



PRELIMINARY ECOLOGICAL APPRAISAL

in respect of

***Section 73 Application For 3No. Changes to the Limits of
Extraction within the Existing Permitted Planning Boundary of
Ballswood Quarry***

for

Cheshire and North Wales Sand and Gravel Ltd

Prepared By

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1.0 INTRODUCTION

- 1.1 Heatons Limited have been commissioned by Cheshire and North Wales Sand and Gravel Ltd to undertake a Preliminary Ecological Appraisal to determine the ecological status of land within the existing Ballswood Quarry, and arable farmland fields located immediately to the east of the existing quarry.

Appraisal Objectives

- 1.2 The objectives of the Preliminary Ecological Appraisal are to ascertain the habitat types and key ecological issues relating to the development proposal. This includes identifying potential impacts upon designated species and habitats and determining whether there is a need for more detailed surveys of notable plant and animal species. Sufficient ecological information is required to fully inform the site design and the proposed works. This report identifies the ecological constraints at the site and makes recommendations for further ecological surveys. Likely ecological impacts have been assessed based on the design proposals. Proposals for suitable mitigation have also been made. The adoption of the mitigation proposals will enable the project to satisfy current UK and European legal wildlife requirements, as well as national and local planning regulations. All public bodies have statutory obligations under the Natural Environment and Rural Communities Act 2006 to conserve and enhance biodiversity. A review of the ecological impacts must be undertaken once detailed layouts are available, so that suitable amendments to mitigation measures can be made.

1.3 Scope of Works

Sufficient ecological information is required to fully inform the site design and the proposed works. The Preliminary Ecological Appraisal comprises the following elements:

- Desktop study of available site information.;
- Phase 1 Habitat survey of the site;
- Assessment of the potential impacts of the proposed scheme;
- Appraisal of the requirements for further survey work; and
- Appraisal of the requirements for mitigation and potential for enhancement measures.

Site location and description

- 1.4 Ballswood Quarry is located at Gegin Lane, Wrexham, LL12 0NU, and is one of three active sand and gravel quarries in the County Borough of Wrexham (the others being Borrass Quarry and Hafod Quarry). Ballswood Quarry is operated by Cheshire and North Wales Sand and Gravel Ltd.
- 1.5 The majority of the site is comprised of existing quarry, with areas of scattered scrub and tall ruderal vegetation located around existing soil bunds. The boundaries of the existing quarry are comprised of broad-leaved semi natural woodland and hedgerows. There are a number of waterbodies located within the existing quarry. The eastern section of the site is comprised of arable fields and heavily grazed improved grassland.

Proposed Development

- 1.6 The proposed development is to enable 3 proposed changes to the extraction boundary of Ballswood Quarry utilising existing quarry infrastructure and access. The proposed development will release currently sterilised mineral within the permitted planning boundary of the site. Access to the site for the purpose of extending mineral extraction from the existing quarry to the west would best be supplied through the existing quarry site.

2.0 NATIONAL LEGISLATION

National Policy National Planning Policy (Wales) Planning Policy

- 2.1 Wales (PPW)¹ sets out the land use planning policies of the Welsh Government. The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales.
- 2.2 Section 6.4 of PPW relates to biodiversity and ecological networks. Paragraph 6.4.3 of PPW states that: “The planning system has a key role to play in helping to reverse the decline in biodiversity and increasing the resilience of ecosystems, at various scales, by ensuring appropriate mechanisms are in place to both protect against loss and to secure enhancement.”
- 2.3 It goes on to state that: “Development plan strategies, policies and development proposals must consider the need to:
- support the conservation of biodiversity, in particular the conservation of wildlife and habitats;
 - ensure action in Wales contributes to meeting international responsibilities and obligations for biodiversity and habitats;
 - ensure statutorily and non-statutorily designated sites are properly protected and managed;
 - safeguard protected and priority species and existing biodiversity assets from impacts which directly affect their nature conservation interests and compromise the resilience of ecological networks and the components which underpin them, such as water and soil, including peat; and 1 <https://gov.wales/planning-policy-wales>
 - secure enhancement of and improvements to ecosystem resilience by improving diversity, condition, extent and connectivity of ecological networks.”
 - Section 6.4 goes on to set out policy in respect of:
 - Biodiversity and Resilience of Ecosystems Duty, as set out in Section 6 of the Environment (Wales) Act 2016;
 - Designated Sites, including:

- Sites of Special Scientific Interest;
 - Special Protection Areas, Special Areas of Conservation and Ramsar Sites;
 - Proposed Special Areas of Conservation, Special Protection Areas and Ramsar sites; and
 - Non-statutory Designations.
- Protected Species; and
 - Trees, Woodlands and Hedgerows.

2.4 PPW is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales. TAN 55 deals with Nature Conservation and Planning and states in paragraph 2.4:

“When considering policies and proposals in local development plans and when deciding planning applications that may affect nature conservation, local planning authorities should:

- Pay particular attention to the principles of sustainable development, including respect for environmental limits, applying the precautionary principle, using scientific knowledge to aid decision making and taking account of the full range of costs and benefits in a long term perspective;
- Contribute to the protection and improvement of the environment, so as to improve the quality of life and protect local and global ecosystems, seeking to avoid irreversible harmful effects on the natural environment;
- Promote the conservation and enhancement of statutorily designated areas and undeveloped coast;
- Ensure that appropriate weight is attached to designated sites of international, national and local importance;
- Protect wildlife and natural features in the wider environment, with appropriate weight attached to priority habitats and species in Biodiversity Action Plans;

- Ensure that all material considerations are taken into account and decisions are informed by adequate information about the potential effects of development on nature conservation;
- Ensure that the range and population of protected species is sustained;
- Adopt a step-wise approach to avoid harm to nature conservation, minimise unavoidable harm by mitigation measures, offset residual harm by compensation measures and look for new opportunities to enhance nature conservation; where there may be significant harmful effects local planning authorities will need to be satisfied that any reasonable alternative sites that would result in less or no harm have been fully considered.”

Environment (Wales) Act 2016

2.5 The Environment (Wales) Act puts in place the legislation needed to plan and manage Wales’ natural resources in a more proactive, sustainable and joined-up way. Part 1 Section 6 of the Act introduces a new biodiversity duty, which replaces and enhances the biodiversity duties set out in the NERC Act 2006 and requires public authorities to seek to maintain and enhance biodiversity in the exercise of their functions and in so doing promote the resilience of ecosystems. Section 7 of the Act lists living organisms and types of habitat in Wales, considered to be of key significance to sustain and improve biodiversity in relation to Wales.

3.0 ASSESSMENT METHODOLOGY

Desktop Study

3.1 To accurately assess the potential ecological impacts of the scheme, a desktop study has been undertaken to identify the presence of sensitive ecological receptors at the site and within the surrounding area. Data has been obtained from a range of information sources including:

- National Biodiversity Network (NBN); and
- COFNOD – The local environmental records centre for North Wales.

3.1.1 Information on sites of nature conservation interest within a 2km radius of the centre of the site was obtained from the Countryside Council for Wales website. In addition, Cofnod (the local record centre for North Wales) was commissioned to undertake a data search for all protected and notable species and all sites of conservation importance within 2km of the site.

Ecological Walkover Survey

3.2 This assessment follows the methodology of a Phase 1 Habitat Survey, which aims to identify habitat features of value to different plant and animal groups. The methodology used for this survey implements those detailed by the Institute of Environmental Assessment (IEA) (1995) and the Joint Nature Conservation Committee (JNCC) (2010).

3.3 A site visit was completed to map general habitats present in the area. The survey also aimed to record any evidence of the species groups outlined below, including habitat features with the potential to support them:

- Nesting birds, particularly specially protected species;
- Animal species protected under UK legislation and European legislation;
- Invasive species, particularly Japanese Knotweed, (*Fallopia japonica*) and Giant Hogweed, (*Heracleum mantegazzianum*) which are listed under UK legislation.

3.4 This information allowed the requirement for more detailed species surveys to be evaluated.

HSI Assessment

- 3.5 A Habitat Suitability Index (HSI) assessment was undertaken on all waterbodies on the site and within 500m of the site boundaries (on the near side of major dispersal barriers and where access permission was granted). This assessment was undertaken in order to establish the likelihood of great crested newts (*Triturus cristatus*) either breeding on the site or dispersing to the site in their terrestrial phase. The HSI is a standard assessment method developed specifically to evaluate the habitat suitability for this species. A series of factors must be considered. Each factor is assessed along suitability guidelines and allocated a value of between 0.01 (highly unsuitable) to 1.0 (highly suitable). The geometric mean of these values provides an overall suitability score for each waterbody. Although this is no substitute for a dedicated survey, it does give an indication of whether such a survey is required.

4.0 DESKTOP STUDY

Statutory Designated Sites

- 4.1 There are three Statutory Designated Sites located within 2km of the site boundary. The closest of these is the Chwarel Singret Special Site of Scientific Interest (SSSI). This is located approximately immediately adjacent to the quarry plant site and is designated for geological interest.
- 4.2 The Marford Quarry SSSI is located 0.6km to the south-east of the site boundary. This site is designated for its large diversity of lepidopteran species which include a variety of nationally rare species. In addition to this there is a number of floral species indicative of a calcareous sand and gravel substrate, with a range of seral succession stages from bare ground to scrub/woodland.
- 4.3 The Alyn waters Local Nature Reserve (LNR) is located approximately 1.9km to the south-west of the site boundary. The site is designated for its rich meadow habitat, variety of grassland, woodland. Species recorded at Alyn Waters include kingfisher (*Alcedo atthis*) buzzard (*Buteo buteo*), kestrel (*Falco tinnunculus*), fox (*Vulpes vulpes*), adder (*Vipera berus*), grass snake (*Natrix Helvetica*), smooth newt (*Lissotriton vulgaris*) and a variety of bat species.

Non-Statutory Designated Sites

- 4.4 The COFNOD search returned records for seven non-statutory designated sites within 2km of the site boundary. The closest of these is the Ballswood Quarry and Cockpit Wood Local Wildlife Site (LWS) which covers the existing quarry and the wider extending broad-leaved semi natural woodlands.
- 4.5 The Chwarel Marford Quarry SSSI site is also designated as a North Wales Wildlife Trust Reserve.
- 4.6 Burton Tower Lake (LWS) is located 1km north of the site boundary. This site is a fishing lake which has ornithological importance. The lake contains marginal vegetation and is surrounded by broad-leaved semi natural woodland. The site covers approximately 3.1 hectares.
- 4.7 The Nant-y-Gaer and Llay valley (LWS) is located approximately 1.3km to the south-west of the site boundary. The site covers approximately 12.1 hectares and is designated for its broad-leaved semi natural woodland.
- 4.8 The Bryn Alyn and Wormswood (LWS) is located approximately 1.4km to the south-west of the site boundary. This site covers approximately 49.2 hectares

and is designated for broad-leaved semi natural woodlands and semi-improved grasslands located along a meander of the River Alyn.

- 4.9 The Hoseley Wood (LWS) is located approximately 1.6km to the south-east of the site boundary. This area covers approximately 16.7 hectares and the site is designated for habitats including broad-leaved semi natural woodlands, marshy grassland, semi-improved neutral grassland and standing water.
- 4.10 Rackery Wood (LWS) is located approximately 1.7km to the north of the site boundary. This site covers approximately 1.8 hectares and is designated for areas of broad-leaved semi natural woodland.

Ancient Woodland

- 4.11 The COFNOD search returned seven ancient woodland sites surrounding the boundary of the site. Six of these are semi-natural ancient woodland sites and one on the southern border is restored ancient woodland site. This particular restored ancient woodland site stretches down to Gresford Lodge, south west of the quarry site. Further sites include ancient semi-natural woodland located 500m to the south of the quarry over the A483 this remains adjacent along the roadside from Marford down to Gresford Lodge.
- 4.12 To the north there is another small area of ancient semi-natural woodland 1km away from the site. In terms of the other woodland sites, COFNOD showed another 15 sites between 1km-2km away from Ballswood quarry.

Species Records

- 4.13 Records of protected and notable species which have been identified within a boundary of the site have been provided by COFNOD – The local environmental records centre for North Wales and the National Biodiversity Network (NBN).

Mammals

Bats

- 4.14 COFNOD returned a number of records within the 2km radius of the site for common pipistrelle (*Pipistrellus pipistrellus*), natterer's bat (*Myotis nattereri*), soprano pipistrelle (*Pipistrellus pygmaeus*) and brown long-eared Bat (*Plecotus auritus*). The closest bats found to the site boundary were two counts of unknown bat species (*Chiroptera*) along the southern boundary of the site.

- 4.15 NBN also returned records for common pipistrelle, natterer's bat, soprano pipistrelle and brown long-eared bat. However, the NBN search also returned records for Brandt's bat (*Myotis brandtii*) and lesser horseshoe bats (*Rhinolophus hipposideros*). These records were both located to the south of the site boundary in the Gresford urban area. The Brandt's bat record was dated from 2016 and the lesser horseshoe bat record was dated from 2017.

Otter (*Lutra lutra*)

- 4.16 COFNOD returned 15 records for otter within 2km of the site boundary, the closest of these records was 412m to the east of the site boundary. The rest of these records are concentrated along the River Alyn which dissects the 2km radius of the designated site.
- 4.17 The NBN returned 27 counts of Otter in the 2km boundary dated from 2000-2019.

Dormice (*Muscardinus avellanarius*)

- 4.18 Both NBN and COFNOD returned no records for dormice within 2km of the site boundary.

Badger (*Meles meles*)

- 4.19 COFNOD returned 27 records for badgers within the 2km site boundary. The closest of these records were three counts within the quarry boundary line, these dated back to 2002 and 1998.
- 4.20 NBN recorded 46 records for badgers within 2km of the site boundary. The majority of these records were located 1.5km to the south of the site boundary.

Water Vole (*Arvicola amphibious*)

- 4.21 COFNOD returned one record for water vole within 2km of the site boundary. This record was located 412m to the east of the site boundary and was dated from 2005.
- 4.22 NBN showed no results for water vole presence in the 2km site boundary.

Amphibians and Reptiles

Great Crested Newt (*Triturus cristatus*)

- 4.23 COFNOD returned three counts of great crested newts (GCN), all located 800m from the site boundary in the wildlife reserve. These records were dated from 2003 to 2005.
- 4.24 The NBN search returned over 700 records GCN located approximately 1.2km to the south of the site. A large number of these records were dated from 2019.

Reptiles

- 4.25 The COFNOD search returned records of four reptile species within 2km of the site boundary. These include common lizard (*Zootoca vivipara*), slow-worm (*Anguis fragilis*), adder and grass snake. For slow-worm, COFNOD returned 49 records within 2km of the site boundary. These records were dated between 2005 and 2014. The majority of these records were located approximately 0.8km to the south-east of the site boundary.
- 4.26 The COFNOD search returned six records for grass snake within 2km of the site boundary. These were dated between 1907 and 2015. The closest of these records was located approximately 0.8km to the south-east of the site boundary. This individual record was dated from 2015.
- 4.27 The COFNOD search returned three records for adder within 2km of the site boundary. These records were dated from 1907, 1970 and 2009. The closest of these records was located 1.4km to the south-west of the site boundary. This record was dated from 2009.
- 4.27.1 One record was returned for common lizard within 2k of the site boundary. This record was located approximately 0.9km to the south-east of the site boundary and was dated from 2011.
- 4.28 The NBN search also returned records for slow-worm, grass snake, adder and common lizard within 2km of the site boundary. These records were all returned from the same location located approximately 1.2km to the south of the site boundary.

Crustaceans

White-clawed crayfish

- 4.29 COFNOD and NBN returned no records for white-clawed crayfish within the 2km of the site boundary.

Birds

- 4.30 COFNOD returned a large number of different bird species within the 2km site boundary. A number of notable species was highlighted between Ballswood quarry and the Marford Quarry SSSI. Some of the species included: yellowhammer (*Emberiza citronella*), lapwing (*Vanellus vanellus*), skylark (*Alauda arvensis*), barn owl (*Tyto alba*), curlew (*Numenius arquata*), bullfinch (*Pyrrhula pyrrhula*), and willow warbler (*Phylloscopus trochilus*) and hen harrier (*Circus cyaneus*). Located approximately 1.2km to the north of the site boundary were a number of further notable species records, these include osprey (*Pandion haliaetus*), kestrel (*Falco tinnunculus*) and house sparrow (*Passer domesticus*).
- 4.31 NBN also returned a large number of bird species for this site, these records include species such as: yellowhammer, merlin (*Falco columbarius*), kestrel, great spotted woodpecker (*Dendrocopos major*), lesser spotted woodpecker (*Dendrocopos minor*), willow warbler, house sparrow and tree sparrow (*Passer montanus*).

Invertebrates

- 4.32 COFNOD returned a number of invertebrate species, many of these were linked to the Chwarel Marford Quarry the local wildlife nature reserve. Some of the species present included the emerald damselfly (*Lestes sponsa*) and the Adonis ladybird (*Hippodamia variegata*) which was found 350m from the site location to the west.

Invasive Species

- 4.33 COFNOD returned seven records for Japanese knotweed within 2km of the site boundary. The closest of these was located 0.8km to the north-east of the site boundary.
- 4.34 There were no records returned for giant hogweed within 2km of the site boundary.

5.0 SITE SURVEY FINDINGS

- 5.1 For the plan showing the habitats located within the site boundary, please see Appendix A. For all site photographs, please see Appendix B.

Habitats

Arable fields (JNCC Code J1.1)

- 5.2 The eastern boundary fields which form the proposed extension area are comprised of arable fields. These fields are typically planted with wheat, however they had been ploughed at the time of survey.
- 5.3 In addition, there is one area of previously restored arable field located in the south-east corner of the site boundary. This is located to the south of the River Alyn.

Boundary broad-leaved semi natural woodlands (JNCC Code A1.1)

- 5.4 There are three areas of broad-leaved semi natural woodland surrounding the northern boundary of the site and the southern boundary of the site.
- 5.5 The first area of woodland to the north of the existing quarry at the quarry boundary between the site and Gegin Lane. The species recorded within this woodland include ash (*Fraxinus excelsior*), pedunculate oak (*Quercus robur*), sycamore (*Acer pseudoplatanus*), cherry (*Prunus avium*), hawthorn (*Crataegus monogyna*) and silver birch (*Betula pendula*). Under-storey species present within this woodland include bramble (*Rubus fruticosus*), ivy (*Hedera helix*) and dog rose (*Rosa canina*).
- 5.6 The second area of woodland is located immediately to the south of the existing quarry plant site. This small area connects into the intact species poor hedgerow with trees. This woodland is dominated by sycamore. Other species recorded within this woodland include pedunculate oak, ash, hawthorn, rowan (*Sorbus aucuparia*) and silver birch. Under-storey species within this woodland include bramble, common nettle (*Urtica dioica*), ivy and dog rose.
- 5.7 The southern boundary broad-leaved semi natural woodland extends across the full extent of the existing quarry boundary. The species recorded within this site include pedunculate oak, ash, dog rose, sycamore, hawthorn and silver birch. Under-storey species recorded within this section include dog rose, bramble, common nettle, lesser celandine (*Ficaria verna*) and dogs mercury (*Mercurialis perennis*).

Broad-leaved plantation woodland (JNCC Code A1.2)

- 5.8 There is one area of broad-leaved plantation woodland located in the north west- corner of the site, surrounding the boundary of the existing quarry plant site. This woodland habitat is dominated by copper beech (*Fagus sylvatica f. purpurea*). Other tree species recorded include, sycamore and silver birch. Under-storey species recorded including dog rose, bramble and common nettle.

Intact Hedgerow and trees (JNCC Code J2.3.2)

- 5.9 There are two intact hedgerows located within the site boundary, the first is located in the north-western corner of the site, near the existing plant site. This hedgerow connects into a small area of broad-leaved semi natural woodland. The species recorded within this hedgerow include hawthorn, ash, silver birch and sycamore.
- 5.10 The second hedgerow is located in the north-eastern corner of the site, immediately to the north of the arable fields. This hedgerow is dominated by hawthorn. Other species present within the hedgerow include dog rose and ivy. There were a number of ground species located at the base of hedgerow between the hedge and the arable field.

Species- rich Defunct Hedgerow with trees (JNCC Code J3.2)

- 5.11 There is one defunct hedgerow with trees located in the south-east corner of the site. This hedgerow is dominated by hawthorn. Other species recorded within this hedgerow include hawthorn, crack willow (*Salix fragilis*), blackthorn (*Prunus spinosa*), hazel (*Corylus avellane*) and sycamore.

Scattered Scrub (JNCC Code A2.2)

- 5.12 There are three areas of scattered scrub located within the centre of the existing quarry. The first is located along the northern boundary of the site and the second is located in the centre of the quarry to the north of the quarry lagoons. These scattered scrub areas are mainly comprised of gorse (*Ulex europaeus*), with occasional areas of bramble.
- 5.13 There is also one area of scattered gorse located surrounding the boundary of the broad-leaved semi natural woodland near the southern boundary.

Tall ruderal soil bunds (JNCC Code C3.1)

- 5.14 There are a series of soil bunds comprised of tall ruderal vegetation located within the existing quarry. These bunds are comprised of creeping thistle (*Cirsium arvense*), spear thistle (*Cirsium arvense*), rosebay willowherb (*Chamerion angustifolium*), common nettle, bramble, green alkanet (*Pentaglottis sempervirens*) and bracken (*Pteridium aquilinum*).

Species poor semi-improved grassland (JNCC Code B6)

- 5.15 There are two small areas of species poor semi-improved grassland located within the site boundary. The first is located along the norther site boundary and is surrounded by the northern boundary woodland and scattered scrub with the existing quarry located immediately to the south. The species recorded within this grassland include perforate St John's wort (*Hypericum perforatum*), yarrow (*Achillea millefolium*) perennial ryegrass (*Lolium perenne*), cocksfoot (*Dactylis glomerata*), false oat-grass (*Arrhenatherum elatius*), common evening primrose (*Oenothera biennis*), herb Robert (*Geranium robertianum*), birds-foot trefoil (*Lotus corniculatus*) and lesser trefoil (*Trifolium dubium*).
- 5.16 The second area of species poor semi-improved grassland is a small grassland strip located between the eastern boundary arable fields and the existing quarry. The species recorded within this grassland include common nettle, cleavers (*Galium aparine*), red-dead nettle (*Lamium purpureum*), common mouse-ear (*Cerastium fontanum*), lords and ladies (*Arum maculatum*), cow parsley (*Anthriscus sylvestris*), cocksfoot, common field speedwell (*Veronica persica*), green alkanet, lesser celandine and burdock (*Arctium lappa*).

Improved grassland (JNCC Code

- 5.17 There was one area of improved grassland located in the south-east corner of the site. This species recorded within this grassland include lesser celandine, perennial ryegrass, common nettle, white clover (*Trifolium repens*), spear thistle, creeping thistle, meadow buttercup (*Ranunculus acris*), common dandelion (*Taraxacum officinale*), common field speedwell and annual meadow grass (*Poa annua*).

Waterbodies (JNCC Code G1)

- 5.18 At the time of survey, there were seven waterbodies located within the existing quarry. These were all large lagoons associated with the existing quarry workings. Species recorded surrounding these waterbodies include goat willow (*Salix caprea*) and crack willow.

Quarry (JNCC Code J4)

- 5.19 The majority of the site is comprised of the existing quarry, this is largely comprised of bare earth, waterbodies and the plant site located near the northern site boundary. The plant species recorded within the quarry include St John's wort, butterfly bush (*Buddleja davidii*) and ox-eye daisy (*Leucanthemum vulgare*).

Running Water (JNCC Code G2.2)

- 5.20 The River Alyn is located along the southern boundary and runs within an area of broad-leaved woodland. This stream at the time of survey was slow-flowing and was approximately 2m wide.

Scattered trees (JNCC Code A3.1 and A3.2)

- 5.21 There are a total of six scattered trees located within the existing quarry and within the proposed eastern extension area. These trees are:
- Horse chestnut (*Aesculus hippocastanum*) – Located at Grid Reference SJ345562
 - Sycamore – Located at Grid Reference SJ349568
 - Pedunculate oak – Located at Grid Reference SJ350567
 - Large leaved Lime – Located at Grid Reference SJ350567
 - Scot's Pine and hawthorn – Located at Grid Reference SJ349566

Protected species

Birds

- 5.22 The boundary woodlands, scattered scrub, scattered trees, waterbodies and semi improved grassland provide suitable breeding and foraging habitat for a

variety of common and widespread breeding bird species. In addition, the arable fields in the proposed extension area also provide suitable breeding and foraging habitat for a variety of farmland bird species.

- 5.23 A number of bird species were identified during the walkover survey, these include: pied wagtail (*Motacilla alba yarrellii*), mallard (*Anas platyrhynchos*), wren (*Troglodytes troglodytes*), dunnoek (*Prunella modularis*), blue tit (*Cyanistes caeruleus*), robin (*Erithacus rubecula*), blackbird (*Turdus merula*), chaffinch (*Fringilla coelebs*), chiffchaff (*Phylloscopus collybita*) and blackcap (*Sylvia atricapilla*).

Bats

Foraging

- 5.24 The majority of the site is comprised of the existing quarry and arable fields which are considered to provide negligible foraging habitat for bats. The boundary broad-leaved woodland and hedgerows however are considered to provide small areas of optimal foraging habitat for bats.

Roosting

- 5.25 There are four trees within the site that are considered to provide suitable roosting potential for bats. Please see details below:
- Horse chestnut – moderate suitability for roosting bats;
 - Sycamore – moderate suitability for roosting bats;
 - Pedunculate oak – moderate suitability for roosting bats; and
 - Large leaved Lime – moderate suitability for roosting bats.

Reptiles

- 5.26 No reptiles were found within the site during the survey. Badgers The semi-improved grasslands within the site however, are considered to provide suitable foraging habitat for reptiles. In addition, the area of semi improved grassland along the northern boundary is located on a south facing bank. This area is considered to provide optimal habitat for basking reptiles.
- 5.27 In addition, there is also an area of log piles located at Grid Reference SJ350563. These are located in the corner of the adjacent arable fields. These log piles provide suitable basking and shelter for a variety of reptile species.

- 5.28 There were no badger setts identified within the site during the walkover survey. However, there were two badger la trines identified along the boundary of the arable fields in the east of the site. These two la trines were located close together at Grid Reference SJ350564.

Water vole

- 5.29 There was no evidence of water voles recorded within the onsite waterbodies within the existing quarry. The banks of the quarry lagoons lack dense vegetation and suitable structure for water voles to create burrows. In addition, the waterbodies within the site are considered unsuitable for foraging water voles due to the lack of water course connectivity also due to the lack of vegetation.

Otter

- 5.30 There was no evidence of otters recorded within the site during the walkover survey. In addition, the waterbodies within the site lack fish and crustacean species and therefore are considered unsuitable for foraging otters.

Dormice

- 5.31 There were no records returned for dormice within 2km of the site boundary. In addition, the majority of the habitats within the site are considered unsuitable to support dormice.
- 5.32 The northern boundary broad-leaved semi natural woodland and intact species-poor hedgerows are considered to provide sub-optimal habitat for dormice. The northern boundary woodlands lack a diverse under-storey structure and both the woodlands and hedgerows are fragmented from the wider surrounding suitable habitats. The southern boundary woodland also lacks a diverse under-storey structure, however the connectivity into the wider surrounding area is good. The southern boundary woodland however, is to be retained during the extent of the works and therefore it is assessed that there will be no impact on dormice during the extent of the works.

Amphibians

Great Crested Newt

- 5.33 The preliminary ecological appraisal survey identified seven waterbodies within the site. In addition, there was one additional waterbody located approximately 200m to the west of the site boundary. All of the waterbodies located within the

existing quarry were active quarry lagoons. Of the quarry lagoons, ponds 1,2 and 3 had been established for a period of time and therefore vegetation had begun to establish within the pond. Ponds 5,6 and 7 were assessed as silt lagoons. In addition, pond 8 was a newly created pond that had been recently excavated. Pond 4 is located 200m to the west of the site boundary is a large pond, surrounded by willow and alder tree species.

5.34 As all these ponds are present within 500m of the site (maximum dispersal distance for great crested newts), Habitat Suitability Index (HSI) assessments were carried out for each of the ponds. Please see Table 1 below for the full HSI assessment details.

5.35 Table 1 HSI calculations for each waterbody assessed and their suitability for GCN

Waterbody	HSI Score	Suitability
Pond 1 (Grid Reference SJ348565)	0.43	Poor
Pond 2 (Grid Reference SJ349564)	0.43	Poor
Pond 3 (Grid Reference SJ350562)	0.7	Average
Pond 4 (Grid Reference SJ344559)	0.42	Poor
Pond 5 (Silt Lagoon) (Grid Reference SJ348563)	0.43	Poor
Pond 6 (Silt Lagoon) (Grid Reference SJ348563)	0.43	Poor
Pond 7 (Silt Lagoon) (Grid Reference SJ348563)	0.43	Poor
Pond 8 (Grid Reference SJ346560)	0.43	Poor

5.36 The above table indicates that Pond 3 has an average suitability for GCN. This was assessed as this pond is closer to the southern boundary broad-leaved semi natural woodland providing higher quality terrestrial habitat for GCN. In addition, this pond contained a higher percentage of macrophyte cover providing suitable egg laying habitat for GCN.

5.37 Ponds 1, 2,4,5,6, 7 and 8 were all considered to provide a poor suitability for GCN. These ponds were all within the centre of the quarry workings and therefore the surrounding terrestrial habitat was poor. In addition, the macrophyte cover and water quality of these waterbodies was also assessed as poor.



Invasive species

- 5.38 There were no invasive plant species identified within the site during the ecological walkover survey.

6.0 LIKELY IMPACTS

Habitats

6.1 The survey identified ecological features within the site boundary. The site consists of the following habitats:

- Broad-leaved semi natural woodlands
- Species poor semi- improved grassland
- Species poor intact hedgerow with trees
- Arable fields
- Scattered scrub
- Tall ruderal vegetation
- Scattered Trees

6.2 It should be noted that all previously restored habitats located in the south-western corner of the site boundary are to be retained during the extent of the works. This will include the retention of broad-leaved semi natural woodland, species rich defunct hedgerow, improved grassland, scattered scrub and the River Alyn corridor.

Statutory Designated Sites

6.3 There are three statutory designated sites located within 2km of the site boundary. It is not anticipated that the proposed works will have any impact on any of these Statutory Designated Sites.

Non-Statutory Designated Sites

6.4 The COFNOD search returned records for seven non-statutory designated sites within 2km of the site boundary. The closest of these is the Ballswood Quarry and Cockpit Wood (LWS) which covers the existing quarry and the wider extending broad-leaved semi natural woodlands.

6.5 The Ballswood Quarry and Cockpit Wood (LWS) is designated as an active Quarry site with large areas of grassland and scrub developed on old quarry workings. All areas of previously restored grasslands do not fall within the site boundary. In addition, the boundary woodlands surrounding the site are to be retained during the extent of the works. Therefore, it is not anticipated that the proposed works will have an impact on this LWS.

6.6 In it also not anticipated that the proposed works will have an impact on any of the other non-statutory designated sites within 2km of the site boundary.

Habitats

- 6.7 The proposed development has the potential to impact a small area of broad-leaved woodland, one species poor intact hedgerow with trees, tall ruderal vegetation and small patches of scattered scrub and semi-improved grassland. The area of woodland, hedgerow and grassland are all considered UK Bap Priority habitats.

Species

- 6.8 Development within the site has the potential to have a minor impact on bats, birds, reptiles and GCN. However, the majority of the habitats located within the existing quarry lack connectivity from the wider area due to ongoing quarry workings. In addition, the majority of the boundary habitats are to be retained during the extent of the works.
- 6.9 The large horse chestnut tree located within the existing quarry compound is to be removed during the proposed works. This tree has been assessed to provide a moderate suitability for roosting bats as there were a number of split limbs and cracks observed within the tree.
- 6.10 Further survey recommendations for protected species have been detailed in section 7 below.

7.0 FURTHER SURVEY REQUIREMENTS

- 7.1 Due to the impacts identified in Section 6, protected species surveys are recommended for foraging/roosting bats, breeding birds, wintering birds, GCN, water voles and otters.

Bats

Roost

- 7.2 One mature horse chestnut tree was located within the existing quarry which is to be removed during the proposed works. Therefore, it is recommended that bat roost surveys are undertaken in order to identify the presence or absence of bats within this tree. This will involve two emergence/ re-entry survey visits, with at least one of these surveys conducted at as a dawn re-entry survey. Bat Surveys can be conducted from May- September.

Activity

- 7.3 It is assessed that the overall site presents a negligible suitability for foraging bats as the majority of the site is comprised of existing quarry and open arable fields. However, as there are a number of optimal habitats located around the site boundary, it is recommended that a reduced survey effort of bat activity surveys are undertaken in order to assess what bat species may be present across the site boundary.
- 7.4 As the application is due to be submitted during the summer months, it is recommended that one bat activity survey is undertaken in spring and two surveys are undertaken in summer. Further bat activity will additionally be recorded during the roost surveys to be undertaken on the horse chestnut tree within the site compound.

Birds

- 7.5 The eastern extension has the potential to impact a number of farmland bird species. Therefore, it is recommended that two breeding bird surveys are conducted on the site. These should be conducted between April-June with the first survey conducted by mid-may. These surveys should also be at least two weeks apart.

Reptiles

- 7.6 The desk study identified records for four species of reptile within 2km of the site boundary. The species records were for grass snake, common lizard, adder and slow-worm. Therefore, it is recommended that reptile surveys are conducted. This will involve placing approximately 50 refugia mats within the site and then conducting 7 individual surveys.

Great Crested Newts

- 7.7 All waterbodies within 500m of the site boundary were assessed using the Habitat Suitability Index (HSI) assessment criteria for GCN. Of the seven waterbodies, pond 3 was assessed to provide an average suitability for GCN. Ponds 1,2,4,5,6 and 7 were all assessed to provide a poor suitability for GCN.
- 7.8 As pond 3 was assessed as providing an average suitability for GCN, it is recommended that this pond is surveyed using the GCN environmental DNA test.
- 7.9 Ponds 5 and 6 were active silt lagoons located within the existing quarry. In addition, pond 7 had been recently created within the main quarry void of the existing quarry. It is considered highly unlikely that GCN will be present within these waterbodies.
- 7.10 For ponds 1,2 and 4, although they were assessed as providing a poor suitability for GCN, these waterbodies have been undisturbed for a period of time and aquatic vegetation has begun to form in these waterbodies. It is therefore recommended that GCN environmental DNA test are undertaken on these waterbodies in order to identify the presence/absence of GCN. If GCN are found during these surveys, a further six surveys should be made to ascertain population size.

8.0 CONCLUSIONS AND PROVISIONAL MITIGATION MEASURES

Mitigation measures

- 8.1 The ecological impact hierarchy requires that all steps are taken to avoid adverse impacts to habitats and species. Only where impacts cannot be avoided should steps be taken to mitigate for any losses within the scheme boundary. In cases where all options for on-site mitigation have been exhausted, offsite compensation measures can be considered. The following mitigation recommendations have been proposed to minimise the potential ecological impacts during construction and redevelopment of the site. Additional species-specific mitigation recommendations will be provided following the completion of the additional protected species surveys.

Habitats

- 8.2 It is recommended that suitable stand-off distances are observed in areas of where boundary woodlands are to be retained. It is recommended that 5m is observed from the northern boundary woodlands and a 10m stand-off distance is observed from the southern boundary woodlands.
- 8.3 The restoration proposals are to include the planting of broad-leaved semi natural woodland and a number of hedgerows across the site. It is recommended that the woodlands include the planting of woodland species similar to what is present within the existing boundary woodlands. Hedgerow planting should contain a range of native species including hawthorn, blackthorn and hazel with small quantities of holly, guelder rose (*Viburnum opulus*) dog rose, and dogwood (*Cornus sanguinea*).

9.0 SUMMARY

- 9.1 The proposed development is to enable 3 proposed changes to the extraction boundary of Ballswood Quarry utilising existing quarry infrastructure and access. The proposed development will release currently sterilised mineral within the permitted planning boundary of the site. Access to the site for the purpose of extending mineral extraction from the existing quarry to the west would best be supplied through the existing quarry site.
- 9.2 There are three statutory designated sites located within 2km of the site boundary. It is not anticipated that the proposed works will have any impact on any of these Statutory Designated Sites.
- 9.3 There are seven non-statutory designated sites within 2km of the site boundary. The closest of these is the Ballswood Quarry and Cockpit Wood (LWS) which covers the existing quarry and the wider extending broad-leaved semi natural woodlands. It is not anticipated that the proposed works will have an impact on this LWS as the habitats within this designation are to be retained during the extent of the works. In addition, it also not anticipated that the proposed works will have an impact on any of the other non-statutory designated site within 2km of the site boundary.
- 9.4 Habitats present within the site include broad-leaved semi natural woodland, broad-leaved plantation woodland, semi-improved species poor grassland, scattered scrub, tall ruderal vegetation, scattered trees and arable fields. There are also areas of bare earth and standing water associated with the existing quarry workings.
- 9.5 A number of specialist protected species surveys have been recommended within section 7. The recommended surveys include:
- GCN eDNA Surveys;
 - Breeding bird surveys;
 - Bat activity surveys;
 - Bat roost survey; and
 - Reptile surveys.

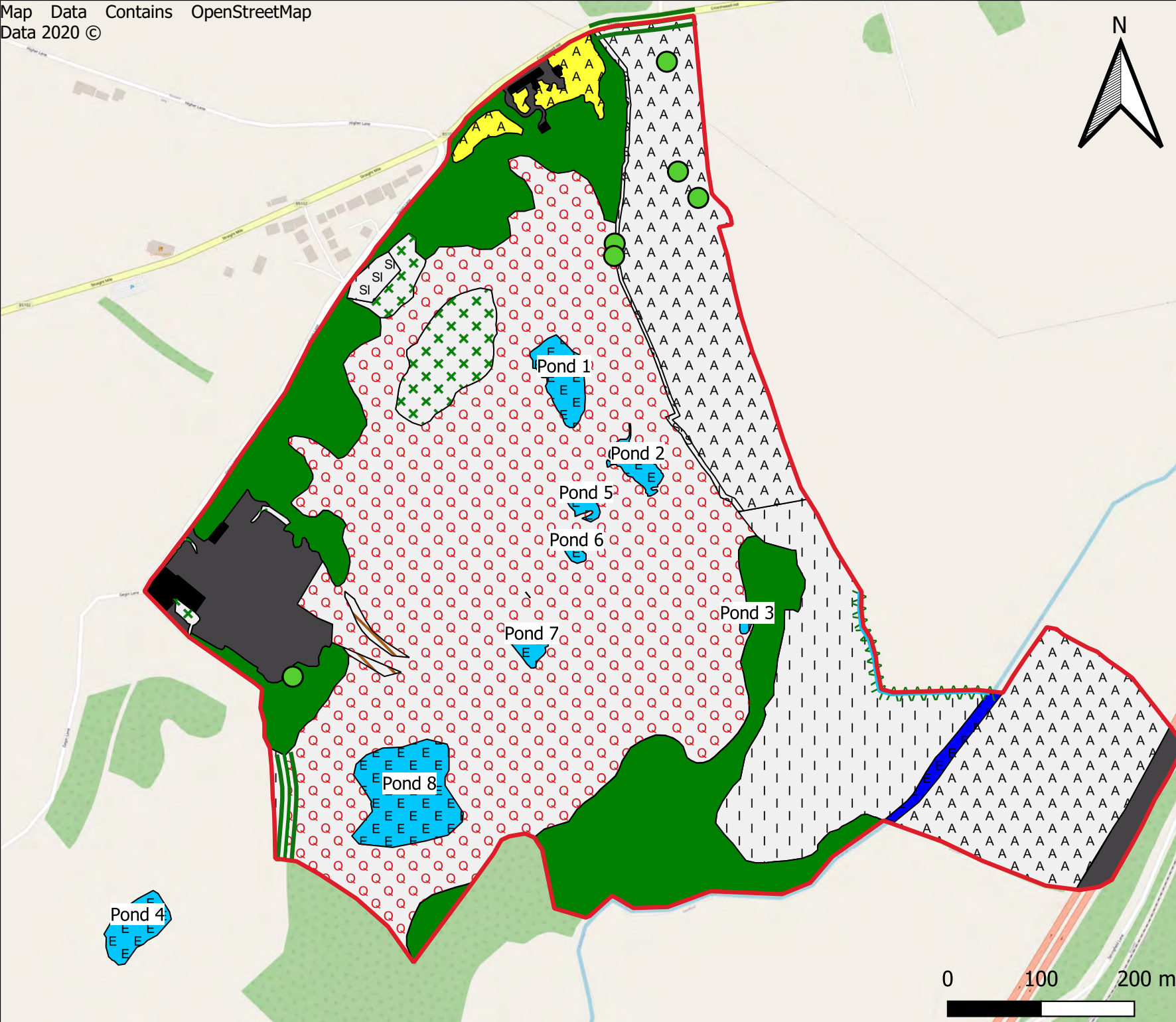
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Appendix A

Phase 1 Habitat Map



LEGEND

— Site Boundary

Phase 1 Line Habitats

— J2.1.2 - Intact hedge

— J2.2.1 - Defunct hedge - SR

— G1.1 Standing water - EU

● Scattered Tree

Phase 1 Habitats

■ A1.1.1 - BL Woodland/SN

■ A2.2 - Scrub - scattered

■ B4 - Improved grassland

■ B6 - Poor semi-improved grassland

■ C3.1 - Tall ruderal

■ G1.1 - Standing water - EU

■ G2.1 - Running water - EU

■ I2.1 - Quarry

■ J1.1 - Arable

■ J1.2 - Amenity grassland

■ J3.6 - Buildings

■ Hardstanding

OpenStreetMap

Heatons
Planning Environment Design

PROJECT

Ballswood Quarry

DRAWING TITLE

PEA Phase 1 Habitat Map

DATE

AUG 2020

REFERENCE

KEDL-003-M (ED.001)

SCALE

See Map

STATUS

FINAL



Appendix B

Site Photographs



Plate 1. A view of the existing Ballswood Quarry



Plate 2. A view of scattered scrub and broad-leaved semi natural woodland.



Plate 3. A view of the existing quarry and adjacent arable fields.



Plate 4. A view of the of the hedgerow located to the west of the existing plant site.



Plate 5. A view of Pond 4.



Plate 6. A view of the horse chestnut located within the existing quarry plant site.



Plate 7. A view of the three trees to be retained near the eastern site boundary.



Plate 8. A view of the semi-improved grassland strip located between the arable field and existing quarry.



Plate 9. A view of tall ruderal vegetation within the existing quarry.



Plate 10. A view of Pond 8 within the existing quarry.



Plate 11. A view of the broad-leaved woodland near the existing plant site.