodland and open marshy grassland areas. The pond feature and associated reed-beds will partially compensate for the loss of topsoil habitat associated with the translocation of the unimproved grassland to the Tir y Dail Tip. It is intended to maximise the amount of topsoil to be stripped in order to fully compensate for any short fall as a result of the translocation of the unimproved grasslands.

Soil samples will be taken from the proposed habitat type areas. Expert opinion will be sought from our appointed site ecologist and the appropriate soil treatments will be applied. Seeding and planting of the various habitat types will commence in late summer. Restoration of the mine site should be completed in 33 weeks and will then enter the aftercare period.

Aftercare Scheme for The Existing Glan Lash Mine Site & Extension

The 5-year aftercare scheme which will be provided for approval and shall include details of:

- Landscaping and planting
- Cultivations, seeding and management of all habitats both existing and created.
- Grazing management
- Maintenance and management of surface drainage features
- Annual sampling of soils and secondary treatments carried out where deemed necessary
- Weeds as defined by the Weeds Act 1959 will be eradicated
- Full advantage will be taken of any naturally occurring springs or seepages to allow the establishment of flushed vegetation
- Periodic monitoring will assess the success of habitat creation, enhancements and management.

7. Benefits of Development

The benefits of this development are twofold: -

Operational Benefits

The scale and design of the extension allows

- The ability to work in an environmental and considerate manner
- Minimum Disturbance to both the environment and amenity of the area
- Minimised visual impacts and operational noise
- A confident assessment of all operational impacts as a result of the continuation of a current operation
- Protection of areas of natural and built importance by design
- Provision of an important resource to meet society's needs that has an established market. Develop non-thermal-non fossil fuel markets such as using anthracite as a substitute for graphite which is a critical mineral essential to achieve Net Zero by 2050 (Glan Lash anthracite has 92% fixed carbon, natural graphite has 100% fixed carbon).
- An environmentally friendly alternative to the established use of premium Welsh Anthracite.
- Bryn Bach Coal Ltd to maintain and source new markets for Welsh Anthracite as a water filtration medium and as a colourant for the brick making industry. These markets do not use the anthracite as a fossil fuel and therefore do not contribute to carbon release and ultimately climate change.

Employment

- Provide direct full-time employment for 11 employees and support between 5-10 jobs elsewhere in Wales.
- Securement of employment in local businesses that use our premium anthracite as a filter media for drinking water & sewage treatment works.
- Positive benefits to the local economy by providing contracts to local hauliers, suppliers and manufacturers.

Amenity Benefits

The long-term benefits of this development will continue to improve the local environment and the recreational opportunities of the area. It has always been Bryn Bach Coal's approach to work closely with the local community.

Should the extension be granted Bryn Bach Coal Ltd will be able to:

- Continue to provide quiet public access provision along the Shand's Road linking to the footpath constructed across the restored Tir y Dail Colliery Tip.
- Provide the opportunity to upgrade Shand's Road into a useable condition for public access as an adopted cycle track & footpath. This is dependent upon Carmarthenshire County Council progressing the agreement.
- Enhance the landscape and bio-diversity of the area.
- Following the restoration Schemes for the Existing Glan Lash/ Extension site and the Tir y Dail Colliery Tip site, provide appropriate conservation and habitat management of the retained and restored ecological features. After completion of the extension restoration there will be 4 times the area of deciduous woodland than existed before mining operations commenced.
- To achieve net biodiversity gain by the creation of an area of riverside woodland which will cover 2.53 hectares of agricultural grade fields that are currently used for grazing. Creating 1103m of new hedgerow to be constructed on the restored Tir y Dail Colliery Tip recreating the original field boundaries circa 1879 prior to the establishment of the Tir y Dail Colliery in 1898. The woodland plantation & hedgerow construction will take place immediately on

gaining all the relevant permissions. These mitigation measures are in addition to the replacement of these features during the restoration phase of the proposed extension.

- Contribute to long term conservational gain by the restoration of the grasslands to the north of the excavation limit to their former status, which will be followed by their management to maintain this status over a period totalling at least seventeen years. Management advice will be sought from authorities such as the County Council's Mynydd Mawr SAC Conservation Officer in order to return them to favourable conservation status and ultimately to their former SSSI quality
- Continue to assist Glan Lash Liaison Committee by contributing £5,000/year. This will continue for the production period of the extension and will yield £35,000 for distribution to local good causes.