



**DALCOUR
MACLAREN**

Preliminary Ecological Appraisal - Phase 1A

Client: Ove Arup & Partners Ltd

Project: GCRE Planning Conditions

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1 Executive Summary

- 1.1.1 Dalcour Maclaren (DM) has been commissioned by Ove Arup & Partners Ltd on behalf of GCRE Ltd to undertake an updated Preliminary Ecological Appraisal (PEA) of Phase 1A of the Global Centre of Rail Excellence (GCRE).
- 1.1.2 The proposed development is for a rail testing, maintenance, research, development and storage facility (also referred to as GCRE) at the site of the Onllwyn Washery and Nant Helen open cast mine. Earthworks to facilitate the development of the site is expected to be undertaken in four phases between September 2022 and December 2023. The installation of GCRE infrastructure will then follow this. The first phase of the development, which is the subject of this report, is “Phase 1A”.
- 1.1.3 Phase 1A is located within the Washery area of the operational Celtic Energy site, Onllwyn, Wales and occurs partially within the Gorsllwyn Meadows Site of Importance for Nature Conservation (SINC) and Onllwyn Coal Washery SINC.
- 1.1.4 A suite of ecology surveys (including PEA, dormouse, bats, great crested newt, badger, fungi, NVC, reptiles, riparian mammals, arboreal mammals, wintering and breeding birds) were completed for the GCRE site, to inform an Environmental Impact Assessment (EIA) for the creation of a complementary earthworks plateau referred to as the ‘Nant Helen Complementary Earthworks’ application; and, an EIA for the installation of railway testing and research centre referred to as ‘GCRE’. These surveys are detailed in both the Nant Helen Complementary Earthworks Environmental Statement (ES)¹ and the GCRE ES².
- 1.1.5 Nearly 4 years have passed since the original surveys were completed. In accordance with CIEEM guidance³, a PEA including the desk study and local biological records centre search, will need to be updated at least 18 months, and at most, before 3 years, after the original PEA was undertaken, and a review undertaken to determine which protected species surveys need updating in addition to the appropriate scope, timing and methods for the updated surveys. Therefore, this PEA provides an updated ecological appraisal of the Phase 1A site.
- 1.1.6 An Extended Phase 1 Habitat survey was undertaken on the 22nd June 2022 to inform an updated PEA. This document details the PEA including findings of the Extended Phase 1 Habitat survey and desktop study

¹ Arup (2020) Nant Helen Complementary Earthworks Environmental Statement. Celtic Energy

² Arup (2021) GCRE Environmental Statement. Welsh Government

³ CIEEM (2019) On the lifespan of ecological reports and surveys

together with recommendations for further surveys and or mitigation / enhancement measures; considering measures that have been proposed within the GCRE ES (relevant to the Washery Site).

- 1.1.7 The location and status of designated sites within the zone of influence of the Phase 1A site, has not changed and therefore the mitigation measures outlined in the GCRE ES² relevant to the site, are considered to still be appropriate and should be implemented accordingly. These are summarised within this PEA including the implementation of best practice water quality and air quality control management measures.
- 1.1.8 Additionally, further mitigation may be required for potential impacts to the Gorsllwyn Meadows SINC, which was proposed as being retained and protected in the GCRE ES² and now occurs within the northern periphery of the Phase 1A site. Impacts to this area are unclear at present due to the design being developed. It is recommended that habitats within the SINC are retained and protected as part of the development of this area, however, if this is not possible compensation would be required for the loss of habitats within this area, including ditch and pond, and open mosaic habitats which supports notable species. These habitats would need to be recreated elsewhere within the wider GCRE site.
- 1.1.9 The PEA has determined that the Phase 1A habitats have not significantly changed since the previous Extended Phase 1 Habitat survey of the Washery site was undertaken; and as such, the recommendations provided in the GCRE ES² for mitigation and enhancements which relate to this part of the site, are considered to still be appropriate. Mitigation from the ES for habitats is summarised in this PEA but landscaping detail will be provided in a separate landscape plans and phase specific Biodiversity Plan, along with updated habitat calculations for habitat loss and gain. Additionally, the long-term management of retained and newly created habitats will be set out in a separate Ecological Management Plan for the Washery.
- 1.1.10 The PEA details general best practice in relation to species that could be present in the Phase 1A site, and provides recommendations for further surveys for the following species:
- notable plants;
 - roosting bats (in buildings/structures);
 - reptiles;
 - badgers;
 - otter and water voles; and,

- Invasive non-native species

- 1.1.11 Subject to the findings of these surveys, it may be necessary to carry out further mitigation additional to measures outlined in the Nant Helen ES¹ and GCRE ES², in respect to species including obtaining protected species licences. Additionally, further enhancements may be required in addition to those outlined within the GCRE ES². Any additional mitigation and or enhancements, not already set out in the GCRE ES, for species or habitats will need to be detailed within the phase specific Biodiversity Plan.
- 1.1.12 New landscaping, which will be detailed in the phase specific Biodiversity Plan will also need to be designed to support any species which are currently present on the site, in addition to adjacent receptor areas.

2 Introduction

2.1 Background

- 2.1.1 DM was commissioned by Ove Arup and Partners Limited on behalf of the GCRE Ltd to undertake an updated PEA of Phase 1A of the GCRE site.
- 2.1.2 Numerous surveys have been undertaken within the GCRE site to date, with the most recent surveys being undertaken between 2018 and 2019 to inform two EIA applications for the ‘Nant Helen Complementary Earthworks’¹ and the ‘GCRE’² projects. Additionally, a site walkover was undertaken in February 2022 to determine the ecological value of the northern part of the Phase 1A site which overlaps with Gorsllwyn Meadow SINC⁴ which was proposed for retention within the GCRE ES.
- 2.1.3 In accordance with CIEEM guidance⁵, a PEA including the desk study and local biological records centre search, will need to be updated at least 18 months, and at most, before 3 years, after the original PEA was undertaken, and a review undertaken to determine which protected species surveys need updating in addition to the appropriate scope, timing and methods for the updated surveys.
- 2.1.4 Since it has been nearly four years since the previous surveys were completed, it will be necessary to provide an updated PEA.

2.2 Aims and Scope of the Preliminary Ecological Appraisal

- 2.2.1 The aim of the Extended Phase 1 Habitat survey was to:
 - Identify and map habitats within the site boundary; and
 - Assess the potential of habitats within the site to support protected and /or notable species.
- 2.2.2 This report also details a desktop review of the previous survey findings, together with recent results of an updated search with the local biological records centre.
- 2.2.3 The report details the findings of the Extended Phase Habitat 1 survey, including habitat descriptions, noting where habitats have changed in addition to reviewing where new records of species exist; and re-evaluating the sites potential to support valuable habitats and or protected / notable species.
- 2.2.4 The report provides recommendations for additional mitigation / enhancements where there are additional impacts to habitats not

⁴ Dalcour Maclaren (2022) SINC technical note

⁵ CIEEM (2019) lifespan of ecology surveys

assessed within the Site's ES², and further protected species where these are required.

3 Legislation and Policy

- 3.1.1 The legal context for this PEA is provided by a framework of international and domestic legislation which aims to protect specific sites, habitats and species. A full list of relevant legislation is provided in Appendix A.

3.2 Protected Sites

- 3.2.1 Sites Statutory protected sites include:

- European Sites (Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites) protected under the Conservation of Habitats and Species Regulations 2017 (as amended) (also known as the Habitat Regulations) and the International Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention);
- National Sites (Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR)) protected under the Wildlife and Countryside Act 1981 (as amended); and
- Local Sites (Local Nature Reserves (LNRs)), protected under the National Parks and Access to the Countryside Act 1949 (as amended). These sites are protected by the relevant legislation regardless of whether planning permission is required. Where planning consent is required, they will also be protected by Planning Policy. Country Parks, Local Wildlife Sites (LWS) including SINCs, and Ancient Woodlands are protected by Planning Policy, which will apply to schemes which require planning consent.

3.3 Protected Species

- 3.3.1 Species Statutory protected species include:

- European Protected Species (EPS) protected under the Habitat Regulations 2017 (as amended);
- Nationally Protected Species, protected under the Wildlife and Countryside Act 1981 (as amended) (WCA);
- Protection of Badgers Act 1992;
- Countryside and Rights of Way Act 2000 (CRoW);
- The Eels (England and Wales) Regulations 2009;
- Salmon and Freshwater Fisheries Act 1975; and
- Environment (Wales) Act 2016

- 3.3.2 These legislations protect different species to varying degrees, and in most cases their habitats also, regardless of whether planning permission is required. In addition, these species are also afforded protection through Planning Policy, which requires that they are a 'material consideration' of any planning application.

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- 3.3.4 Species and habitats of conservation concern include:
- Locally Protected Species which may be identified within County Local Biodiversity Action Plans (LBAP), the Royal Society for the Protection of Birds (RSPB) ‘Birds of Conservation Concern’ or Red Data books for example.

3.4 Hedgerows

- 3.4.1 The Hedgerow Regulations 1997 set out a framework for the protection of hedgerows against removal where they are deemed to be important either due to their age, ecological or archaeological features. Approval is required from the local authority prior to the removal of Important Hedgerows.

3.5 Invasive Non-Native Species

- 3.5.1 Invasive Non-Native Species (INNS) of Plants. It is an offence to ‘plant or otherwise cause to grow in the wild any plant which is included in Part 2 of Schedule 9’ under the Wildlife and Countryside Act 1981 (as amended). These species are classified as ‘controlled waste’ and as such must be disposed of safely at a licensed landfill site under the Environmental Protection Act (1990).

3.6 The Environment (Wales) Act 2016

- 3.6.1 Public Authorities listed in the Environment (Wales) Act 2016, including Local Planning Authorities “must seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in doing so promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions”. Ecosystem resilience is defined as the capacity for ecosystems to adapt, and comprises the key characteristics:
- Diversity between and within ecosystems;
 - The connections between and within ecosystems;
 - The scale of ecosystems; and
 - The condition of ecosystems (including their structure and functioning).
- 3.6.2 Section 7 lists species and habitats which are ‘of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales’ (as decided by Welsh Government in consultation with Natural

Resources Wales (NRW)); and therefore, public bodies also have a duty to protect and enhance Section 7 species and habitats.

3.7 The Well-being of Future Generations Act

- 3.7.1 The Well-being of Future Generations Act places a duty on public bodies to carry out sustainable development. In this Act “sustainable development” means the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle, aimed at achieving the well-being goals. The action a public body takes in carrying out sustainable development must include:
- setting and publishing objectives (“well-being objectives”) that are designed to maximise its contribution to achieving each of the well-being goals, and
 - taking all reasonable steps (in exercising its functions) to meet those objectives. The seven well-being goals include: a resilient Wales, a prosperous Wales, a healthier Wales, a more equal Wales, more cohesive communities, a Wales of vibrant culture and thriving Welsh language and a globally responsible Wales
- 3.7.2 Of most relevance is ‘A resilient Wales’, which seeks to maintain and enhance a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change (for example climate change).
- 3.7.3 Planning Policy At national level, Planning Policy Wales⁶ sets the national policies in relation to development control through the Town and Country Planning Act 1990. This is supported by a series of Technical Advice Notes, with Technical Advice Note (TAN) 5⁷ being of particular relevance as it sets out the consideration of nature conservation in the determination of planning applications. This policy and TAN 5 require Local Authorities to take measures to:
- Promote the conservation of landscape and biodiversity, in particular the conservation of native wildlife and habitats;
 - Ensure that action in Wales contributes to meeting international responsibilities and obligations for the natural environment;
 - Ensure that statutorily designated sites are properly protected and managed;
 - Safeguard protected species; and

⁶ https://gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11_0.pdf

⁷ <https://gov.wales/sites/default/files/publications/2018-09/tan5-nature-conservation.pdf>

- Promote the functions and benefits of soils, and in particular their function as a carbon store.

3.7.4 Developers must ensure that they comply with the above legislation by fully assessing the potential impacts on protected species and habitats from the proposed development. Where planning permission is required, this assessment must be finalised prior to and included with the submission of the planning application. The Planning Authority can then ensure that the necessary protected species and habitats information has been provided to inform an assessment and that proposals are in full accordance with relevant legislation and planning policy. Welsh Government has produced a Nature Recovery Plan which is aimed at addressing the underlying causes of biodiversity loss by putting nature at the heart of its decision-making, by increasing the resilience of Wales' natural systems (ecosystems), and by taking specific action for habitats and species. It sets out how Wales will deliver the commitments of the EU Biodiversity Strategy and the UN Convention on Biological Diversity to halt the decline in our biodiversity by 2020 and then reverse that decline. The Nature Recovery Action Plan links to and complements The Well-being of Future Generations (Wales) Act 2015 and the Environment Act (Wales) 2016. Developments should seek to complement this, in order to meet objectives, set out in the Environment Act and Well-being Act.

4 Planned Works

- 4.1.1 The GCRE scheme, which benefits from outline planning consent (Powys: 21/0559/OUT and Neath Port Talbot: P2021/0327), has been subject to a full Environmental Impact Assessment and the associated Environmental Statement² and plans, along with an indicative design and scheme footprint support the planning consent. The GCRE ES refers to two key areas of the development, including the 'Nant Helen' site which comprises the larger area of the development currently used by Celtic Energy for mining operations, and the 'Washery' site, a smaller area of the development in the southeast corner, which is also currently used by Celtic Energy for mining operations.
- 4.1.2 Further to planning consent and subject to relevant conditions being discharged (which is likely to be by August/September 2022), earthworks for the site are planned in phases, with the initial phase being Phase 1A (Appendix B), in the area of the Washery of the operational Celtic Energy site. This initial phase will create storage sidings in addition to providing the associated drainage.
- 4.1.3 The storage sidings will be initially required for the passive storage of up to 250 Train Cars for varying periods. This storage function will provide vital revenue for the project and enable its overheads to be covered over the first 2 years or so before the GCRE comes into service fully.
- 4.1.4 In order to facilitate the earthworks and creation of storage sidings, demolition of some of the existing structures (existing washery buildings) and removal of the existing track bed will be required within Phase 1A.
- 4.1.5 In line with the earthworks required, approximately 100,000m³ of material will need to be moved to create a suitable profile for the sidings and ensure efficient drainage. This will result in a surplus of c.50,000m³ of fill materials which will be temporarily stored within the Phase 1A area until it can be redistributed at a later date to another phase of the operations.

5 Methodology

5.1 Preliminary Ecological Appraisal

- 5.1.1 PEAs provide a means to evaluate ecological features and scope for notable species or habitats. By doing so, the baseline ecological conditions and valuable, or potentially valuable, parts of a site can be identified at an early stage, enabling potential constraints to the proposals to be highlighted. PEAs also identify whether further, targeted surveys, such as for protected species are necessary. In addition, it is possible to provide recommendations for design options to be made that avoid effects on important ecological features or ecologically sensitive areas⁸ and increase opportunities to deliver beneficial outcomes.

5.2 Desk Study

- 5.2.1 This report details the PEA methods, including site visit and desktop study, survey and desktop study findings, evaluation of the survey findings in comparison to previous reports, and recommendations for further surveys and or mitigation where this is required.
- 5.2.2 The desk study element involved two methodologies: a review of existing ecological reports and an ecological data search.
- 5.2.3 Existing ecological data that informed the Nant Helen Complementary Earthworks ES¹ and GCRE ES², were reviewed. Additionally, a SINC technical note **Error! Bookmark not defined.** which focused on the overlap area of the Phase 1A area and the Gorsllwyn Meadows SINC was reviewed.
- 5.2.4 Online searches were carried out using the Multi Agency Geographic Information for the Countryside (MAGIC)⁹ to identify statutory internationally designated sites within 15 km (due to the presence of sites designated for marsh fritillary which are known to travel up to 15km). The search included Special Protection Areas (SPAs), Ramsar Sites, and Special Areas of Conservation (SACs).
- 5.2.5 Searches on MAGIC were undertaken for nationally designated sites within 2km of the Site boundary or within 5 km when faunal species were included as part of the designation. The search included Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs).
- 5.2.6 Biodiversity records were obtained from the South East Wales Biodiversity Records Centre Limited (SEWBRc) on the 5th July 2022. The

⁸ <https://cieem.net/wp-content/uploads/2019/02/Guidelines-for-Preliminary-Ecological-Appraisal-Jan2018-1.pdf>

⁹ <http://magic.defra.gov.uk/> Accessed online 10/07/2022

records included protected and notable species¹⁰ up to 2km from the Site boundary and included details of local designations such as Local Wildlife Sites (LWS) and Local Nature Reserves (LNR).

5.3 Extended Phase 1 Habitat Survey

- 5.3.1 An Extended Phase 1 Habitat Survey was undertaken by experienced ecologists Wendy O'Neill and Claire Pooley (MCIEEM, CECOL) on the 22nd of June 2022. This survey included all areas within Phase 1A site (Appendix C).
- 5.3.2 The Extended Phase 1 survey broadly following the 'Extended Phase 1' methodology as set out in the IEA 'Guidelines for Baseline Ecological Assessment' (1995)¹¹. Phase 1 Habitat Survey is a standard technique for rapidly obtaining baseline ecological information over a large area of land. It is primary mapping technique and uses a standard set of habitat definitions for classifying areas of land on the basis of the vegetation present.
- 5.3.3 During the survey all boundaries were walked and habitat types within the Site recorded, along with predominant floral species within each habitat (where possible, subject to the limitations detailed within the report). Signs of protected species, invasive plants (i.e. those listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and those included in the Invasive Alien Species (Enforcement and Permitting) Order 2019¹² other notable species were also searched for during the survey, as well as noting habitats which have the potential to support protected species.
- 5.3.4 The ultimate purpose of the Extended Phase 1 Habitat survey was to map key habitats and plant assemblages, identify the presence of invasive species and identify the presence and / or potential for protected species. These are made using Target Notes (TNs) to record species composition within habitats and to highlight features of ecological interest.
- 5.3.5 The habitats present and TNs have been mapped within a Geographic Information System (GIS) and presented within this report. Points of

¹⁰ Notable' species and habitats considered in this report include species and habitats of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales, under section 7 of the Environment (Wales) Act 2016, in addition to any species considered to be of significance for nature conservation such species listed in red data books, the Royal Society for the Protection of Birds (RSPB) 'Birds of Conservation Concern' lists and or Local Biodiversity Action Plans (LBAPs).

¹¹ IEA. (1995). Guidelines for Baseline Ecological Assessment. Institute of Environmental Assessment.

¹² As listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and/or Part 2 Schedule 2 of The Invasive Alien Species (Enforcement and Permitting) Order 2019

ecological interests are recorded as TNs. Appendix C for Habitat Map and Appendix D for Target Notes.

Preliminary Ground Level Inspection - Trees

- 5.3.6 A Preliminary Ground Level Inspections (PGLI) of all trees within the Site was completed to determine their potential suitability for roosting bats. This assessment involved the detailed inspection of the exterior of each tree from ground level using binoculars and a high-powered torch to identify and illuminate features that may support roosting bats (Potential Roost Features (PRFs)).
- 5.3.7 The potential suitability of the trees to be impacted by the proposed development for roosting bats was allocated to one of the categories detailed within Table 1.

Table 1: Guidelines for assessing the potential suitability of proposed development sites for bats.

Suitability	Description of roosting habitat
Negligible	No habitat features on site likely to be used by roosting bats.
Low	A tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
Moderate	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
Confirmed Roost	A feature which has evidence of roosting bats (such as observation of a live or dead bat in situ, bat feeding remains or bat droppings).

- 5.3.8 An inspection of buildings for their bat roosting potential was undertaken separately to this report.

Habitat Suitability Index (HSI) Assessment

- 5.3.9 All waterbodies within the study area (Appendix G) were assessed for their suitability to support great crested newt using the standard Habitat Suitability Index (HSI)¹³¹⁴ methodology. HSI assessments were carried out on the 15th, 16th and 24th April 2019. The methodology has been designed to evaluate habitat quality in order to assess which waterbodies provide suitability habitat for great crested newts as breeding ponds. The HSI is a numerical index, which ranges from 0 to 1. It is calculated using ten key habitat criteria and is based on the assumption that habitat quality determines great crested newt presence/absence. Using this standard approach, ponds with higher scores are considered more likely to support great crested newts compared to those with lower scores (see Table 2 below).

Table 2: Predicted presence of great crested newts based upon HSI results.

HSI	Pond Suitability	Predicted Occupancy
<0.5	Poor	0.03
0.5-0.59	Below average	0.2
0.6-0.69	Average	0.55
0.7-0.79	Good	0.79
>0.8	Excellent	0.93

5.4 Limitations

- 5.4.1 The findings presented in this appraisal represent those at the time of surveying and reporting, and data collected from available sources. Ecological surveys can be limited by factors affecting the presence of plants and animals, such as the time of year, migration patterns and behaviour.
- 5.4.2 Whilst not a full protected species or botanical survey the PEA survey allows an experienced ecologist to obtain a sufficient understanding of the ecology of a site in order to either confirm the conservation importance of the site and assess the potential for impact on habitats and species likely to represent a material consideration in planning terms, or

¹³ Amphibian and Reptile Groups of the United Kingdom, ARG UK Advice Note 5, Great Crested Newt Habitat Suitability Index, May 2010.

¹⁴ Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M.(2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155.

to ascertain whether further surveys will be required before such confirmation can be made.

- 5.4.3 Species records can provide a useful indication of the species present within the search area, although the absence of a given species from the data set cannot be taken to represent actual absence.
- 5.4.4 In accordance with CIEEM guidance¹⁵ consideration should be given to the validity of survey data after a period of 18 months from the date of the survey. This may require a site visit to assess whether ecological conditions within the site have changed and may require further ecological survey work due to the transient nature of some protected species.

¹⁵ <https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf>

6 Results

6.1 Designated Sites

Statutory sites

- 6.1.1 A search was undertaken using Magic maps to identify statutory internationally designated sites within 15 km. Internationally designated sites are detailed in Table 3 below.
- 6.1.2 Searches for nationally designated sites were undertaken for sites within 2km of the Site boundaries or within 5 km when faunal species are included as part of the designation. Nationally designated sites are detailed in Table 4 below.
- 6.1.3 Internationally and Nationally designated sites are shown in Appendix E. There are no statutory sites designated for bats within 10km. No statutory designated site is within, or immediately adjacent to the Phase 1A Site.

Table 3: Internationally Designated sites within 15km of the site.

Site Name	Designation	Features	Approximate Distance and Orientation from Site
Coedydd Nedd a Melte	SAC	Annex I habitats that are a primary reason for selection of this site include Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles. Coedydd Nedd a Melte is a very large and diverse example of old sessile oak wood in south Wales. The woods extend along a series of deeply incised valleys and ravines, and contain complex mosaics of sessile oak <i>Quercus petraea</i> woodland, ash <i>Fraxinus excelsior</i> woodland (some of which is referable to Annex I type 9180 <i>Tilio-Acerion</i> forests of slopes, screes and ravines), and transitions to lowland woodland types. The whole site is biologically rich, with many woodland plant communities represented and rich bryophyte and lichen assemblages. Notable higher plant species include wood fescue <i>Festuca altissima</i> and the ferns <i>Dryopteris aemula</i>, <i>Hymenophyllum tunbrigense</i> and <i>Asplenium viride</i>.	Approximately 3.5 km south-east of the Site.
Cwm Cadlan	SAC	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caeruleae</i>) for which this is considered to be one of the best areas in the United Kingdom. Alkaline fens for which this is considered to be one of the best areas in the United Kingdom.	Approximately 9.5km from the site
Blaen Cynon	SAC	The SAC comprises four compartments. The site is designated for its population of marsh fritillary and is known to contribute towards supporting a metapopulation of the marsh fritillary in the Penderyn/Hirwaun area.	The closest compartment is approximately 9.2km from the site

Table 4: Nationally Designated sites within 2km of the site.

Site Name	Designation	Features	Approximate Distance and Orientation from Site
Gors Llwyn, Onllwyn	SSSI	This site contains a range of peat-depositing vegetation communities. Peat deposition has been sufficiently great in part of the site to form a dome shaped mass of peat above the general water table, known as a raised mire. There are very few other examples of this formation known in mid and south Wales. North-east of the complex of mires is an area of acidic pasture. Drier ridges divide up a series of wet flushes which support a range of wetland species e.g. whorled caraway (<i>Carum verticillatum</i>), meadow thistle (<i>Cirsium dissectum</i>) and sharp-flowered rush (<i>Juncus acutiflorus</i>). These plants form a clearly defined community of extremely limited distribution in Europe, occurring only along the southern Atlantic seaboard.	Approximately 100m north east of the site.
Nant Llech	SSSI	The Nant Lech, flowing off the Millstone Grit rocks and on to Coal Measure shales has carved a steep-sided valley of special interest on account of its rich variety of woodland and cliff plant communities. A range of woodland types has formed in response to variations in soil moisture content and soil chemistry. Bird life is rich and the uncommon soldier beetle (<i>Podabrus alpinus</i>) has been recorded from the wood.	approximately 980 m north of the site
Caeau Ton-y-Fildre	SSSI	The site comprises two unimproved herb-rich pastures on the north bank of Nant y Bryn. The western field supports a wide range of species characteristic of damp, flushed peaty pasture, including globeflower (<i>Trollius europaeus</i>), meadow thistle, whorled caraway and marsh arrowgrass (<i>Triglochin palustris</i>).	approximately 1.10 km east of the site

		Notable species in the eastern field include greater butterfly-orchid (<i>Platanthera chlorantha</i>), saw-wort (<i>Serratula tinctoria</i>), dyer's greenweed (<i>Genista tinctora</i>) and petty whin (<i>G. anglica</i>). Over 100 species of flowering plants and ferns having been recorded. The area also supports invertebrates, especially butterflies.	
Waun Ton-y-Spyddaden	SSSI	A series of small, unimproved, herb-rich hay meadows lying on a very gentle slope. The site demonstrates well the effects of traditional management on the moorland vegetation to be found on the better soils in this part of Wales. A vivid gradation in plant communities can be seen as the slope descends from north to south. At the top end is a typical moorland community of mat-grass (<i>Nardus stricta</i>), heath rush (<i>Juncus squarrosus</i>), deergrass (<i>Scirpus cespitosus</i>) and sheep's-fescue (<i>Festuca ovina</i>). This changes into grass heath communities of brown bent (<i>Agrostis canina</i>), red fescue (<i>Festuca rubra</i>), lousewort (<i>Pedicularis sylvatica</i>) and heath spotted-orchid (<i>Dactylorhiza maculata</i> spp. <i>ericetorum</i>), which in turn grade into purple moor- grass/sedge associations.	The designation is located 1.8 km north-east of the Site

Non-Statutory Designated Sites

- 6.1.1 There are eight non statutory designated sites within 2 km of the Site which were returned in the desk study from SEWBRcC. All of these sites are adopted Sites of Importance for Nature Conservation (SINC). These are listed in Table 5 below.

Table 5: Non-statutory Designated Sites within 2 km of the site.

Site Name	Designation	Approximate Distance and Orientation from Site
Gorsllwyn Meadows	SINC	Partially within the site boundary; occurs in the northern part of the Washery.
Onllwyn Coal Washery	SINC	Partially within the site boundary; occurs in the north eastern part of the Washery
Dyffryn Cellwen	SINC	Within the site; occurs in the south eastern part of the Washery.
Intervalley Road, Banwen	SINC	Immediately adjacent; south of the Washery.
Banwen Pond	SINC	500 m south of the Site.
Adjacent to Gorsllwyn	SINC	Immediately adjacent, north of the Washery.
Aberhenwaun Uchaf	SINC	600 m south.
Khartoum Tip	SINC	< 30m to the south west.

Species Records

- 6.1.2 Information provided by SWEBReC is detailed within the relevant protected / notable species sections below (Section 6.4). Unless otherwise indicated, only records from the last ten years have been included.

6.2 Habitat Survey

- 6.2.1 Within the Phase 1A there is a mosaic of habitats, including marshy grassland, species rich grassland (neutral and acid), heathland, ponds, ditches, scrub, plantation, semi-natural woodland. There are also buildings, existing railway sidings and hardstanding areas.
- 6.2.2 The habitats within the Phase 1A Site, including within the overlap area (with the Gorsllwyn Meadow SINC and Onllwyn coal washery SINC) are summarised in Table 6 below.

Table 6: Habitat Descriptions from the Extended Phase 1 Habitat survey visit on 22nd June 2022, within the Phase 1A Site

Habitat	Description
Other habitat - Bare ground, spoil (J5)	Bare ground and spoil occupied a large proportion of the Phase 1A site, particularly around the railway sidings, and coal conveyor structures. Hardstanding created driveways around the site. Areas of debris, with potential for reptile hibernacula, occurred between the railway sidings and the north of the site (Target Note 1).
Ephemeral / Short perennial vegetation (J1.3)	Around the bare ground / spoil heaps small areas had been colonised by ephemeral and short perennial vegetation, including abundant Colt's foot <i>Tussilago farfara</i> , mouse-ear hawkweed <i>Hieracium pilosella</i> , plantain <i>Plantago</i> spp, mosses, rye grass <i>Lolium perenne</i> , red fescue <i>Festuca rubra</i> , and wild strawberry <i>Fragaria vesca</i> .
Semi-improved acid grasslands (B1.2)	Semi-improved acid grassland occurs across the site. This includes more species rich areas such as those within the existing Onllwyn Coal Washery SINC, and the overlap area within the Gorsllwyn Meadow SINC; typical species included Sheeps fescue <i>Festuca ovina</i>, Glacous sedge <i>Carex flacca</i>, Cladonia spp, Field wood rush <i>Izula pratensis</i>, Common vetch <i>Vicia sativa</i>, Ox-eye daisy <i>Bellis perennis</i>, wavy hair-grass <i>Deschampsia flexuosa</i>, ragged robin <i>Silene flos-cuculi</i>, bird's foot trefoil <i>Lotus corniculatus</i> and Common knapweed <i>Centaurea nigra</i>. Bee orchid was also present. The sward is short and occurs in a mosaic with bare ground, also in places supporting short perennial vegetation such as Black medick (<i>Medicago lupulina</i>), mouse eared hawkweed (<i>Hieracium pilosella</i>) and plantains. In the western part of the site, surrounding the largest waterbody, the sward is much taller, and acid grassland occurs in a mosaic with marshy grassland (target note 2). Some indicator species of calimarianian grassland were also present in small areas, where it is likely there is a base rich substrate. Species comprised sheeps fescue and tufted hairgrass <i>Deschampsia cespitosa</i>, marsh bedstraw <i>Gallium aparine</i>, creeping cinquefoil <i>Potentilla reptans</i>, oxeye daisy, ragged robin, bird's foot trefoil, red campion <i>Silene dioica</i>, and common spotted orchid <i>Dactylorhiza fuchsii</i>. Other species present included common marsh bedstraw <i>Gallium palustre</i> and cow parsley <i>Anthriscus sylvestris</i>. Small areas of semi-improved acid grassland also occur around buildings and tracks. These appear to be less species rich but still support some of the species listed above including bee orchid.

Habitat	Description
Species poor Semi-improved grassland (B6)	A grazed sward with scattered scrub including hawthorn <i>Crataegus monogyna</i> , soft rush, creeping buttercup <i>Ranunculus repens</i> and common bent grass <i>Agrostis capillaris</i> was present along the northern boundary of the Phase 1A site.
Scrub (A2.1) and scattered scrub (A2.2)	Scrub was present alongside a ditch in the northern part of the Phase 1A site where it creates a boundary with the coal spoil. The species comprise a mix of young broadleaved trees birch <i>Betula</i> sp, elder, <i>Sambucus</i> sp, willow <i>Salix</i> spp, and sitka spruce <i>Picea sitchensis</i> (Target Note 4). Willow, downy birch and bramble <i>Rubus fruticosus</i> and tall herbs dominate in the western extent of the scrub (Target Note 5). Scattered scrub was located along railway sidings, around lagoon edges and within the wider lagoon habitat. Small stands of scrub, short perennial species and common spotted orchid are frequent are within earthbanks located adjacent to hardstanding areas on the southern extent of the Site. Target note 6.
Broadleaved woodland – semi-natural A1.1.1	Areas of woodland were present within the Onllywn Coal Washery SINC, and also to the northwest corner of the Phase 1A site.
Coniferous Woodland – plantation A1.3.2	A small coniferous woodland was present, creating a border adjacent to the most westerly lagoon to the northwest of the phase 1A site. Scrub grades from the lagoon into this area of woodland. There is also a small area of coniferous woodland within the Gorsllwyn Meadow SINC overlap area.
Mixed woodland – semi-natural A1.3.1	A small area of mixed woodland was present with frequent with hazel <i>Corylus avellana</i> , larch <i>Larix</i> sp., willow, silver birch <i>Betula pendula</i> , rowan <i>Sorbus acuparia</i> and spruce <i>Picea</i> sp (Target Note 7). It was located between the marshy grasslands of the railway sidings area to the south of the Phase 1A site and mounds of coal spoils within the centre of the site. In this area scrub grades into the margins beyond a damp ditch dominated by bulrush <i>Scirpoides holoschoenus</i> and tall herbs including ragged robin.
Standing Water G1	A small pond, with emergent bulrush and marginal soft rush which drains to a scrub fringed culvert was present adjacent to the ditch within the northern part of the Phase 1A site (Target Note 8). Ten lagoons and settling ponds are present within the Phase 1A Site, located within three distinct areas. The largest and western-most lagoon is bordered by dense scattered scrub including European gorse <i>Ulex europaeus</i> , dogwood <i>Cornus sanguinea</i> , willow and self-seeded birch trees and ruderal vegetation between areas of marshy and neutral grassland. In this area recent dredging had removed most marginal vegetation from this lagoon

Habitat	Description
	(Target Note 9). A group of five lagoons, adjacent to the large lagoon, are less vegetated, set in bare ground and spoil with marginal scrub fringes more developed on some lagoons than others, and in some lagoons emergent rushes <i>Typha latifolia</i> are present Target Note 10. In one lagoon, evening primrose <i>Oenothera biennis</i> was present. A further four lagoons are set in bare ground and spoil and located within the centre of the Site. Some were dried out and site wide, there was little marginal or aquatic vegetation present (Target Note 11).
Buildings J3.6	Numerous structures were located within the Phase 1A site including a tall metal coal conveyor located to the central area of the Phase 1A site. Large open storage buildings were present to the east of the site (Target Note 12). Small adhoc temporary welfare / office units were located within the railway sidings area.
Ditches Dry ditch J2.6	A ditch formed the northern boundary of the Phase 1A site. It is approximately 2-3 m wide and 1 m deep with steep banks. Small amounts of greater tussock sedge <i>Carex paniculata</i> are present Target Note 13. A damp ditch adjacent to a mixed woodland to the south of the railway sidings is present with shallow banks of >1m (Target Note 14).

6.3 Comparison of existing habitats to those recorded between 2018-2019

- 6.3.1 The previous Extended Phase 1 Habitat survey was mapped at a larger scale and therefore lacks the level of detail provided within the current Phase 1 habitat map particularly areas of grassland around the sidings in the northern part of the Phase 1A site; furthermore, some habitats appear not to have been mapped such as settling pools within the centre of the Phase 1A site, and woodland/scrub within the Onllwyn Coal Washery SINC and Gorsllwyn Meadow SINC. It is assumed that this was due to mapping errors rather than these habitats not being present at the time since they are shown on historical aerial imagery (google earth).
- 6.3.2 Where habitats have been mapped to some detail it is possible to determine changes from the previous baseline. The key change appears to be in the northern part of the Phase 1A site around the sidings. The northern track has been removed, and therefore ground has been disturbed here. Where grassland has been disturbed this has created areas of open ground / colliery spoil which have since established with short perennial vegetation.

- 6.3.3 Additionally, the habitat south of the railway track which was formerly grassland has reduced in area due to succession from scrub species.
- 6.3.4 Management (likely recent dredging) was evident to the larger, most westerly lagoon which lacked aquatic vegetation.

6.4 Habitat Evaluation

- 6.4.1 The areas of semi-improved acid grassland, marshy grassland and potentially ponds (subject to further plant surveys to confirm botanical interest) are considered to qualify as Section 7 habitats in accordance with the UK BAP habitat descriptions¹⁶. Additionally, the combination of habitats including grassland, open water, scrub, woodland and short perennial vegetation is considered to qualify as the Section 7 habitat 'Open mosaic habitats on previously developed land'. Key areas of Section 7 open mosaic habitats exist in the western, northern and eastern peripheries of the site as shown in the plan in Appendix H. this plan also details known records of Section 7 species which have been previously recorded within the Site, and are discussed below.

6.5 Protected and Notable Species Survey

Plants and fungi

- 6.5.1 The data record search returned a large number of records for plants and fungi within the 2 km search area. These included species which are contained within in the Section 7, WCA, UKBAP and Red Lists.
- 6.5.2 In particular records included spiked water-milfoil *Myriophyllum spicatum*, bluebell *Hyacinthoides non-scripta* (WCA species), eyebright *Euphrasia arctica ssp borealis*, Parrot, Waxcap *Gliohorus psittacinus* and Persistent Waxcap *Hygrocybe autoconica* var, *autoconica*.
- 6.5.3 Baseline habitat survey work undertaken for the Nant Helen and GCRE ES¹² identified floating bur-reed *Sparganium angustifolium* in deep pools within the wider GCRE site. It has not to date been found in the Phase 1A Site but could occur locally where habitat is suitable.
- 6.5.4 During the 2019 NVC survey a number of plant species were recorded within two quadrats (Q97 and Q102)¹. These included the notable species brookweed *Samolus valerandi*. These species are listed as being scarce in the Wildlife Sites Guidelines¹⁷ as well as others indicative of acid and marshy grassland and heathland. Other species includes common birds

¹⁶ <https://data.jncc.gov.uk/data/2728792c-c8c6-4b8c-9ccd-a908cb0f1432/UKBAP-PriorityHabitatDescriptions-Rev-2011.pdf>

¹⁷ Wildlife Sites Guidance Wales (Wales Biodiversity Partnership, 2008) - A Guide to Develop Local Wildlife Sites System in Wales

foot trefoil *Lotus corniculatus*, glaucous sedge *Carex flacca*, common dog violet *Viola riviniana*, marsh bedstraw, eyebright, tufted hair grass, crossed leaved heath *Erica tetralix* and field wood rush *Luzula campestris*.

- 6.5.5 Botanical survey work undertaken in early 2022 **Error! Bookmark not defined.** over the northern part of the Phase 1A site (which overlaps with the Gorsllwyn meadow SINC) identified brookweed within inundated areas of a disused siding, occasional greater tussock sedge along a ditch, and alternate water-milfoil in a small pond, all located at the northern boundary of the Phase 1A Site. These species are listed as being scarce in the Wildlife Sites Guidelines¹⁷ and the population of brookweed is contributory to the overall interest of the Gorsllwyn Meadows SINC.
- 6.5.6 Other species that are recorded, during previous baseline surveys, in similar habitats in the Washery but have not been recorded to date in the Phase 1A site include brown sedge *Carex disticha*, viviparous fescue, bee orchid *Ophrys apifera*, small cudweed *Filago minima* and eyebright *Euphrasia arctica ssp borealis*.
- 6.5.7 The Phase 1A Site was not included in the scope of targeted fungi survey. However, survey of adjacent areas immediately west of the Site within the Onllwyn Coal Washery SINC identified a diversity of fungi of County value, including 17 waxcap species and species from the *Camarophylloopsis* genus, *Dermoloma* genus (*D. cuneifolium*) and *Entoloma* genus (*E. sericellum*).
- 6.5.8 Due to the habitats within the Phase 1A area, not having changed significantly between 2019 and 2022, it is likely that a similar plant and fungi assemblage is present. Additionally, other species may be present within the site, in areas which were not previously subject to detailed botanical surveys. Therefore, the risk of notable plants and fungi being present within the Phase 1A site is considered to be **high**, excluding areas which are frequently disturbed by site operations.

Bats

- 6.5.9 The data search returned a number of records for bats within the search area, including brown long-eared bat *Plecotus auratus*, common pipistrelle *Pipistrellus pipistrellus*, noctule *Nyctalus noctule* and Daubenton's bat *Myotis daubentonii*.
- 6.5.10 Six buildings are located within the Phase 1A Site, of which previous assessments¹ reported five were assessed as having 'negligible' suitability to support roosting bats, and one as having a 'low' suitability. Further emergence and re-entry surveys in 2019 found no bats or evidence of bats using the buildings / structures located in the Phase 1A site. No trees

within the Phase 1A Site were considered to be suitable to support roosting bats.

- 6.5.11 Seven bat species were recorded commuting / foraging within the wider GCRE site, including common pipistrelle, soprano pipistrelle *Pipistrellus pygmaeus*, Nathusius' pipistrelle *Pipistrellus nathusii*, brown long-eared bat, noctule, serotine *Eptesicus serotinus*, and Leisler's bat *Nyctalus leisleri*.
- 6.5.12 During the current PEA, buildings and structures within the Site were not subject to a detailed inspection for potential roosting features or signs of bats; although some of the buildings such as the coal conveyor and building / shed adjacent to the lagoons were noted to support potential entry / exit points into building cavities.
- 6.5.13 During the PEA, all trees within the Phase 1A site were inspected to determine their suitability to support bat roosts. None of the trees were suitable; however, and the potential for roosting bats in trees is considered to be **negligible**.
- 6.5.14 Habitats around the Phase 1A site including mosaic of grassland, scrub, woodland and wetland are considered suitable for foraging bats. Additionally, some features on the site are likely to offer corridors for commuting such as lines of scrub and trees.
- 6.5.15 The risk of bats using the Phase 1A site for foraging is considered to be **moderate** and the risk of bats using the Site for roosting is considered to be **low**.

Invertebrates

- 6.5.1 The data search returned a large number of records for invertebrates within the 2km search area. These included species which are included in the Section 7, WCA, UKBAP and Red Lists such as; small heath *Coenonympha pamphilus*, common darter *Sympetrum striolatum*, small pearl-bordered fritillary *Boloria selene*, small heath *Coenonympha pamphilus*, and marsh fritillary *Euphydryas aurinia*.
- 6.5.2 Previous baseline surveys in 2019¹ recorded a total of 593 invertebrate species across the wider GCRE site, although the Phase 1A Site was not included in the survey area. Adjacent areas of similar habitat (described as very heavily grazed marshy and acid-neutral grassland and poor fen with shallow runnels) supported species that included scarce blue-tailed damselfly *Ischnura pumilio* and banded general soldier fly *Stratiomys potamida*.
- 6.5.3 Purple moor-grass and rush pasture habitats are present within and adjacent to the Phase 1A Site, but devil's bit scabious *Succisa pratensis*

(the food plant of the marsh fritillary butterfly *Euphydryas aurinia*) was not recorded in surveyed areas during the recent botanical survey¹.

- 6.5.4 The recent botanical survey undertaken in 2022 recorded ruby tiger moth *Phragmatobia fuliginosa* in an area of bare ground within the northern section of the Phase 1A Site. The ponds and ditches provide suitable habitat for dragonflies and other freshwater invertebrates, and grassland habitats likely to support a range of terrestrial invertebrates.
- 6.5.5 The risk of invertebrates including notable species using the Phase 1A site is **moderate**. The risk of Marsh fritillary within the site is considered to be **negligible**.

Amphibians

- 6.5.6 There was one record returned for palmate newt *Lissotriton helveticus*, 1.4 km to the southeast of the Site, but no records for amphibians returned within the Phase 1A site.
- 6.5.7 The waterbodies within the Phase 1A Site were assessed in 2019 as being poor suitability to support Great Crested Newt (GCN) *Triturus cristatus* following a Habitat Suitability Index assessment¹. eDNA survey of ponds within the wider GCRE site did not record evidence of great crested newt presence.
- 6.5.8 The updated HSI found similar results, with no scores above 0.5 being recorded (Appendix F). Therefore, all ponds were assessed as having poor suitability to support GCN. Since there are no new records of the GCN in the local area and habitats recorded were very similar to those recorded previously, the risk of GCN using the site is considered to be low. However, to comply with best practice, a precautionary approach to vegetation clearance is to be adopted
- 6.5.9 The woodland and scrub within the Phase 1A Site provide suitable wetland and terrestrial habitat for other common amphibian species such as common frog *Rana temporaria* and common toad *Bufo bufo* (a Section 7 species), and it is considered that the risk of common amphibians using the site is **moderate**.

Reptiles

- 6.5.10 There were no records returned for reptiles within the Site.
- 6.5.11 Reptile surveys undertaken in 2019 across the GCRE site¹ recorded a peak count of 17 common lizard *Zootoca vivipara* and 2 slow worms *Anguis fragilis*.

- 6.5.12 The mosaics of scrub and tussocky grassland habitats on the Phase 1A Site provide suitable foraging habitat for common reptiles; adder *Vipera berus*, common lizard, grass snake *Natrix natrix* and slow worm.
- 6.5.13 The earth mounds and linear features including roads, railway sidings and areas of debris piles adjacent to railway sidings (Appendix D Target Notes 1 and 3) provide suitable basking habitat for reptiles.
- 6.5.14 The risk of reptiles using the Phase 1A site is considered to be **moderate**.

Fish

- 6.5.15 There were records returned for brown sea trout *Salmo trutta*, rainbow trout *Oncorhynchus mykiss*, Atlantic salmon *Salmo salar* and European eel *Anguilla Anguilla* between 1.6 km and 1.9km from the Site.
- 6.5.16 There are no watercourses/waterbodies suitable for these species with the site. The waterbodies within the site supported standing water; although these were superficially suitable for eels it is considered that barriers to migration from downstream watercourses (i.e. The Afon Dulais) would be significant to stop eels from accessing the Phase 1A site. The risk of fish using the site is **negligible**.

Breeding Birds

- 6.5.17 Records were returned for numerous species of breeding birds including Schedule 1 species within 2km of the Site such as; barn owl *tyto alba*, hen harrier *Circus cyaneus*, merlin *Falco columbarius* and spotted crake *Porzana porzana*. There is an old record from 2015 for nesting barn owl within the washery building on the Site.
- 6.5.18 Previous surveys undertaken during 2019¹ also recorded numerous bird species present within the Site including the Section 7 species: lapwing *Vanellus vanellus*, curlew *Numenius arquata*, cuckoo *Cuculus canorus*, skylark *Alauda arvensis*, starling *Sturnus vulgaris*, song thrush *Turdus philomelos*, tree pipit *Anthus trivialis*, bullfinch *Pyrrhula pyrrhula*, linnet *Linaria cannabina*, lesser redpoll *Acanthis cabaret*, yellowhammer *Emberiza citrinella*, and reedbunting *Emberiza schoeniclus*.
- 6.5.19 One species (Common Crossbill *Loxia curvirostra*) that is included on Schedule 1 of the Wildlife and Country 1981 (as amended) bred within the wider GCRE site.
- 6.5.20 During the survey skylark (a Section 7 species), chiffchaff *Phylloscopus collybita*, willow warbler *Phylloscopus trochilus*, and mistle thrush *Turdus sp.*, were heard singing. A heron *Ardea cinerea*, flew across the north of the site in an east to west direction. A family of mallards *Anas*

platyrhynchos was present on the drain located within the westerly located lagoons area.

- 6.5.21 The woodland, scrub, grassland and buildings within the Phase 1A site offer potential for nesting birds. The scrub and woodland offer potential foraging and nesting opportunities particularly for passerine species including Section 7 species. Open grassland offers potential for ground nesting species such as skylark. There is potential for barn owl (Schedule 1 species) within unused Washery buildings, although none have been recorded previously.
- 6.5.22 The potential risk for nesting birds to use the site is considered **high**.

Wintering birds

- 6.5.23 Records were returned for numerous species of birds including Schedule 1 species within 2km of the Site. Species such as; buzzard *buteo buteo*, brambling *Fringilla montifringilla*, field fare *Turdus pilaris*, red kite *Milvus milvus*, redwing *Turdus iliacus*, starling *Sturnus vulgaris*, house sparrow *Passer domesticus* (a Section 7 species) and mistle thrush *Turdus sp.*, were returned.
- 6.5.24 Previous surveys undertaken during 2019¹ did not record any birds wintering within the Phase 1A site; although a number of species were recorded within the washery including any starling, a Section 7 species.
- 6.5.25 The woodland, scrub, grassland and within the Site offer potential for foraging common passerine birds including meadow pipit and song thrush *Turdus philomelos*.
- 6.5.26 The potential risk for wintering birds to use the site is considered **moderate**.

Badger (*Meles meles*)

- 6.5.27 There have been no records returned for badger within the Phase 1A site.
- 6.5.28 No conclusive evidence of badger was recorded during previous baseline survey work, but several mammal tracks were identified that may indicate the presence of badger in the wider area¹. A badger hair was found on a barbed-wire fence forming the northern boundary of the Phase 1A site in early 2022 during the botanical survey⁴.
- 6.5.29 No signs of badger were evident within the Phase 1A site during the recent survey although potential habitat for foraging badger was recorded.
- 6.5.30 The risk of the Phase 1A site supporting badger is deemed to be **low**, although the occasional presence of foraging / commuting badger cannot be ruled out.

Arboreal mammals including Hazel dormouse (*Muscardinus avellanarius*)

- 6.5.31 There have been no records returned for arboreal mammals such as polecat *Mustela putorius* or dormouse.
- 6.5.32 The Phase 1A site does not contain suitable habitat for arboreal mammals (such as pine martin *Martes martes*, polecat, red squirrel *Sciurus vulgaris* or dormouse)¹. Survey work using camera traps recorded polecat in 2019 in an area of woodland north of Nant Helen (approximately 3.6 km north-west of the Phase1A Site). The risk of the presence of arboreal mammals within the Phase 1A site is deemed to be **low**.
- 6.5.33 Surveys undertaken for dormouse during 2019¹ did not record the presence of this species. However, there is suitable habitat for dormice on the Site in the form of broadleaved woodland, scrub and hedgerows; which are relatively well connected to other suitable woodland and scrub habitats in the wider area. Due to the absence of records from previous surveys, and lack of new records in the local area, the risk of the presence of dormouse within the Phase 1A site is deemed to be **negligible**.

Otter (*Lutra lutra*) and water vole (*Arvicola amphibius*)

- 6.5.34 There have been no records returned for otter within the Phase 1A site.
- 6.5.35 Detailed inspections for otter or water vole were not undertaken as part the recent site visit, however the suitability of habitats for these species was assessed. The series of lagoons to the west of the Phase 1A site are too disturbed to be suitable for water vole, however the ditch / pool located to the north of the Site could offer potential suitability. The ditch along the northern part of the site could also offer some foraging / commuting habitats for otter although the adjacent scrub / woodland were considered too open and disturbed to support any otter resting or breeding places.
- 6.5.36 Previous baseline surveys undertaken in 2019¹ concluded that the ditch along the northern boundary of the Phase 1A Site was considered suitable to support water vole and otter; although no evidence of either species was recorded.
- 6.5.37 Signs of otter presence (spraint) were confirmed within a watercourse located approximately 2.3 km south-west of the Phase 1A boundary. No potential holts or natal dens were identified within the wider GCRE site. Additionally, no signs of water vole were recorded within the wider GCRE site.

6.5.38 The risk of foraging otters within the site is considered to be **moderate** and the risk of breeding/resting otter within the site is considered to be **low**.

6.5.39 The risk of water vole being present on site is considered to be **low**.

Other Notable Mammals

6.5.40 There have been no records returned for notable species such as brown hare *Lepus europeus*, or west European hedgehog *Erinaceus europaeus* (both Section 7 species), within the Site. However, the woodland scrub and grassland provide potential habitat for the west European hedgehog. The risk of this species being present within the Phase 1A site is considered to be **moderate**.

INNS

6.5.41 There are records returned for INNS within 2 km of the Site and previous surveys recorded Japanese knotweed *Reynoutria japonica*, montbretia *Crocsmia* sp and cotoneaster sp within the Site.

6.5.42 Previous surveys recorded Japanese knotweed, as well as within the Phase 1A site, as well as other locations within the wider GCRE site. Additionally, Montbretia and cotoneasters species were recorded within the wider GCRE site.

6.5.43 The disturbed nature of the Site offers potential habitat for INNS species and the risk of INNS being present within the site is considered to be **moderate**.

7 Ecological Constraints, Opportunities & Recommendations

7.1 Designated Sites

- 7.1.1 The boundary of Phase 1A partially overlaps the Gorsllwyn Meadows SINC on its northern aspect by an area of approximately 0.6ha. The SINC is designated for supporting purple moor grass and rush pasture habitat (two Section 7 habitats of principle importance for biodiversity in Wales) and contains at least 50 species as indicators of this habitat. The area of habitat contained within the Phase 1A site includes mosaic of marshy grassland, semi-improved acid grassland, open mosaic habitat, scrub and mixed scrub woodland, ponds and ditches. Section 7 habitats are shown in Appendix H.
- 7.1.2 Loss of the southern margin of the SINC to the GCRE project represents a loss of habitat with value for nature conservation. Where avoidance is not an option mitigation should therefore be provided by habitat creation within the GCRE project area, or potentially by enhancement of the habitats within the SINC. It is acknowledged that mitigation / compensation is already agreed for habitat loss accounted for within the ES², which includes the provision of biodiversity net gain; including the enhancement of the remaining areas of Gorsllwyn Meadow SINC; this agreed habitat mitigation / compensation and enhancement will go some way towards accounting for the additional habitat loss within the Gorswllyn SINC; although consideration could be given to the recommendations provided below which would ensure the Gorswllyn SINC and its features are retained and enhanced in the long term:
- Cutting a new boundary ditch and pond at the proposed edge of the GCRE Phase 1A, and the potential for translocating notable plant species i.e. brookweed and alternative water-milfoil, into these waterbodies prior to any site clearance. The new ditch could be designed to be better for aquatic plants than the current one (e.g. deeper and wider, but with a more gently sloping margin), and with the excavated material formed into a south-facing bund to replicate the current one).
 - New wetland habitat features such as ponds could be considered within any parts of the SINC that are currently of low biodiversity value
 - Excavated material could be used to form dry, sunny banks for insects and reptiles.
 - Create new 'open mosaic habitat' on parts of the washery around the new sidings to compensate for the loss of the SINC area. The new

habitat should be at least as large as that being lost and include a similar mix of base-rich substrata, with flower-rich grassland, wetland and scrub features of at least equivalent nature conservation value.

- 7.1.3 Habitat management is also recommended further north within the SINC, where the habitats will be retained but where scrub encroachment appears to be gradually reducing the value of the bog habitats. Habitat management will include carrying out scrub clearance from selected areas and instigating a grazing management regime that would ensure that the habitat quality is maintained or increased in the long term. It is acknowledged that similar management has been proposed as part of the agreed mitigation / compensation strategy for the GCRE scheme as detailed within the **ESError! Bookmark not defined.**

- 7.1.4 Onllwyn Coal Washery SINC is also within the Phase 1A boundary on the northeast aspect by an area of approximately 1.1ha. This SINC comprises semi-improved grassland and open mosaic habitats on previously developed land (two Section 7 habitats of principle importance for biodiversity in Wales), largely made-up of a raised area of reclaimed cool tip. The site supports over 82 plant species typically associated with Open Mosaic Coal Tip Habitats.

- 7.1.5 As detailed within the **ESError! Bookmark not defined.**, compensation for the loss of habitats within the Onllwyn Coal Washery SINC will be compensated for through the management and enhancement of the adjacent retained SINC; as well as the potential creation of acid grassland areas around the newly designed sidings in the Washery which includes the Phase 1A site.

- 7.1.6 There is also the potential for disturbance to SINC habitats which are adjacent, immediately to the north and east of the Phase 1A site. Wetland habitats namely within the Gorsllwyn Meadows SINC would be particularly sensitive to changes in ground and surface water quality / quantity for example as a result of disturbance during construction or increased surface run-off during operation. As detailed within the **ESError! Bookmark not defined.**, surface water management will be provided by SuDS design and pollution control provided during construction in accordance with the outline Construction and Environmental Management Plan (CEMP).

- 7.1.7 Care will need to be taken to ensure that any areas used for the temporary storage of surplus fill material avoids impacts to the Gorsllwyn Meadow SINC and Onllwyn Coal Washery SINC, and where possible surplus fill

material is located away from the SINC boundaries or areas where it is proposed to create new habitats as compensation.

- 7.1.8 Gorswllyn SSSI and Nant Llech SSSI are located approximately 40 m to the east and 980 m to the north of the Site respectively.
- 7.1.9 There is a low risk that construction and operational activities would degrade these habitats; however best practice air and water quality pollution control measures will be included within the CEMP.
- 7.1.10 The above mitigation measures to reduce and offset impacts to the SINC and SSSIs are set out in the accompanying GCRE ES² and SINC technical note⁴**Error! Bookmark not defined.**
- 7.1.11 New habitat creation and enhancements for Phase 1A will be detailed within a separate phase specific Biodiversity Plan. This will include landscaping plans and description of habitats to be created / enhanced together with calculations of habitat loss and gain to demonstrate that sufficient compensation and enhancements are being achieved for the Phase 1A works. Additionally, management of newly created and or enhanced habitats will be set out in a separate ecological management and monitoring plan, which will detail long term management and maintenance, together with monitoring requirements.
- 7.1.12 Phase 1A works are not anticipated to adversely affect any European Sites (i.e. the National Site Network). The Habitat Regulation Assessment (HRA) produced to accompany the GCRE ES², concludes that there would be no likely significant effect on any European Sites within the Zone of Influence of the GCRE project, including Coedydd Nedd a Mellt SAC (at 2.9 km), Cwm Cadlan SAC (at 9.5 km) and Blaen Cynon SAC (at 9.2 km). The HRA concludes that there would be no effect from changes in air or water quality on qualifying habitats of Coedydd Nedd a Mellt SAC and Cwm Cadlan SAC, both designated for their qualifying habitats, due to their distances from the project site; and also, for Cwm Cadlan SAC due to a lack of hydrological connectivity. Additionally, effects on the Blaen Cynon SAC, designated for its populations of marsh fritillary, were considered; the designated site is located at some distance (9.2km) from the project site, therefore no effects from changes in air or water quality were anticipated, and furthermore, devil's bit scabious (the foodplant of marsh fritillary) was very sparsely distributed within the site and no marsh fritillary were recorded during invertebrate surveys. Therefore, the proposed works were not anticipated to have any impact on the Blaen Cynon SAC and its marsh fritillary populations. Recent surveys have not recorded any devils bit

scabious, indicating that marsh fritillary populations do still not occur within the Phase 1A site and impacts to the Blaen Cynon SAC are still considered very unlikely.

7.2 Habitats

- 7.2.1 As reported, a variety of habitats are present on site, of which most are relatively common and a large proportion of the Phase 1A site comprises bare ground, buildings and hardstanding. A range of semi natural habitats, particularly those which form the neutral, marshy and acid grasslands and the overlapping area with the adjacent SINC to the north and east of the Phase 1A site of are considered to have value for nature conservation as discussed above in Section 4.
- 7.2.2 The proposed works will result in the loss of habitats within the Phase 1A site, including habitats of value such as the open mosaic habitats within the site, species rich grassland and waterbodies. Landscaping will need to provide new habitats within the Phase 1A site or adjacent areas within the wider GCRE site, similar to those to be lost; and, which are managed in the long term to enhance their biodiversity value. As set out in the ES², the landscaping will also include SuDS which will provide biodiversity value, as well as drainage and other functions.
- 7.2.3 Additionally, to protect indirect impacts on habitats, the implementation of standard air and water quality pollution control measures during site clearance, construction and operation will need to be included within the CEMP.
- 7.2.4 The above mitigation measures are set out in the accompanying GCRE ES² and SINC technical note⁴**Error! Bookmark not defined..**
- 7.2.5 New habitat creation and enhancements will be detailed within a separate phase specific biodiversity plan. This will include landscaping plans and description of habitats to be created / enhanced together with calculations of habitat loss and gain to demonstrate that sufficient compensation and enhancements are being achieved for the Phase 1A works. Additionally, management of newly created and or enhanced habitats will be set out in a separate ecological management and monitoring plan, which will detail long term management and maintenance, together with monitoring requirements.

7.3 Protected and Notable Species

Plants and Fungi

- 7.3.1 There is the potential to adversely affect local populations of plant species through the removal of species rich grassland, open mosaic habitat and wetland habitats within the Phase 1A site. The species recorded, to date, within the Phase 1A site, which require protection are: alternative water-milfoil and greater tussock sedge. Floating bur-reed may also be present in the lagoons as this has been recorded elsewhere on site. Other species that are present in similar habitats in the Washery but have not been recorded to date in the Phase 1A area include brown sedge, viviparous fescue, bee orchid common cudweed and eyebright. Some plant species translocations are likely to be required, for notable/rare species. These will be relocated to retained, adjacent habitats and relocated prior to site clearance. Any proposed notable plant species translocations will be subject to their location, abundance within the site and adjacent habitats and whether translocation is likely to be successful. Details will be provided within a separate Ecological Protection Plan (EPP).
- 7.3.2 A further, up to date, survey will be required to confirm the presence of other notable species within the Phase 1A site and inform any translocation / habitat creation strategies which will be detailed within a separate EPP. This will need to be undertaken at a suitable time of year (May to August).
- 7.3.3 Fungi surveys in September 2019 recorded waxcap fungi *Hygrocybe Spp*, earth tongues *Geoglossaceae*, and fairy clubs *Glavariaceae*. Although a specific survey of the Phase 1A area has not been undertaken it is considered likely that open mosaic habitats and grassland will provide good habitat for fungi and therefore mitigation should be provided for the loss of these habitats.
- 7.3.4 The re-use of suitable materials from the coal spoil within the Phase 1A site where fungi communities already exist will provide a suitable substrate for the re-establishment of diverse fungi assemblages at other locations within the newly designed Phase 1A site. However, re-establishment may take up to 20 / 30 years.
- 7.3.5 Updated surveys are not considered necessary since due to the time period fungi take to establish, the previous baseline recorded is not considered likely to have changed significantly. Furthermore, specific translocations are not proposed as part of the mitigation strategy but rather habitat creation which also account for the potential value of habitats within the Phase 1A site.

Bats

- 7.3.6 Previous surveys have not recorded any bat roosts within buildings or trees within the site although some had suitability for roosting bats. In the event any bats were to roost in any buildings / trees which are being cleared as part of the development, this would result in the loss of the roost and potential injury or mortality of roosting bats. The construction and operations on site may also result in disturbances to any roosting bats, should they be present.
- 7.3.7 An updated inspection of buildings and structures within the Phase 1A site should be undertaken to confirm their suitability for roosting bats. Structures and buildings assessed as having high suitability for roosting bats would require three further emergence and or re-entry surveys and where they are assessed as having moderate suitability for roosting bats they would require two further emergence and or re-entry surveys. Where buildings / structures are assessed as having low suitability for roosting bats, one emergence or re-entry survey would be required.
- 7.3.8 If bat roosts are identified and impacts are anticipated to these roosts, then a licence from Natural Resources Wales will be required, along with the implementation of mitigation detailed within the accompanying method statement
- 7.3.9 Lighting impacts to foraging / commuting bats should be minimised by implementing sensitive lighting as detailed below:
- Minimising of any light spillage from task lighting to 0.5 lux at most at the location of sensitive habitats;
 - Site boundaries, including woodland boundaries should not be illuminated so that dark flight corridors for bats are retained;
 - Column height should be as low as possible to avoid unnecessary lighting spill; and
 - Accessories such as baffles, hoods and louvres should be used where appropriate (e.g. adjacent to sensitive habitats) to further reduce any light spill to where it is needed.
- 7.3.10 New landscaping will aim to provide a mosaic of habitats which are suitable for foraging bats, including linear features which can be used as flight lines by commuting bats.
- 7.3.11 A range of bat boxes will be installed on new buildings / retained mature trees within the Phase 1A site, or trees in adjacent habitats.

Reptiles

- 7.3.12 The mosaics of scrub and tussocky grassland habitats within the Phase 1A site provide suitable foraging / hibernating habitat for common reptiles and the open mosaic habitats provide good basking habitats. Previous studies on an adjacent site have recorded reptile populations.
- 7.3.13 To avoid any harm to reptiles during site clearance a trapping and relocation programme will be implemented for the Phase 1A site. Details should be provided within a separate Reptile Mitigation Strategy which details sensitive vegetation clearance, fencing locations, trapping and relocation methods, and enhancements required to the selected receptor areas. The trapping and relocation of reptiles will be undertaken by Suitably Qualified Ecologist (SQE).
- 7.3.14 Vegetation clearance of suitable reptile habitats should take place during the reptile active season (April to October, inclusive).
- 7.3.15 To inform the Reptile Mitigation Strategy updated presence / absence surveys within the Phase 1A site and proposed receptor site are required to confirm the presence of reptiles and provide an indication of population size. Additionally, a habitat suitability assessment of the receptor sites / should be undertaken at the same time, to inform habitat enhancements proposals for reptiles.
- 7.3.16 The selected reptile receptor site will need to be subject to enhancements prior to any site clearance. New landscaping will need to provide a mosaic of connecting wetland, grassland and scrub habitats including basking areas for reptiles.

Amphibians

- 7.3.17 GCN are considered unlikely to be present within the Phase 2A site or wider GCRE site, although the absence of GCN cannot be confirmed further survey, based on the likely low risk of presence, it is considered appropriate to implement precautionary measures during site clearance. Should GCN be found, the clearance works will stop until further advice has been sought from NRW and if necessary a Licence to continue may be required from NRW before the clearance works can proceed.
- 7.3.18 There is however the potential for common amphibians within wetland and grassland habitats in the Phase 2A site. Common amphibians including common toad, a section 7 species, could be injured as part of the site clearance and construction activities. Common amphibians will also be relocated to the chosen receptor site for Phase 2A as part of the reptile

trapping and relocation programme, and carefully removed and relocated from any waterbodies whilst they are being drained.

Breeding birds and Wintering birds

- 7.3.19 There are potential nesting opportunities within the scrub, woodland and grassland for nesting birds. There is the potential for injury / mortality to nesting birds during site clearance and construction activities.
- 7.3.20 Any vegetation clearance within these areas should be undertaken outside the bird nesting season (March – August inclusive). If this is not possible, areas requiring clearance will require a nesting bird check by an SQE. If any nests are located, then work must stop until the SQE has agreed an appropriate buffer zone relative to the requirement of the species.
- 7.3.21 Buildings within the Washery may also support nesting birds including potentially barn owl which is a Schedule 1 species.
- 7.3.22 To confirm areas which support breeding birds, an updated survey should be undertaken in suitable habitats in the Phase 1A site. Additionally, a preconstruction check will be undertaken to confirm the presence of barn owl within buildings in the site.
- 7.3.23 As agreed in the GCRE ES², new barn owl boxes will be installed >3km from the site, and ten house sparrow boxes will be installed within the Washery in suitable locations, prior to any construction.
- 7.3.24 As an enhancement for local populations of breeding passerine birds, a number of bird boxes will be provided in new buildings / retained mature trees within or adjacent to the Phase 1A site.
- 7.3.25 New landscaping will aim to create nesting opportunities and provide suitable overwintering habitat for local bird populations within the site.

Badger

- 7.3.26 There is mixed-woodland habitat and grassland which provides suitable foraging habitat for badger and mammal pathways have been recorded within the Phase 1A site. Previous surveys for badger recorded no signs of badger setts within Phase 1A. However, badger is a mobile species and further surveys will be required prior to commencement of works.
- 7.3.27 Best practice will be followed during construction and where it is not possible to cover open excavations at night time, a suitable ramp will be

installed which will allow any trapped animals to escape. Additionally, lighting will avoid direct illumination of potential badger habitat.

Otter and water vole

- 7.3.28 There are waterbodies and connecting terrestrial habitats within the Phase 1A site, which may provide commuting / foraging habitat for otter. The ditch and connecting pond, along the northern boundary of the site, as well as ponds to the west of the site also have potential to support water vole.
- 7.3.29 Previous surveys for otter and water vole have not recorded these species, however they are mobile species and further surveys will be required prior to commencement of works to confirm presence / absence.
- 7.3.30 If any otter resting or breeding places are identified (which is considered to be a low risk) and impacts are anticipated, then a licence from Natural Resources Wales will be required, along with the implementation of mitigation detailed within the accompanying method statement.
- 7.3.31 Best practice will be followed during construction and where it is not possible to cover open excavations at night time, a suitable ramp will be installed which will allow any trapped animals to escape. Additionally, lighting will avoid direct illumination of potential otter habitat.

Other notable species including arboreal mammals

- 7.3.32 The woodland scrub and grassland provide potential habitat for the hedgehog which are listed as a Section 7 species. This species could be injured during any site clearance or construction activities.
- 7.3.33 Clearance of suitable habitat should be avoided in the hibernation period (November to March). Where this is not possible, clearance should be supervised by an SQE.
- 7.3.34 The presence of dormouse is considered unlikely and therefore updated surveys for this species are not considered to be necessary.

INNS

- 7.3.35 The Schedule 9 species, Japanese knotweed, montbretia and cotoneaster species, were identified during previous surveys within the GCRE site. Japanese knotweed was recorded within the Phase 1A site. It is possible new INNS species may now be present within the Phase 1A site, as they can quickly spread into adjacent connecting habitats. There is the potential for

these species to be spread from the site during site clearance and construction activities.

- 7.3.36 General good practise with regards to INNS will be employed during construction including the cleaning of all equipment and footwear with a suitable disinfectant before entering the site. In addition, all equipment and footwear will be thoroughly cleaned and disinfected when leaving the site.
- 7.3.37 An INNS management will need to be produced for the treatment of any INNS within the Phase 1A site to ensure they are not spread from the site, or new species are not introduced.
- 7.3.38 A detailed survey for INNS has not been undertaken within the Phase 1A and therefore a targeted survey for INNS within the Phase 1A site should be completed prior to any site clearance.

7.4 General Mitigation

- 7.4.1 The following generic measures are recommended to mitigate the impacts on biodiversity within the site and surrounding area, in line with legislation, policy and best practise guidance. Further recommendations will be made within the Phase Specific Biodiversity Plan once follow-on surveys are complete and information on the detailed design and construction methods are provided
 - A Toolbox talk should be given to all contractors working within the Site by SQE prior to works, detailing the potential for protected species within the Site, working methods to be employed and with the procedure to be followed should any protected species be identified. A record of attendance should be kept on Site, with which contractors should sign to indicate they have understood the toolbox talks
 - Prior to commencement of works, the contractor should produce a CEMP which outlines best practice measures during construction including air and water quality management.
 - All works should be carried out during daylight hours (typically up to 30 minutes before sunset and 30 minutes after sunrise) within the main active. (April - October), possible, to avoid disturbance to nocturnal / crepuscular animals such as birds, bats otter and badger.
 - Consideration of noise / vibration levels and potential impact on sensitive ecological receptors.
 - Good practise working methods should be adhered to which prevent any adverse impact to birds, bats, otter and badger and other

mammals; i.e., excavations should not be left uncovered overnight. Excavations are required to be left open overnight, should be created to allow any animals to escape.

- Re fuelling of all plant and equipment should be carried out at least 10 m away from any water courses; and
- If any protected species, including breeding birds, are encountered during the works, all work in the vicinity should stop immediately and a SQE contacted for advice on how to proceed.

7.4.2 Once further surveys are undertaken for protected and notable species there may be additional mitigation requirements, and these will need to be outlined in the subsequent phase specific Biodiversity Plan.

8 Conclusions

- 8.1.1 The location and status of designated sites within the zone of influence of the Phase 1A site, has not changed and therefore the mitigation measures outlined in the GCRE ES² still stand and should be implemented accordingly. These are summarised within this PEA including the implementation of best practice water quality and air quality control management measures.
- 8.1.2 Additionally, further mitigation may be required for potential impacts to the Gorsllwyn Meadows SINC, which was proposed as being retained and protected in the GCRE ES² and now occurs within the northern periphery of the Phase 1A site. Impacts to this area are unclear at present due to the design being developed. It is recommended that habitats within the SINC are retained and protected as part of the development of this area, however, if this is not possible compensation would be required for the loss of habitats within this area, including ditch and pond, and open mosaic habitats which supports notable species. These habitats would need to be recreated elsewhere within the site.
- 8.1.3 The PEA has determined that the Phase 1A habitats have not significantly changed since the previous Extended Phase 1 habitat survey was undertaken; and as such, the recommendations provided in the GCRE ES² for mitigation and enhancements which relate to this part of the site, are considered to still be appropriate. Mitigation from the ES for habitats is summarised in this PEA but landscaping detail will be provided in a separate phase specific Biodiversity Plan, along with updated habitat calculations. Additionally, the long-term management of retained and newly created habitats will be set out in a separate management plan.
- 8.1.4 The PEA details general best practice in relation to species that could be present in the Phase 1A site, and the recommendations for further surveys for the following species:
- notable plants;
 - roosting bats;
 - reptiles;
 - badgers;
 - otter and water voles; and,
 - Invasive non-native species
- 8.1.5 Subject to the findings of these surveys, it may be necessary to carry out further mitigation additional to measures outlined in the GCRE ES², in

respect to species including obtaining protected species licences. Additionally, further enhancements may be required in addition to those outlined within the GCRE ES². Any additional mitigation and or enhancements, not already set out in the GCRE ES, for species or habitats will need to be detailed within the phase specific Biodiversity Plan.

- 8.1.6 New landscaping, which will be detailed in the phase specific Biodiversity Plan will also need to be designed to support any species which are currently present on the site, in addition to adjacent receptor areas.

APPENDICES

Appendix A

Summary of Planning Policy and Legislation

Legislation

A framework of international, European, national and local legislation and planning policy guidance exists to protect and conserve wildlife and habitats. This is described in the following sections.

Conservation of Habitats and Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations') transpose the requirements of Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive) into law within England and Wales. These regulations provide for the designation and protection of sites of European importance known as European Sites or the National Site Network.

European Sites comprise:

- Special Areas of Conservation (SACs), including candidate sites, designated under the Conservation of Habitats and Species Regulations 2017 (as amended); and
- Special Protection Areas (SPAs) including candidate sites, designated under the Wildlife and Countryside Act 1981 (as amended)
- Ramsar Sites designated under the Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 are also considered as European Sites as a matter of UK Government policy along with proposed SACs and SPAs.

The Habitats Regulations require that consideration is given to the implications of plans and projects (developments) on European Sites. Specifically Regulation 63(1) states:

"A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which:

- (a) is likely to have a significant effect on a European site or European marine site (either alone or in combination with other plans or projects), and;
 - (b) is not directly connected with or necessary to the management of that site.
- must make an appropriate assessment of the implications for that site in view of that site's conservation objectives".

The formal consideration of effects on European Sites is therefore undertaken by the determining authority such as the Local Planning Authority under the Town and Country Planning Act 1990. The determining authority is known as the Competent Authority with the Regulations.

The Habitats Regulations also convey special protection to a number of species, which are listed in Schedule 2 of the Regulations and are referred to as European Protected Species (EPS). Those relevant to the Scheme include:

- All UK resident bat species;
- Common dormouse (*Muscardinus avellanarius*);
- Great crested newt (*Triturus cristatus*);

- Otter (*Lutra /utra*);
- Marsh fritillary butterfly (*Euphydryas aurinia*).

Regulation 43 makes it an offence to:

- Deliberately capture, injure or kill any wild animal of a EPS;
- Deliberately disturb wild animals of such a species;
- Deliberately take or destroy the eggs of such a species;
- Damage or destroy a breeding site or resting place of such an animal.

Disturbance in the context of the offences above is disturbance, which is likely to impair the ability of the animals to survive, to breed or reproduce, to nurture their young, to hibernate, to migrate; or to affect significantly the local distribution of the species.

Licences can be granted by the relevant Statutory Nature Conservation Organisation (SNCO) for developments (sometime referred to as EPS Licences or Derogation Licences) providing the purposes of the licence is for "preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment".

Ramsar Convention 1971

Wetlands of International Importance (Ramsar Sites) declared under the Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 are considered European Sites as a matter of UK and Local Government Policy.

Wildlife and Countryside Act 1981 (as amended)

A network of nationally designated sites has been established through the designation of Sites of Special Scientific Interest (SSSIs) under the Wildlife and Countryside Act 1981.

The protection afforded by the Act means it is an offence to carry out or permit to be carried out any operation listed within the notification without the consent of the Statutory Nature Conservation Organisation (Natural Resources Wales). The protection afforded to SSSIs is used to underpin the designation of areas at a European Level.

The Wildlife and Countryside Act also places obligations on Welsh Ministers and other public bodies with regard to the conserving and enhancing of the features of SSSIs in the exercise of their functions.

The Wildlife and Countryside Act 1981 provides protection to both EPSs and other species including wild birds, water voles and reptiles.

All wild birds, their nests and eggs are protected, with some rare species afforded extra protection from disturbance during the breeding season (these species are listed in Schedule 1 of the Act). It is illegal to take any wild bird or damage or destroy the nests and eggs of breeding birds. There are certain exceptions to this in respect of wildfowl, game birds and certain species that may cause damage.

In England and Wales water voles are listed on Schedule 5 of the Wildlife and Countryside Act 1981, receiving full protection since 2008. The Wildlife and Countryside Act 1981 together with amending legislation, lists the following offences:

- Intentionally killing, injuring or taking a water vole by any method.
- Intentionally or recklessly damaging or destroying a water vole place of shelter or protection.
- Intentionally or recklessly damaging disturbing a water vole whilst it is occupying such a structure or place it uses for shelter or protection.
- Intentionally or recklessly obstructing access to a water vole's place of shelter or protection.
- Selling, offering for sale, or possessing or transporting for the purposes of sale, any live or dead water vole, or any part or derivative, or advertising any of these for buying or selling.

All native reptile species in the UK are subject to partial protection from intentional or reckless killing or injury only.

The Act also includes provisions for the control of invasive non-native species (INNS). Under these provisions it is an offence to:

- Release or allow to escape into the wild any animal which is not ordinarily resident or a regular visitor to Great Britain, or is included in Schedule 9 of the Act.
- Plant or otherwise cause to grow in the wild any plant which is included in Schedule 9 of the Act.

People undertaking works in proximity to invasive non-native plant species should take all reasonable steps and exercise all due diligence to avoid committing an offence.

The Invasive Alien Species (Enforcement and Permitting) Order 2019

The order came into effect on the 1st December 2019 to allow for enforcement of EU Regulations (Regulation (EU) No. 1143/2014 on the prevention and management of the introduction and spread of invasive alien species in England and Wales) also known as the IAS Regulations.

It lists 66 species which are of European Union concern. There are currently 19 species listed in the Order (16 of these species are found in Wales). Species include:

- Chinese mitten crab (*Eriocheir sinensis*)
- Red Swamp crayfish (*Procambarus c/arkii*)
- Crayfish signal (*Pacifastacus leniusculus*)
- Spiny cheek crayfish (*Orconectes limosus*)
- Muntjac deer (*Muntiacus reevesi*)
- Ruddy duck (*Oxyura jamaicensis*)
- Egyptian goose (*Alopochen aegyptiacus*)
- Grey squirrel (*Sciurus carolinensis*)

- Himalayan balsam (*Impatiens glandulifera*)
- Fanwort (otherwise known as Carolina water shield) (*Cabomba caroliniana*)
- Giant hogweed (*Heracleum mantegazzianum*)
- Water hyacinth (*Eichhornia crassipes*)
- Parrots Feather (*Myriophyllum aquaticum*)
- Floating pennywort (*Hydrocotyle ranunculoides*)
- Floating water primrose (*Ludwigia pepeloides*)
- Water Primrose (*Ludwigia grandiflora*)
- Giant rhubarb (*Gunnera tinctoria*)
- Curly waterweed (*Lagarosiphon major*)
- Nuttall's waterweed (*Elodea nuttallii*)

This Order allows for the enforcement of, including the relevant licences, permits and rules for keeping invasive alien species.

The amendments remove these Invasive Alien Species (IAS) of Union concern from the ambit of the provisions relating to invasive non-native species in sections 14 and 14ZA of the Wildlife and Countryside Act 1981. This is to make the legislation more transparent and easier to use by bringing all the offences relating to species of Union concern into one place.

Criminal offences are introduced for breaches of the main restrictions of The IAS Regulation, as well as offences relating to:

- False statements;
- Altering, or not meeting, the conditions of permits and licences;
- Attempts to commit offences;
- Obstruction; and
- Offences for companies and partnerships.

It is also an offence to:

- Allow the escape or release into the wild an animal that is not normally a resident or regular visitor to Great Britain, or an animal listed in Part 1 of Schedule 2, including species of crabs, ducks and squirrel.
- Plant, or allow to grow in the wild, plants listed in Part 2 of Schedule 2.

Sell, or be involved in the sale of, any plant listed in Part 3 of Schedule 2, including Water Primrose and Floating Pennywort.

If found guilty of an offence a person may be liable to imprisonment of up to two years, or a fine. Permits and licences may be made void where an offence is committed and a person may be banned from being granted a permit or licences again for up to 5 years. The legislation in relation to the remaining species listed in Schedule 9 of the Wildlife and Countryside Act 1981 remains unchanged.

National Park and Access to the Countryside Act 1949 (as amended)

Local Nature Reserves (LNRs) can be given protection against damaging operations through powers within the National Parks and Access to the Countryside Act 1949. However, this protection is usually conveyed through

inclusion of protection within local planning policy relating to these sites and other non-statutory sites such as Sites of Importance for Nature Conservation.

The Protection of Badgers Act 1992

Badger and their setts are protected under the Protection of Badgers Act 1992 which makes it an offence to kill, injure or take a badger, or interfere with a sett. Interference with a sett includes damaging or destroying it, obstructing access to it, causing a dog to enter it, or disturbing the badgers which are occupying it.

Hedgerow Regulations 1997

The Hedgerow Regulations 1997 set out a framework for the protection of hedgerows against removal where they are deemed to be important either due to their age, ecological or archaeological features. Approval is required from the local authority prior to the removal of hedgerows. Local authorities can enforce the retention of Important Hedgerows through the issuing of Retention Notices.

Salmon and Freshwater Fisheries Act 1975 (as amended)

The Salmon and Freshwater Fisheries Act (SAFFA) is legislation that aims to protect freshwater fish, with a particularly strong focus on salmon and trout. The legislation covers a broad range of topics, but of particular relevance to development are those sections covering water pollution, habitat disturbance and fish migration routes.

Under Section 2 (4) it is an offence to wilfully disturb spawn, spawning fish or spawning areas and under Section 4 (1) it is an offence to knowingly permit the flow of poisonous matter and polluting effluents into river courses that are poisonous or injurious to fish or the spawning grounds, spawn or food of fish.

Sections 9 to 15 are concerned with fish passage and migration routes. It is the duty of the waterway owner that when constructing dams, screens or sluices to provide and maintain a facilitating fish pass for migrating salmon or trout. Section 9 allows the regulator to serve notice on the owner or occupier of a dam or obstruction, to install a fish pass where necessary. This section applies to dams which are either new or have been altered to create an increased obstacle to the passage of migratory salmonids. It is also applicable where dams in a state of disrepair have been rebuilt over at least one half of their length.

Eels (England and Wales) Regulations 2009

This implements Council Regulation (EC) No 1100/2007 of 18 September 2007 establishing measures for the recovery of the stock of European eel. The regulations are focussed on the management of commercial eel fisheries (licences, catch returns and restocking) and the passage/migration of eels. The regulations afford powers to the regulators (Environment Agency and Natural Resources

Wales) to implement eel recovery measures in all freshwater and estuarine waters in England and Wales.

Part 4 of the regulations is concerned with the passage of eels and makes it a legal requirement to notify the regulator of the construction, alteration or maintenance of any structure likely to affect the passage of eels. This include water intakes and outfalls, dams and weirs, sluices or any other in-river obstruction. Where any such structure exists, the owner, occupier or person in charge of the land on which the dam, structure or obstruction lies may be required to construct and operate an eel pass to allow the free passage of eels.

Wild Mammals (Protection) Act 1996

This Act operates in parallel with the legislation listed above conferring specific protection on rare or threatened mammal species by protecting all wild mammals from any action intended to cause unnecessary suffering.

Natural Environment and Rural Communities (NERC) Act 2006

The Act is primarily intended to implement key aspects of the Government's Rural Strategy published in July 2004; it also addresses a wider range of issues relating broadly to the natural environment. The Act also makes provision in respect of biodiversity, pesticides harmful to wildlife and the protection of birds, and in respect of invasive non-native species. It alters enforcement powers in connection with wildlife protection and extends time limits for prosecuting certain wildlife offences. It addresses a small number of gaps and uncertainties which have been identified in relation to the law on sites of special scientific interest. It also amends the functions and constitution of National Park authorities, the functions of the Broads Authority and the law on rights of way (DEFRA website September 2016).

The Environment (Wales) Act 2016

The Environment (Wales) Act 2016 replaces the duties on public bodies in Wales to conserve and enhance biodiversity in the exercise of their functions. This duty includes consideration of the resilience of ecosystems in terms of their diversity, connectivity, adaptability, scale and condition. The Act also reinforces the duties in relation to the lists of species and habitats of importance and duties to conserve and enhance those species and habitats. Within this Chapter these are referred to as Section 7 Habitats and Species, although revised lists have not been published to date.

The Well-being of Future Generations (Wales) Act 2015

The Well-being of Future Generations Act requires public bodies in Wales to consider the long-term impacts of decisions on the social, cultural, environmental and economic well-being of both current and future generations.

In particular the Act includes a number of goals including to maintain and enhance a biodiverse natural environment with healthy functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change.

EIA Directive 2014/52/EU

The Directive 2014/52/EU states that EIAs shall identify, describe and assess the direct and indirect significant effects of climate change relevant to the project. The regulations implementing this directive were transposed into UK legislation in May 2017; The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations, 2107.

Policy Context

The Neath Port Talbot County Borough Council (NPTCBC) Adopted Local Development Plan (LDP) 2011-2026 includes a number of policies relating to nature conservation, in particular:

Policy EN 6 Important Biodiversity and Geodiversity Sites Development proposals that would affect Regionally Important Geodiversity Sites (RIGS), Local Nature Reserves (LNRs), Sites of Interest for Nature Conservation (SINCs), sites meeting SINC criteria or sites supporting Local Biodiversity Action Plan (LBAP) or S42 habitats or species (now referred to as Section 7 habitats and species, in response to the requirement of the Environment (Wales) Act 2016) will only be permitted where:

- They conserve and where possible enhance the natural heritage importance of the site; or
- The development could not reasonably be located elsewhere, and the benefits of the development outweigh the natural heritage importance of the site.

Mitigation and/ or compensation measures will need to be agreed where adverse effects are unavoidable.

5.3.34. "Where harm to biodiversity sites is unavoidable, effective mitigation measures will be required to ensure that there is no reduction in the overall value of the area or feature. Where mitigation is not possible, compensation measures will normally be required to offset harm as far as practicable. However, compensation measures are considered to be a last resort option".

5.3.35. "The Biodiversity Supplementary Planning Guidance (SPG) will indicate how biodiversity should be taken into account in the planning process and will also give details of the procedure for providing off-site compensation if necessary."

Policy EN 7 Important Natural Features: "Development proposals that would adversely affect ecologically or visually important natural features such as trees, woodlands, hedgerows/ field boundaries, watercourses or ponds will only be permitted where:

- Full account has been taken of the relevant features in the design of the development, with measures put in place to ensure that they are retained and protected wherever possible; or
- The biodiversity value and role of the relevant feature has been taken into account and where removal is unavoidable, mitigation measures are agreed."

The Powys County Council (PCC) LDP includes a number of policies relating to nature conservation, in particular:

Policy DM2 - The Natural Environment: "Development proposals shall demonstrate how they protect, positively manage and enhance biodiversity and geodiversity interests including improving the resilience of biodiversity through the enhanced connectivity of habitats within, and beyond the site".

"Development proposals which would impact on the following natural environment assets will only be permitted where they do not unacceptably adversely affect:

The important site designations, habitats and species afforded the highest levels of protection through European legislation including:

European Sites (SAC, SPA and Ramsar).

Development proposals likely to have a significant effect on a European site, when considered alone or in combination with other proposals or plans, will only be permitted where it can be demonstrated that:

- a) The proposal is directly connected with or necessary for the protection, enhancement and positive management of the site for conservation purposes; or
- b) The proposal will not adversely affect the integrity of the site.

Where it cannot be demonstrated that development proposals would not adversely affect the integrity of the site and there is no satisfactory alternative solution, permission will be refused unless:

- a) There are imperative reasons of over-riding public interest; and
- b) Appropriate compensatory measures are secured.

European Protected Species afforded strict protection by the Conservation of Habitats and Species (Amendment) (Eu Exit) Regulations 2019 (Habitats Directive Annex IV Species)."

"Development proposals likely to have an adverse effect on a European Protected Species will only be permitted where it can be demonstrated that:

- The proposal is for the purposes of preserving public health or public safety or there are imperative reasons of over-riding public interest; and
- There is no satisfactory alternative; and
- The action authorised will not be detrimental to the maintenance of the habitat or population of the species concerned at a favourable conservation status in their natural range.

The important site designations, habitats and species afforded levels of protection in line with national policy and legislation including:

- National Nature Reserves and Sites of Special Scientific Interest;

- Protected Species including those listed in Wildlife and Countryside Act 1981 (as amended) and the Protection of Badgers Act 1992;
- Habitats and Species of principal importance for the purpose of maintaining and enhancing biodiversity conservation in Wales as listed in Section 7 of the Environment (Wales) Act 2016; and
- National Biodiversity Action Plan Habitats and Species."

"Development proposals likely to have an adverse effect on the conservation value of nationally protected sites, habitats or species, either directly, indirectly or in combination, will only be permitted where it can be demonstrated that:

- The proposal contributes to the protection, enhancement or positive management of the site, habitat or species; or
 - There is no suitable alternative to the proposed development; and
- a) It can be demonstrated that the benefits from the development clearly outweigh the special interest of the site, habitat or species; and
- b) Appropriate compensatory measures are secured; and
- c) The population or range and distribution of the habitat or species will not be adversely impacted.

The locally important site designations, habitats and species including:

- Local Nature Reserves;
- Local Biodiversity Action Plan Habitats and Species; and
- Regionally Important Geodiversity Sites and Geological Conservation Review Sites."

"Development proposals likely to have an adverse impact upon these sites, habitats or species will only be permitted where it can be demonstrated that:

- They conserve and where possible enhance the natural heritage importance of the site, habitat or species; or
- The development could not reasonably be located elsewhere; and
- The benefits of the development outweigh the natural heritage importance of the site, habitat or species; and
- Mitigation and/or compensation measures are provided where adverse effects are unavoidable.

Policy DM7 - Dark skies and External lighting: "Development proposals involving external lighting will only be permitted when a lighting scheme has been provided that demonstrates that the lighting will not individually or cumulatively cause:

- Unacceptable levels of light pollution especially in the countryside.
- An unacceptable adverse effect on the visibility of the night sky.
- A nuisance or hazard to highway users including pedestrians, and local residents.
- An unacceptable disturbance to protected species."

4.2.48 "Thought needs to be given on how external lighting schemes can avoid potential impacts to nocturnal wildlife, particularly protected species, such as bats, otters and badgers. Dark wildlife movement corridors should be left, e.g. no external lighting of boundary habitat features, wildlife corridors, and watercourses."

4.2.49 "Protected species are a material planning consideration. The way in which protected species are considered in the planning process is detailed in TAN 518. The LDP does not repeat this guidance on how to deal with protected species and in this instance relies upon national guidance."

Planning Policy Wales (PPW) (Edition 11)

Planning Policy Wales¹⁴ (WG, 2021) sets the national policies in relation to development control through the Town and Country Planning Act 1990. This is supported by a series of Technical Advice Notes (TAN), of particular relevance is Technical Advice Note 5 (WG, 2009) which sets out the consideration of nature conservation in the determination of planning applications.

PPW 11 sets out that "planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means that development should not cause any significant loss of habitats or populations of species, locally or nationally and must provide a net benefit for biodiversity" (para 6.4.5). This policy and subsequent policies in Chapter 6 of PPW 11 respond to the Section 6 Duty of the Environment (Wales) Act 2016.

A recent letter from WG to Local Planning Authorities (LPAs) clarified that in light of the PPW 11, and the Environment (Wales) Act 2016, where biodiversity enhancement is not proposed as part of an application, significant weight will be given to its absence, and unless other significant material considerations indicate otherwise it will be necessary to refuse permission.

Future Wales

Future Wales - the National Plan 2040 provides the National Development Framework for Wales, setting out the direction for development in Wales until 2040. It addresses national priorities through the planning system, including sustaining and developing a vibrant economy, achieving decarbonisation and climate resilience, developing strong ecosystems and improving the health and well-being of communities in Wales. It is a spatial plan and therefore sets out a direction of where development and infrastructure should be located for the good of the communities in Wales.

The principles of the Well-being of Future Generations Act are embedded within the plan, to facilitate sustainable development. Importantly, it sets out how biodiversity needs to be safeguarded, and how actions should secure the maintenance and enhancement (net gain) of biodiversity, ecosystem resilience and green infrastructure, and part of development proposals.

United Kingdom Biodiversity Action Plan (UK BAP)

In 1992 the UK signed the Convention on Biological Diversity at the Rio Convention pledging the UK to develop national strategies for the conservation and sustainable use of biological diversity. The UK Government subsequently produced Biodiversity: The UK Action Plan in 1994, which described the biological resources of the UK as a whole and in turn led to the production of Biodiversity Action Plans for individual habitats and species.

Biodiversity policy within the UK has been revised through the publication of the UK Post-2010 Biodiversity Framework (JNCC, 2012) which covers the period from 2011 to 2020. A total of 65 Priority Habitats and 1150 Priority Species have been identified as the most in need of protection. Such species and habitats present in Wales have been listed as species and habitats of principal importance for conservation in response to the requirements of the Environment (Wales) Act 2016. They are hereafter referred to as Section 7 (S7) species.

Powys Local Biodiversity Action Plan

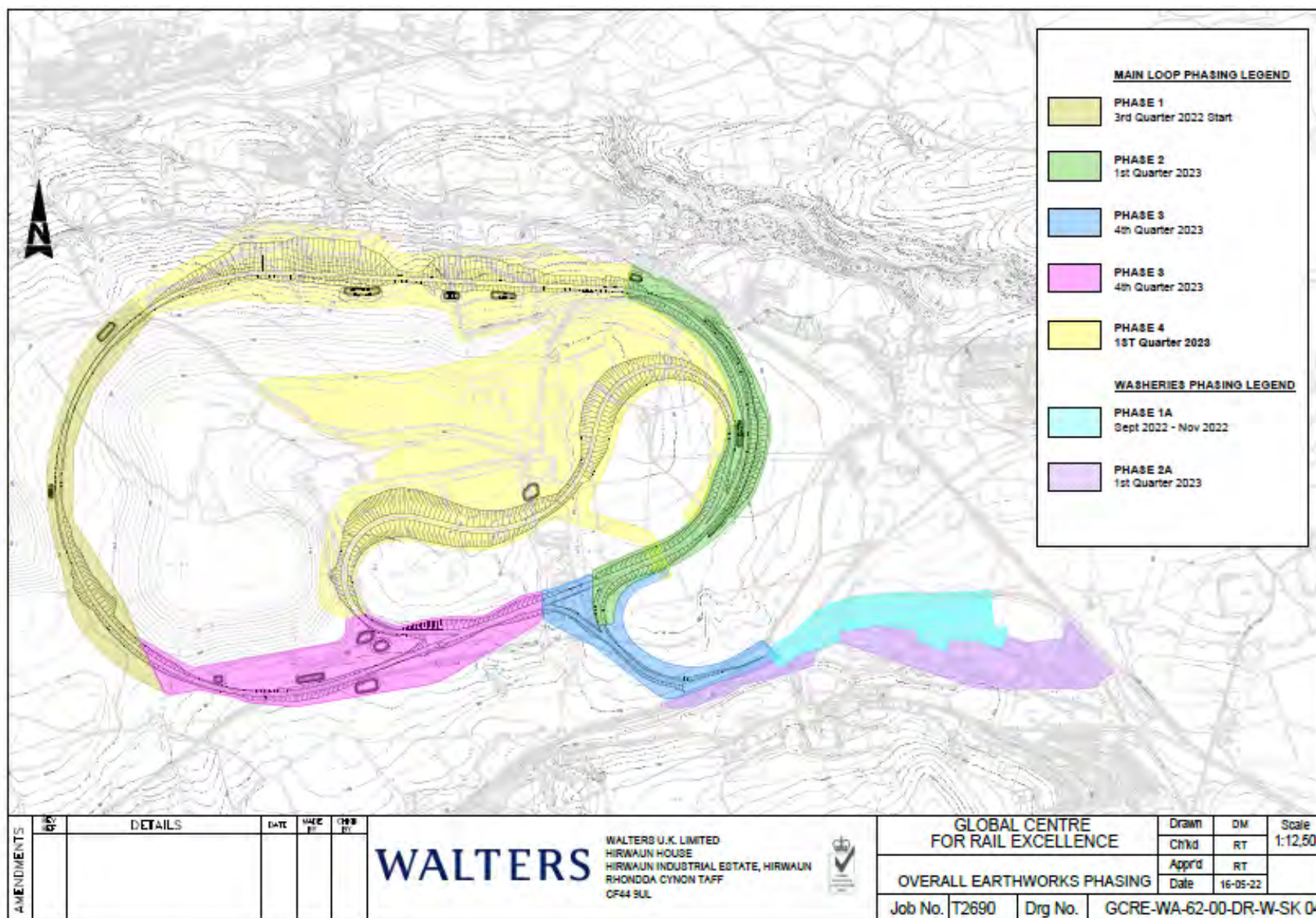
The Powys Local Biodiversity Action Plan¹⁵ was published by the Carmarthenshire Biodiversity Partnership. It includes 17 Habitat and 28 Species Action Plans with a number of actions relating to the protection of biodiversity within the county.

Neath Port Talbot Biodiversity Action Plan

No information is currently available on the Neath Port Talbot LBAP. The report is unpublished, due to containing confidential information on partners, and currently being revised to tie in with WG's new Nature Recovery Plan. As such the NPTCBC ecologist has recommended using the published list of habitats and species of principal importance for the purpose of maintaining and enhancing biodiversity conservation in Wales, in response to Section 7 requirements of the Environment (Wales) Act 2016 (i.e. Section 7 habitats and species).

Appendix B

Phase 1A boundary



Appendix C

Extended Phase 1 Habitat Map

- Key
- Target_Notes
 - Phase 1 Boundary
 - A1.1.2; Broad-leaved Woodland
 - A1.2.2; Coniferous woodland - plantation
 - A1.3.2; Mixed Woodland
 - A2.1; Dense Scrub
 - A2.2; Scattered Scrub
 - B1.2; Acid Grassland
 - B2.1; Neutral Grassland
 - B6; Poor Semi-improved Grassland
 - G1; Standing Water
 - G2; Drains
 - J1.3; Cultivated/disturbed land - ephemeral/short perennial
 - J1.3; Short Perennial
 - J3.6; Buildings
 - J4; Bare Ground
 - J4; Hardstanding
 - Species Poor Grazed Scrub Woodland
 - Ditch

Coordinate System: British National Grid
Datum: OSGB 1936
Projection: Transverse Mercator

Location:
Onllwyn, Neath Port Talbot, SA10 9HL

Coords: 284438, 210632

Scheme Name:
GCRE Planning Conditions

Drawing Name:
Information Plan

Drawing No: 21006904_PLN_INFO_10.1

Rev	Date	Description
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Drawn: AL

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Site Plan

0 50 100 200 300 400 500 600 700 Meters

Scale: 1:2500

- Key
- Target_Notes
 - Phase 1 Boundary
 - A1.1.2; Broad-leaved Woodland
 - A1.2.2; Coniferous woodland - plantation
 - A1.3.2; Mixed Woodland
 - A2.1; Dense Scrub
 - A2.2; Scattered Scrub
 - B1.2; Acid Grassland
 - B2.1; Neutral Grassland
 - B6; Poor Semi-improved Grassland
 - G1; Standing Water
 - G2; Drains
 - J1.3; Cultivated/disturbed land - ephemeral/short perennial
 - J1.3; Short Perennial
 - J3.6; Buildings
 - J4; Bare Ground
 - J4; Hardstanding
 - Species Poor Grazed Scrub Woodland
 - Ditch

Coordinate System: British National Grid
Datum: OSGB 1936
Projection: Transverse Mercator

Location:
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Coords: 284676, 210632

Scheme Name:
GCRE Planning Conditions

Drawing Name:
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Site Plan

0 50 100 200 300 400 500 600 700 Meters

Scale: 1:2500

Appendix D

Target Notes

Target Note number	Description	Photo
1	Debris on railway sidings with potential as hibernacula for reptiles	
2	Marshy grassland which are a mosaic of acid and neutral grasslands typically forming on mining spoil.	

Target Note number	Description	Photo
3	Bee orchid located within acid / marshy grassland	
4	Scrub present on north of the site where it forms a boundary with the coal spoil	Location on map.
5	Dense scrub within grassland to the western area of Site	Location on map.
6	Scattered scrub around the lagoons	Location on map.
7	Mixed woodland with an area of scrub which grades into the margins beyond a damp ditch.	Location on map.
8	Pond within Semi-Improved grassland	Location on map.

Target Note number	Description	Photo
9	Lagoon which has been dredged, featuring no marginal or emergent vegetation	Location on map.
10	Lagoon adjacent to the large lagoon in the west of the Site with marginal and emergent vegetation present	

Target Note number	Description	Photo
11	Lagoon within the centre of the Site where most lagoons are devoid of vegetation and some have dried out	

Target Note number	Description	Photo
12	Example of open metal structure located within the centre of the Site.	
13	Wet ditch with steep sides on the northern boundary of the Site	Location on map.
14	Damp ditch adjacent to woodland and scrub in the northern boundary of the Site adjacent to railway sidings.	Location on map.

Target Note number	Description	Photo
15	Earth mounds, within railway sidings with potential to provide basking opportunities for reptiles.	
16	Open Mosaic habitat comprising dry acidic soil and wet grassland area with short herb rich grassland, mosses scattered scrub, butterfly bush <i>buddleija</i> sp, bramble bare ground	Location on map.
17	Open mosaic habitat comprising patchy heather <i>Calluna</i> sp, purple moor grass <i>Molinia caerulea</i> mouse hawkweed, sheep's sorrel <i>Rumex acetosella</i> , bird's foot trefoil, red fescue wild strawberry.	Location on map.

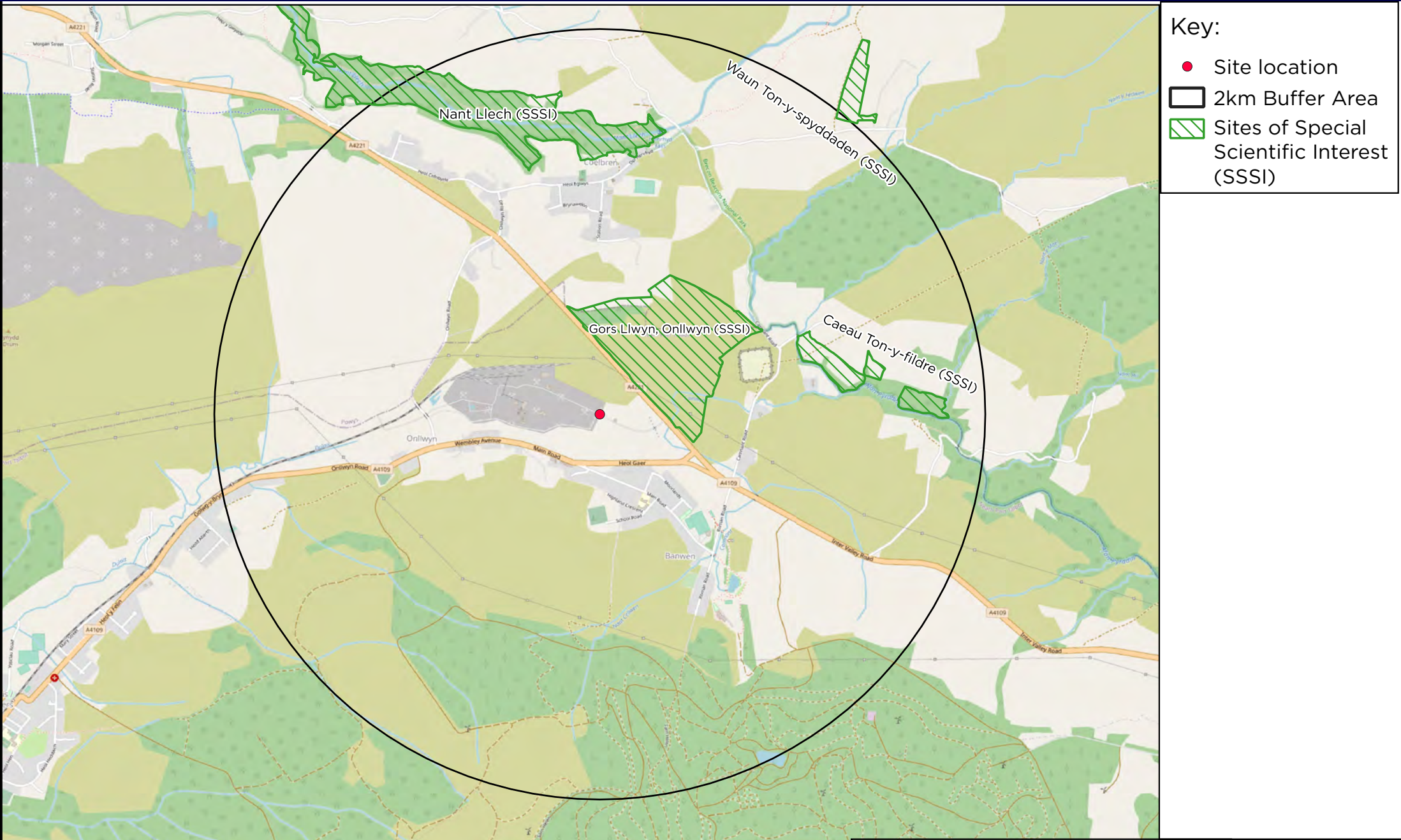
Target Note number	Description	Photo
18	A wet ditch approximately 2 – 3 m wide and comprising bulrush <i>Scirpoides holoschoenus</i>, water horsetail <i>Equisetum fluviatile</i>, water mint <i>Mentha aquatica</i>, surrounded by willow and alder <i>Alnus sp</i> scrub.	Location on map.
19	Marshy grassland wet, dominated by rushes ad scrub species willow downy birch and alder with soft rushes.	Location on map

Target Note number	Description	Photo
20	Neutral grassland within the Phase 1A Site which forms part of the Onllwyn Coal Washery SINC.	
21	An open mosaic of habitats which are not noted within the JNCC classification scheme. Th	Location on Map.

Appendix E

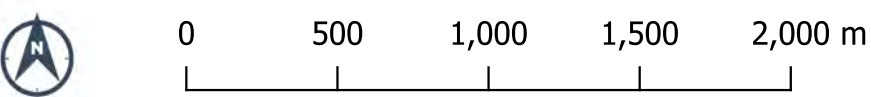
Designated Sites map

GCRE Phase 1A - Nationally Designated Sites Map
Nationally_Designated_Sites_Map_PLAN_1.1



Key:

- Site location
- 2km Buffer Area
- ▨ Sites of Special Scientific Interest (SSSI)

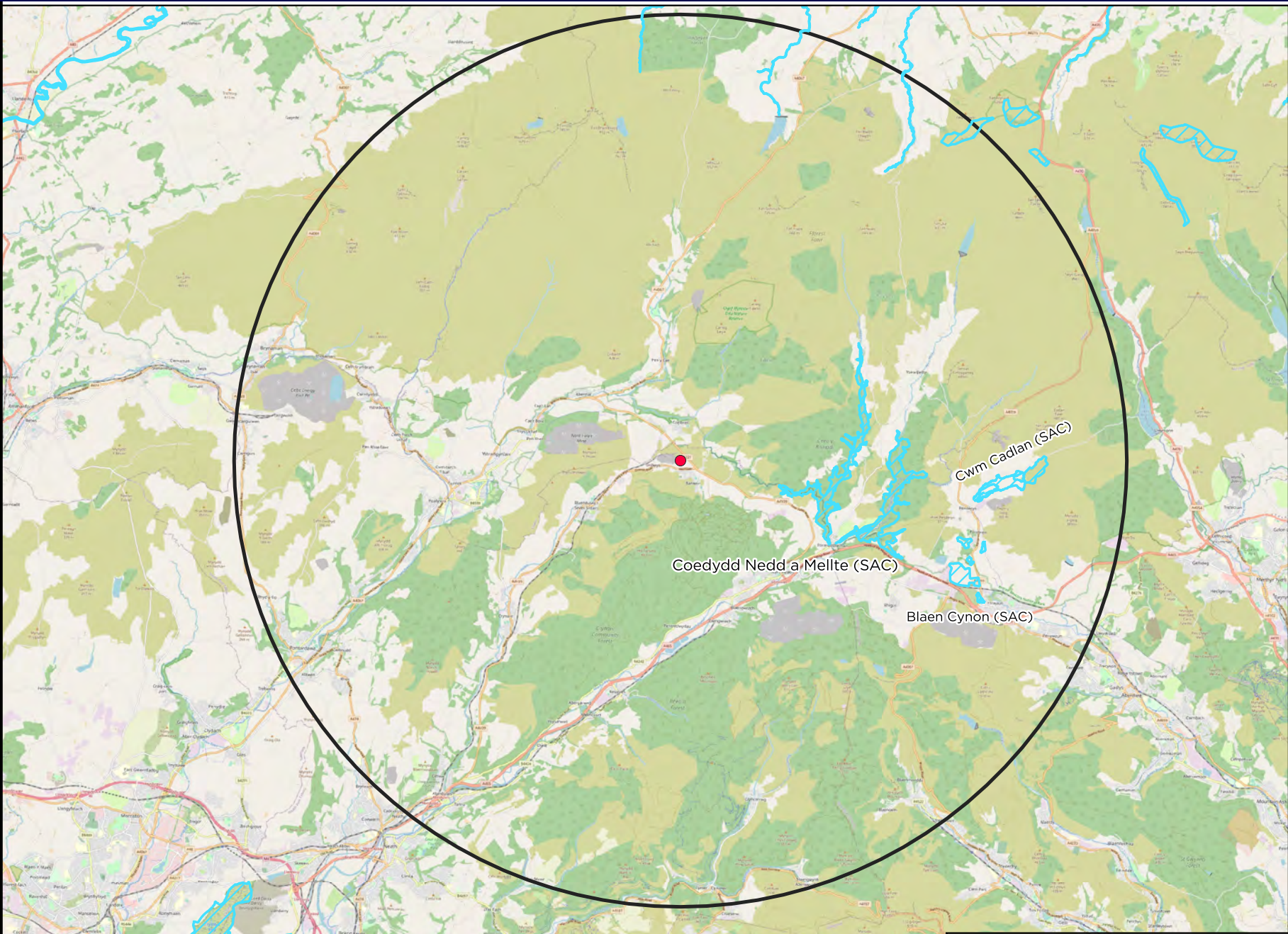


Created By: Matt Taylor
 Created Date: August 2022
 Scale: 1 : 100000 @ A4



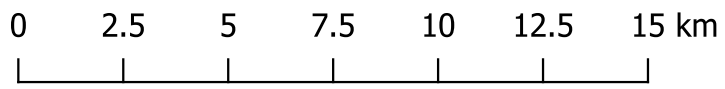
GCRE Phase 1A - Internationally Designated Sites Map

Internationally_Designated_Sites_Map_PLAN_1.2



Key:

- Site location
- 15km Buffer Area
- ▨ Special Areas of Conservation (SAC)



Created By: Matt Taylor
Created Date: August 2022
Scale: 1 : 100000 @ A4



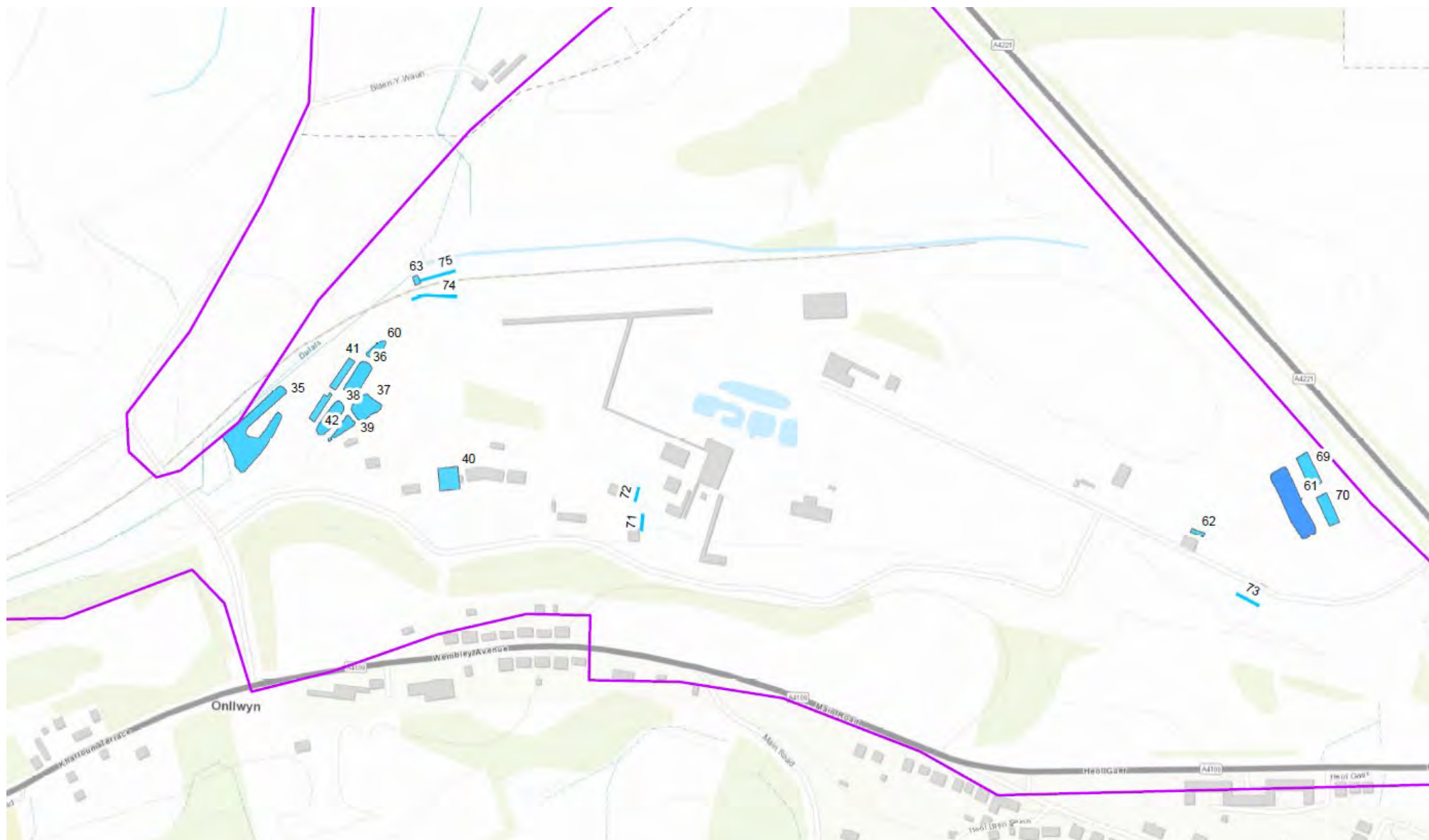
Appendix F HSI Results

Details and Results of HSI assessment

Waterbody Number	Date	HSI assessment										HSI Score
		SI1	SI2	SI3	SI4	SI5	SI6	SI7	SI8	SI9	SI10	
35		0.01	0.00	1.00	0.33	1.00	0.01	1.00	1.00	1.00	0.31	0.00
36		0.01	0.32	0.90	0.33	1.0	0.01	1.00	1.00	0.67	0.36	0.27
37		0.01	0.18	0.90	0.33	1.0	0.01	1.00	1.00	0.67	0.46	0.26
38		0.01	0.32	0.90	0.33	1.00	0.67	1.00	1.00	0.67	0.31	0.41
39		0.01	0.04	1.00	0.33	1.00	0.67	1.00	1.00	0.67	0.36	0.34
40		0.01	0.45	0.90	1.00	1.00	1.00	1.00	1.00	0.01	0.91	0.36
41		0.01	0.32	0.90	0.33	1.00	0.67	1.00	1.00	0.67	0.33	0.41
42		0.01	0.15	0.90	0.67	1.00	0.01	1.00	1.00	0.67	0.51	0.28
60		0.01	0.1	0.90	0.33	1.0	0.01	1.00	1.00	0.67	0.36	0.24
61		0.01	1.00	0.9	0.67	1.00	0.67	0.67	1.00	1.00	0.71	0.54
62		0.01	0.1	1.00	0.01	1.00	1.00	1.00	1.00	1.00	0.31	0.28
63		0.01	0.05	0.90	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.46
69		0.01	0.60	0.90	1.00	0.80	0.67	0.67	1.00	1.00	0.41	0.49
70		0.01	0.60	0.90	1.00	0.80	0.67	0.67	1.00	1.00	0.41	0.49
71		0	0	0.90	0	1.0	0	0	0.1	0	0.31	0.00
72		0	0	0.90	0	1.0	0	0	0.1	0	0.31	0.00
73		0	0	0.90	0	1.0	0	0	0.1	0	0.31	0.00
74		0.01	0.00	0.5	0.33	0.2	1.00	1.00	1.00	1.00	0.81	0.24
75		0.01	0.04	0.50	1.00	0.2	0.67	1.00	1.00	1.00	0.90	0.35

Appendix G

HSI Waterbodies within the Washery



Appendix H
Section 7 Habitats and Species Plan

Key

- Section 7 - Open Mosaic Habits on Previously Developed Land
- Phase 1 Boundary
- A1.1.2; Broad-leaved Woodland
- A1.2.2; Coniferous woodland - plantation
- A1.3.2; Mixed Woodland
- A2.1; Dense Scrub
- A2.2; Scattered Scrub
- B1.2; Acid Grassland
- B2.1; Neutral Grassland
- B6; Poor Semi-improved Grassland
- G1; Standing Water
- G2; Drains
- J1.3; Cultivated/disturbed land - ephemeral/short perennial
- J1.3; Short Perennial
- J3.6; Buildings
- J4; Bare Ground
- J4; Hardstanding
- SG Starling
- S. Skylark
- W1 Waxcap 1 (*Gliohorus psittacinus*)
- W2 Persistent waxcap (*Hygrocybe autoconica* var. *autoconica*)

Coordinate System: British National Grid
Datum: OSGB 1936
Projection: Transverse Mercator

Location:
Onllwyn, Neath Port Talbot, SA10 9HL

Coords: 284438, 210632

Scheme Name:
GCRE Planning Conditions

Drawing Name:
Information Plan - Section 7 Habitat and Species Plan

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Key

- Section 7 - Open Mosaic Habits on Previously Developed Land
- Phase 1 Boundary
- A1.1.2; Broad-leaved Woodland
- A1.2.2; Coniferous woodland - plantation
- A1.3.2; Mixed Woodland
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- J4; Hardstanding
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- S. Skylark
- W1 Waxcap 1 (*Gliohorus psittacinus*)
- W2 Persistent waxcap (*Hygrocybe autoconica* var. *autoconica*)

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Location:
Onllwyn, Neath Port Talbot, SA10 9HL

Coords: 284676, 210632

Scheme Name:
GCRE Planning Conditions

Drawing Name:
Information Plan - Section 7 Habitat and Species Plan

Drawing No: 21006904_PLN_INFO_10.2

Rev	Date	Description
-	20.09.2022	First Issue

Drawn: AL

Approved: WO

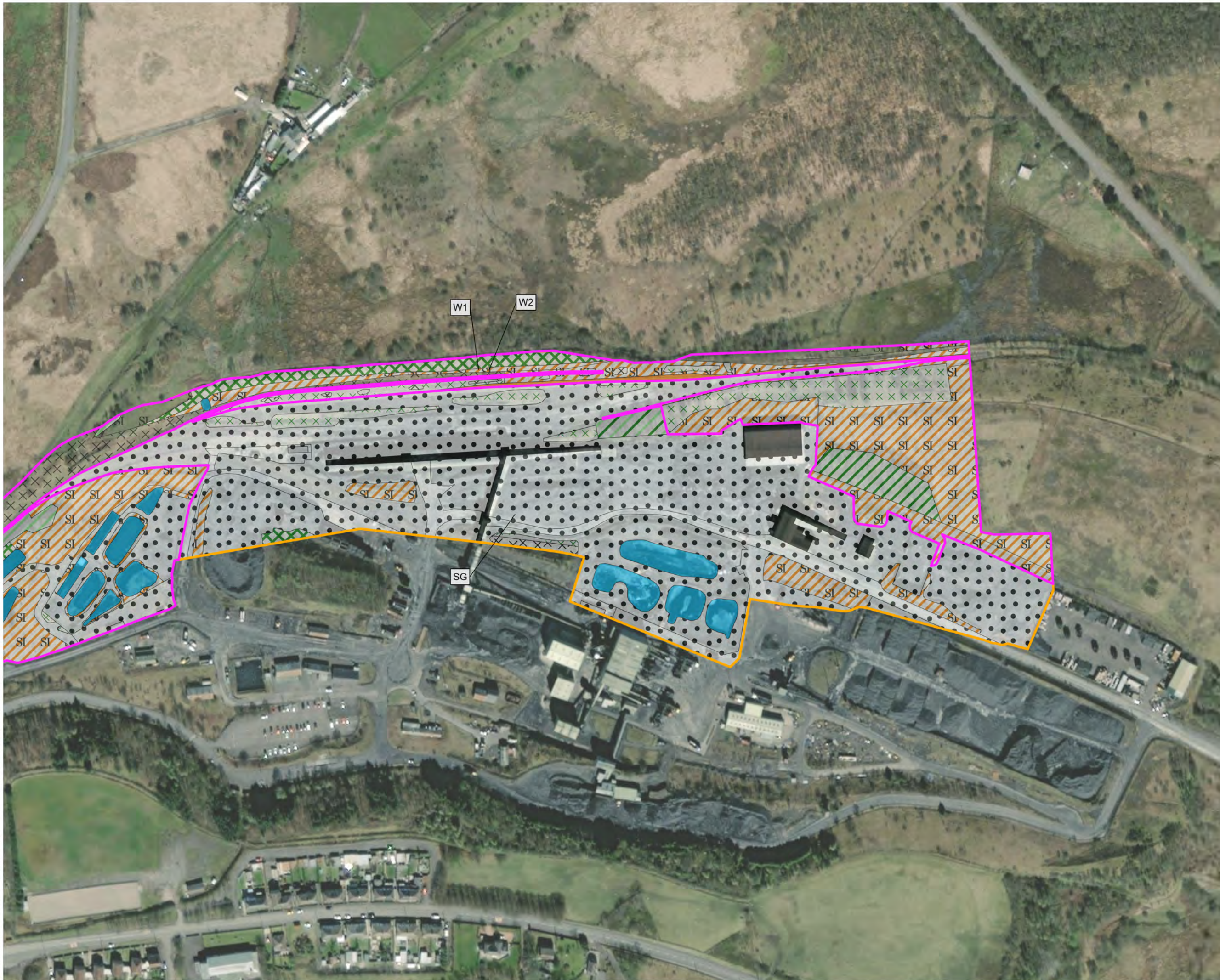
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