



Tylorstown Landslide
Environmental Impact Assessment
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Appendix 9.1

Preliminary Ecological Appraisal (PEA) report

Tylorstown Landslip Remedial Works – Phase 4

PRELIMINARY ECOLOGICAL APPRAISAL (PEA) REPORT

December 2020





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**Tylorstown Landslip Remedial Works – Phase 4
 Preliminary Ecological Appraisal (PEA) Report**

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- GC3613-RED-0074-XX-DW-L-0006 - Phase 4 – Designated Sites 1km Buffer
- GC3613-RED-75-XX-DR-C-0063 -Proposed Excavation Area.
- GC3613-RED-75-XX-DR-C-0064 – Cross Sections
- GC3613-RED-75-XX-DR-C-0065 - Cross Sections
- GC3613-RED-75-XX-DR-C-0066 - Cross Sections

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Appendices

Appendix A Desk Study Species Data Table

Appendix B Target Notes and Descriptions

Appendix C Botanical Species List

Non-technical Summary

Site Location	Situated approximately 4.6km to the north of the Porth and approximately 8km to the northwest of Pontypridd. The site is located over distance of approximately 1.6km with central Grid Reference ST01869587.
Proposed Development	Phase 4 of the remedial works following the landslide to include removal of material from the landslide area north east of Tylorstown to a receptor site approximately 1 km south south-east, adjacent to Old Smokey (an existing coal spoil tip site). Construction of haul road between the landslide and receptor site, utilising an existing former tram road. Reprofilling of landslide area and receptor site.
Purpose of survey/s	To identify possible ecological constraints to the works, inform design and determine whether any ecological enhancements can be achieved
Dates of survey and names of surveyors	Preliminary Ecological Appraisal – Olga Krylova (Consultant Ecologist) and Emma Carney (Graduate Ecologist) on 3rd September, 6th, 7th and 8th October 2020.
Overview of Results	<ul style="list-style-type: none"> • No nationally or internationally protected statutory designated sites lie within 2 km of the proposed development site. • 15 non-statutory designated sites (e.g. Sites of Importance for Nature Conservation (SINCs)) within 2km. • The redline boundary of the site is within the ‘Old Smokey’ Site of Importance for Nature Conservation (SINC). the SINC will be directly impacted through the habitat loss and fragmentation and indirectly impacted through pollution and potential hydrology change. • Two SINCs are adjacent to the site and may be indirectly impacted though pollution and disturbance. • No Tree preservation orders were identified within 100m of site. • Several areas of ancient woodland lie within proximity to the development site area with the closest parcel lies adjacent to the northwest to the slip and may be directly impacted by the scheme. <p>Eight Priority Habitats were identified within the redline boundary: Upland oak woodland, rivers, inland rock- open mosaic habitats on previously developed land, Inland rock outcrop and scree habitats, lowland acid grassland, dwarf shrub heath, purple moor-grass and rush pastures and upland flushes, fens and swamps</p> <ul style="list-style-type: none"> • All eight Priority Habitats recorded on the site will be directly or indirectly impacted by the scheme through the habitat loss, fragmentation of the habitats and land-take and indirectly impacted through hydrology change. • 27 Phase 1 habitats identified during the survey, will be directly or indirectly affected by the proposed scheme.. Some habitat areas will be permanently lost to the proposed receptor site (habitats including marshy grassland, unimproved acid grassland, mosaic of acid grassland and dry heath, acid flush, including the most biodiverse

	<p>areas at TN27 and TN16). Other habitats will be directly or indirectly impacted temporarily due to construction.</p> <ul style="list-style-type: none"> The habitats on site had potential to support bats, otter, badger, breeding birds, wintering birds, amphibians (including great crested newt); reptiles, fish, invertebrates and rare and protected flora. Habitat loss is likely to result in impacts on these faunal and floral protected species.
<p>Recommendations</p>	<p>Protected species</p> <p>Further species surveys.</p> <ul style="list-style-type: none"> Bat assessment of trees, if any tree removal is anticipated; Great crested newt eDNA survey; Badger survey; Breeding bird survey; Wintering birds; Lower plants surveys; and Non-native invasive species mapping. <p>Habitats</p> <p>Further assessment</p> <ul style="list-style-type: none"> A hydro-geomorphic assessment should be conducted to assess the dependency of the habitats on groundwater, and any potential impact on the groundwater quality. <p>Ecological Method Statement</p> <p>Avoidance and minimisation of negative impact within the SINC and Priority Habitats and high-quality habitat, identified within the survey.</p> <ul style="list-style-type: none"> Clear demarcation of the high ecological value habitats; Avoiding (where possible) and minimising tree removal. Select the appropriate construction methods to minimise impacts on the habitats and protected species (i.e. using matting/ rafts, using low-load machinery on track or with balloon tyres). Soil re-use (provided it is free of contaminants) to retain the seed bank following the construction. <p>Mitigation</p> <ul style="list-style-type: none"> Selective temporary turf storage of high ecological value grasslands during construction works; the storage should be mapped according to the habitats; Appropriate turf restoration and aftercare following reinstatement Translocation of high-quality habitats, creation and enhancement within appropriate areas identified outside the works footprint; Translocation of notable/protected species (e.g. ivy-leaved bellflower) into suitable receptor habitat on the site, which will be identified by an ecologist. Appropriate aftercare with a 5-year management plan for these areas Pollution prevention measures should be in place as a part of CEMP following GPPs guidance outlined in NetRegs.

- Ecological supervision where identified as a requirement and an ecological toolbox talk to all site personnel prior to works commencing

Enhancement

- Conifer regeneration and bracken clearance to promote mosaic of acid grassland, dry-heath and bracken habitats;
- The restoration and management of colliery spoil habitat on the site, through allowing natural regeneration of habitat where possible and a long-term habitat management plan.

1. Introduction

Redstart was commissioned by Rhondda Cynon Taff County Borough Council (RCTCBC) to carry out a Preliminary Ecological Appraisal (PEA), including a Desktop study and an Phase 1 habitat survey for the removal of the Tylorstown Tip material to an alternative safer receptor site behind Llanwonno Tip ('Old Smokey'), referred as the Phase 4 (the Proposed Scheme) of the Tylorstown Tip Project. The Extended Phase 1 Habitat survey was undertaken to identify any ecological constraints to the proposed development and whether further ecological assessment/surveys/mitigation are required to inform Planning Authorities. The survey will also inform design and determine the potential for ecological enhancements. This report will inform the Environmental Impact Assessment and form part of the Environmental Statement for the project.

The site is located over a distance of approximately 1.6km with central Grid Reference ST01869587.

This report includes details of the survey methodologies, results and discussion and contains recommendations for further survey/mitigation where appropriate.

Based on the current preferred option it is anticipated the development will have a permanent footprint of approximately 5.11ha.

This report presents the results of the Phase 1 habitat survey undertaken between the period of September - October 2020. This report has been prepared for the planning application to provide the Local Planning Authority (LPA), RCTCBC, with the information required to assist the planning application process.

This report includes details of the survey methodologies, results and discussion and contains recommendations for further mitigation where appropriate.

1.1 Study Area

The Proposed Scheme is located to the east of Tylorstown, within the Rhondda Fach valley, which is a steep sided narrow valley in South Wales in the County Borough of Rhondda Cynon Taff. The valley sides are covered mainly by fridd habitat, which is a combination of small parcels of broadleaved semi-natural woodland, scrub, dry heath and acid grassland, on the steep slopes and marshy grassland dominated by purple-moor-grass at higher elevations. Narrow continuous parcels of broadleaved semi-natural woodland are following the river on both banks of Rhondda Fach.

In places, the marshy grassland is planted by coniferous plantation. The site is located within historic collieries, where natural and deposited colliery material landforms are present.

Figure 1: Photograph of site adapted from Google Earth. The extend of the proposed scheme is marked within redline boundary (Google Earth, 2019).



1.2 Proposed Scheme

The permanent footprint of the scheme will be approximately 5 ha (based on the alignment of the current preferred option. (Figure 1))

On Sunday 16th February, Storm Dennis caused the Llanwonno Upper Tip to fail above the town of Tylorstown. Approximately 28,000m³ of slipped material filled the valley bottom from the toe of the slope outwards in an extremely low angled and widely distributed debris envelope; filling the Afon Rhondda Fach's channel and diverting its course to the western side of the valley bottom. The slipped material has also covered essential water mains and disused tram line which is used as a footpath. Emergency works (referred to as Phases 2 and 3 of the Tylorstown Tips scheme) have been required to remove the slipped material from the river and valley bottom and transport it to nearby receptor sites.

The Proposed Scheme is for Phase 4 of the Tylorstown Tip project, which consists of making the remaining slip material within the site safe, as well as offering ecological, landscape and community enhancements for the area.

The Proposed Scheme for Phase 4 currently consists of the following:

- Removal of circa 150,000m³ of slip material remaining on the hillside and landscaping of the area following the removal. The proposed excavation area is shown in drawing GC3613-RED-75-XX-DR-C-0063 and associated cross sections in drawings GC3613-RED-75-XX-DR-C-0064 to 0069;
- Transport of the material along a disused tramway to the adjacent Phase 4 receptor site (approximate centre at ST 02103 95732) (Drawing GC3613-RED-75-XX-DR-C-0034);

- Widening of the existing tramway in order to allow access for trucks and plant to Tylorstown Tip (RH01) and the Phase 4 receptor site; and
- Landscaping of the Phase 4 receptor site. The exact layout and landscaping of the reprofiled material will be refined during the detailed design, informed by ecological surveys and the EIA process.

The designs of the final landform at the donor and receptor sites are yet to be completed.

1.3 Survey Area

The survey area for the Phase 1 habitat survey was based on the redline boundary of the project (see drawings GC3613-RED-0074-XX-DW-L-0005 (3 pages) Phase 4 – Phase 1 Habitat Survey Map). The area within redline boundary and ecological buffer zone are referred to as the 'site' in this report.

2. Methodology

2.1 Desktop Study

A desk study was undertaken to identify ecological information relating to the proposed development site and its surroundings. The following organisations were consulted to undertake the desk study.

A request to the South East Wales Biological Records Centre (SEWBRc) for was made for information on any ecologically designated sites, habitats and protected species or species of conservation concern within a 2 km radius (5 km for bats) of the proposed development scheme (SEWBRc, 2020). This included a request for data for priority habitats and species listed under Section 7 of the Environment (Wales) Act 2016. The results of this search are summarised in Appendix A.

The Multi-Agency Geographic Information for the Countryside (MAGIC) website (MAGIC, 2020) was used to search for additional statutory designated sites i.e. Special Areas of Conservation (SAC) sites specifically designated for bats. Natural Resources Wales' online designated site search was then utilised to obtain citations for relevant statutory site designations identified (NRW, 2020), and Rhondda Cynon Taff Local Development Plan 2006-2021 consulted for the non-statutory Sites of Importance for Nature Conservation (SINC) site citations (RCTCBC, 2008).

Furthermore, Rhondda Cynon Taff County Borough Council Planning Department (RCTCBC, 2020) and the Natural Resources Wales online Lle Ancient Woodland (AW) Inventory interactive map (NRW, 2011) were consulted to identify tree preservation orders (TPOs) or AW areas within 100 m of the proposed scheme.

2.2 Phase 1 Habitat Survey

Experienced Redstart surveyors conducted the survey following the guidance described in Handbook for Phase 1 habitat survey (JNCC, 2010) on the 3rd September and 6th, 7th and 8th October 2020. The survey consisted of a thorough walkover of the survey area, mapping the habitat types present, listing floral species within each habitat type and mapping invasive plant species.

The vegetation and habitat types within the sites were noted during the survey in accordance with the categories specified for a Phase 1 Vegetation and Habitat Survey (JNCC, 2010). The plant species were assessed in each habitat and their abundance recorded using the ACFOR scale shown below:

- **Abundant**
- **Common**
- **Frequent**
- **Occasional**
- **Rare**

Species nomenclature follows Stace (2010).

The site was inspected for evidence of, and its potential to support, protected or notable species, especially those given a high level of legal protection listed under the Conservation of Habitats and Species Regulations 2017, the Wildlife & Countryside Act 1981 (as amended) and those listed under Environment (Wales) Act (2016).

2.3 Survey Constraints

Phase 1 habitat surveys can be undertaken at any time of the year; however, the optimal time of year for these surveys is between April and September (inclusive). This survey was carried out just outside of the optimal period in early October. Although not all species that would be present may have been detectable, there were enough species still identifiable for the different habitat types on the site to be determined.

The marshy grassland habitat along the Forestry plantation was disturbed by the recent works of Western Power Distribution. The extent of the disturbance was limited to the trench along the eastern side of the redline boundary. The number of plant species identified may have been limited within these habitats, but this is not considered a significant constraint, as identification of habitat types was still possible. The Phase 1 Habitat Map does not reflect the disturbed ground area of marshy grassland, as the area is too small to map.

Vegetation such as scrub and bracken habitat were very dense and impenetrable in some areas and access was restricted. Some very steep sloped areas and the area of slip material were not accessed on health and safety grounds; however, survey of these areas was carried out from a safe distance or through high powered binoculars. The restricted access did not affect the survey results.

Any ecological survey can only identify what was present on site at the time it was conducted and habitat usage by species can change over time. The length of time that the survey data remains valid will depend on a case-by-case basis, but it is generally considered that if the development does not begin within 2 years of the date of this report an update will be required.

3. Desk Study Results

The results of the desk study and field survey are described below.

3.1 Designated Sites

Statutory Designated Sites

No nationally or internationally protected statutory designated sites (i.e. Sites of Special Scientific Interest (SSSIs) or Special Areas of Conservation (SACs)) lie within 2 km of the proposed development site.

Non- statutory Designated Sites

There are 15 non-statutory designated sites (e.g. Sites of Importance for Nature Conservation (SINCs)) within 2 km of the proposed development site. The site is located within Old Smokey Slopes SINC which is listed along with other sites located within 1 km of the development site in Table 1. SINC locations are illustrated on Drawing (Drawing GC3613-RED-0074-XX-DW-L-0006 - Phase 4 – Designated Sites 1km Buffer Map Designated Sites within 1km Map).

Table 1 - Non-Statutory Designated Sites within 1 km of the development and designatory site descriptions.

Site Name and Designation Description	Distance & Direction from proposed development
<p>Old Smokey Slopes SINC – 113 ha in size.</p> <p>An extensive area of mosaic fringed habitat, based partly on natural ground and partly on coal spoil. Acid grassland is the predominant vegetation and characteristic species include sheep’s fescue (<i>Festuca ovina</i>), common bent (<i>Agrostis capillaris</i>), sweet vernal-grass (<i>Anthoxanthum odoratum</i>), heath bedstraw (<i>Galium saxatile</i>), heath-grass (<i>Danthonia decumbens</i>), sheep’s sorrel (<i>Rumex acetosella</i>), heath speedwell (<i>Veronica officinalis</i>) and heath wood-rush (<i>Luzula multiflora</i>) with mat-grass (<i>Nardus stricta</i>) on more exposed ground. Stands of tall bracken are associated with a ground flora of acid (or flushed grassland) and scattered trees. Dog violets (<i>Viola</i> spp.) are locally abundant on bracken and acid grassland slopes. Dry heath (often in mosaic with acid grassland) is an important habitat with bilberry (<i>Vaccinium myrtillus</i>) and heather with wavy hair-grass (<i>Deschampsia flexuosa</i>) and areas of lichen heath with <i>cladonia</i> species. There are two small ponds, both of which support a diverse flora (including marsh St. John’s wort (<i>Hypericum elodes</i>) and alternate water-milfoil (<i>Myriophyllum alterniflorum</i>)).</p> <p>The mixture of habitats, on a west-facing slope, represents excellent habitat for a diversity of fauna. Highlights include an important butterfly fauna (including grayling (<i>Hiparchia semele</i>), high brown fritillary</p>	<p>Encompasses site area.</p>

Site Name and Designation Description	Distance & Direction from proposed development
<p>(<i>Fabriciana adippe</i>), dark green fritillary (<i>Speyeria aglaja</i>) and small pearl-bordered fritillary (<i>Boloria selene</i>) butterflies, dragonfly populations, mottled grasshoppers (<i>Myrmeleotettix maculatus</i>), abundant green tiger beetles (<i>Cicindela campestris</i>), good reptile (including common lizard (<i>Zootoca vivipara</i>)) and amphibian habitat (common frog (<i>Rana temporaria</i>), toad (<i>Bufo bufo</i>) and palmate newt (<i>Lissotriton helveticus</i>)), and distinctive bird assemblage, which include stonechat (<i>Saxicola rubicola</i>) and whinchat (<i>Saxicola rubetra</i>).</p>	
<p>Blaenllechau Woodland SINC – approximately 19 ha in size.</p> <p>Upland ancient oak (<i>Quercus</i> sp.) woodland, with some mature birch (<i>Betula</i> sp.), rowan (<i>Sorbus acuparia</i>) and ash (<i>Fraxinus excelsior</i>). The bilberry, acid grassland (sheep's fescue, wavy hair-grass) and moss ground flora has been heavily grazed, but is recovering with some regeneration of oak, rowan and birch. The SINC includes the narrow corridor of oak/alder (<i>Alnus glutinosa</i>) woodlands, which grows on the steep sided banks of the upland stream. The SINC also includes an extensive lower valley area of dry heath (heather and bilberry) and bracken/acid grassland with flushed areas of purple moor-grass (<i>Molinia caerulea</i>) and ivy-leaved bellflower (<i>Wahlenbergia hederacea</i>). Also associated with old quarry workings there are further areas of dry heath, acid grassland mosaic, and on the lowest flat ground of the old railway line sidings there is a further heath and scrub mosaic (with locally abundant dog violets). The heath/acid grassland support very large grayling butterfly and mottled grasshopper colonies, and the violet rich banks of the railway sidings are likely breeding habitat for the dark green fritillary (and high brown) colony, which occurs in the vicinity.</p>	<p>Directly adjacent to north-west and encompasses the western boundary of the site area.</p>
<p>St. Gwynno Forest SINC – approximately 1,330 ha in size.</p> <p>An extensive area of Forestry Commission plantation, which runs across the ridge of Coetgate, Aberaman down to the St Gwynno Forestry. The SINC is an expanse of mixed conifer plantation (with small broadleaved components), which occurs in varying stages of maturity. The main tree species are sitka spruce (<i>Picea sitchensis</i>), larch (<i>Larix decidua</i>), and lodgepole pine (<i>Pinus contorta</i>). Recent years has seen major clear fells. The plantations have numerous open areas, which support bracken (<i>Pteridium aquilinum</i>), open regenerating woodland/scrub, dry heath, acid grassland and marshy grassland. The SINC includes small areas of relic ancient woodland (Coed Aberaman), alongside areas of scrub and bracken on the slopes of Coetgate Aberaman. The SINC is a renowned 'hot-spot' for nightjar (<i>Caprimulgus europaeus</i>), which occur in large numbers within the</p>	<p>Directly adjacent East of the eastern boundary of the site area.</p>

Site Name and Designation Description	Distance & Direction from proposed development
<p>clear-fell and recently replanted areas. The site is also breeding habitat for goshawk (<i>Accipiter gentilis</i>), crossbill (<i>Loxia</i>), siskin (<i>Spinus spinus</i>) and redpoll (<i>Carduelis</i> spp.).</p>	
<p>Taff and Rhondda Rivers SINC – approximately 246 ha in size.</p> <p><i>Only the relevant Rhondda river section of the citation is described.</i></p> <p>The Rhondda River (Fach and Fawr) is a typical ‘spatey’ upland river, with pools and riffle sequences. The river is clean and supports a diverse invertebrate fauna, with brown trout (<i>Salmo trutta</i>), and potentially salmon (<i>Salmo salar</i>). The river supports a good breeding bird assemblage; dipper (<i>Cinclus cinclus</i>) and grey wagtail (<i>Motacilla cinerea</i>) are common breeders, and kingfisher (<i>Alcedo atthis</i>) is also frequently reported (although nesting Sites are more limited). Sand martins (<i>Riparia riparia</i>) breed in a number of locations, using drainage holes in retaining walls. In the winter goosander (<i>Mergus merganser</i>) are a frequent visitor, and grey heron (<i>Ardea cinerea</i>) feed along the river throughout the year. Otter (<i>Lutra lutra</i>) have re-colonised the Rhondda. The SINC boundary in the Rhondda closely flows the river corridor, and in urban locations the SINC boundary is tight to the riverbank. Elsewhere the river corridor of the SINC is expanded in areas where a dry heath, marshy grassland or woodland occurs in close association with the river.</p>	<p>Adjacent south/south-west of the western section of the site area.</p>
<p>Mynydd Ty’n-tyle Slopes SINC – approximately 282 ha in size.</p> <p>A large upland SINC, which supports a complex mosaic of acid and marshy grassland, ffridd and heath. The acid grassland varies from sheep grazed upland, through to taller wavy-hair grass dominated grassland on steeper slopes. There are extensive stands of both heather and bilberry-dominated heath, with associated acid grassland and areas of western gorse. The upland plateau support areas of marshy grassland and on peat wet heath. There are additional areas of neutral grassland and bracken. The SINC supports common upland bird assemblages and short-eared owl (<i>Asio flammeus</i>) occur in the winter.</p>	<p>250 m West</p>
<p>Pont-y-gwaith Hillside SINC – approximately 19 ha in size.</p> <p>A large area of dry heath and acid grassland and scattered bracken on the hillside above Pont-y-gwaith.</p>	<p>700 m South-west</p>
<p>Mynydd Y Ffaldau SINC – approximately 635 ha in size.</p>	<p>990 m north/north-west</p>

Site Name and Designation Description	Distance & Direction from proposed development
<p>An extensive area of upland conifer plantation predominately comprising sitka spruce. The plantation represents significant woodland bird habitat for conifer specialists as well as typical native woodland species. There are now large areas of clear-felled areas supporting breeding nightjar. The plantations were planted into upland heath, acid grassland and bog. On rides and clearing the original vegetation persist, and there are significant areas of upland marshy grassland, heath and bracken. Dark green fritillary butterflies have been recorded within forestry clearings. The conifer plantations also subsumed two-replanted ancient woodlands. The site has populations of parsley fern (<i>Cryptogramma crispera</i>). The site supports grayling butterflies.</p>	
<p>Further Sites within 2 km include:</p> <ul style="list-style-type: none"> ➤ Penrhiw Flushes SINC - 1 km South-east ➤ Darran Park SINC - 1.1 km North-west ➤ Ystrad Slopes SINC - 1.15 km West ➤ Cwm Clydach SINC - 1.3 km North-east ➤ Craig Pwllfa SINC - 1.5 km North ➤ Mynydd Troed-y-rhiw Slopes SINC - 1.5 km South ➤ Y Ffrywd SINC – 1.9 km South-east ➤ Mynydd Brith-weunydd/ Llwynypia hillside SINC - 1.9 km South-west 	

Of the designated sites listed, the Old Smokey Slopes SINC and Blaenllechau Woodland SINC will be directly impacted by proposed works as these SINC's encompass the site area to varying extents. The St. Gwynno Forest SINC and Taff and Rhondda Rivers SINC also lie adjacent to the site area and may be impacted if works encroach into these SINC's. No direct impacts are anticipated to the remaining SINC's listed.

3.2 Habitats

Priority Habitats

Much of the site area (as determined from SEWBRc data) is covered by unimproved/semi-improved acid grassland and marshy grassland. Semi-natural broadleaved woodland also exists to the south-western extent of the site area. These habitats are classed as Priority Habitats under Section 7 of the Environment (Wales) Act 2016, as being of principal importance for maintaining and enhancing biodiversity in relation to Wales. Three ponds are also shown to be present within the site area which would also be classified as Priority habitats however, these were located in the area of the landslip and as such no longer exist.

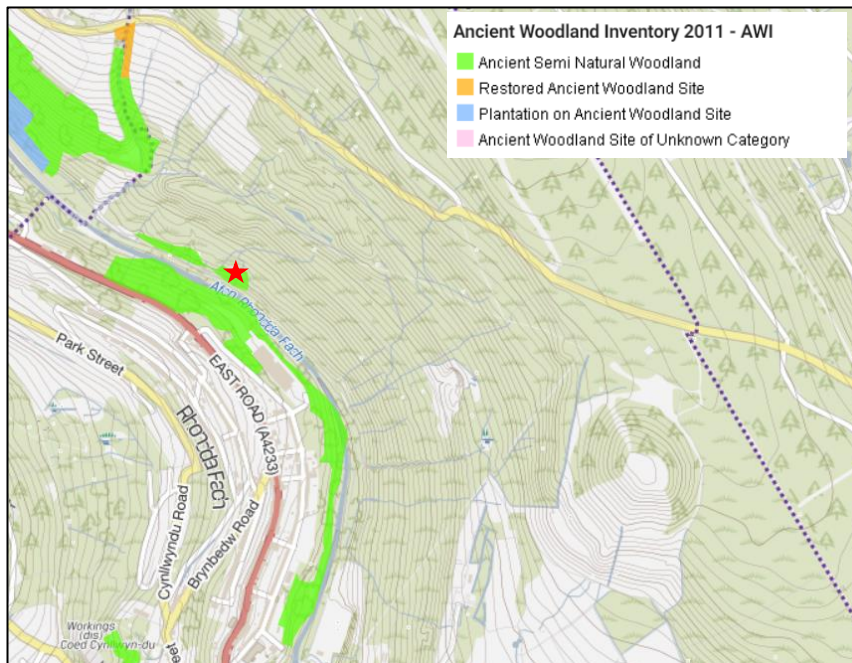
Eight Priority habitats were identified from the Phase 1 habitat mapping within the redline boundary include upland oak woodland, rivers, inland rock- open mosaic habitats on previously developed land, inland rock outcrop and scree habitats, lowland acid grassland, dwarf shrub heath, purple moor-grass and rush pastures and upland flushes, fens and swamps

Tree Preservation Orders (TPOs) Ancient Woodland (AW)

No Tree Preservation Orders were identified within 100m of the site

Several areas of ancient woodland lie within proximity to the development site area. Of these only one is likely to be impacted by proposed works (see red star on Figure 3). This area of AW alongside the nearby AW located to the western side of the river, have already experienced some degree of disturbance due to the landslide that occurred directly adjacent.

Figure 3: Ancient woodland areas located within proximity to the development site area (Map adapted from the Lle Ancient Woodland Inventory (NRW, 2011))



4. Phase 1 Habitat Results

4.1 Introduction

The Phase 1 habitat survey undertaken by Redstart (Redstart, 2020) identified the following habitats within the redline boundary and 30 metres buffer area and are listed below in the order found in the Handbook for Phase 1 habitat survey (JNCC, 2010, revised 2016):

- A1.1.1 Semi-natural broadleaved woodland;
- A1.2. 2 Coniferous plantation woodland;
- A2.1 Scrub dense;
- A2.2 Scrub scattered;
- A3.1 Scattered broadleaved trees;
- A3.1 Scattered coniferous trees;
- B1.1 Unimproved acid grassland;
- B1.2 Semi-improved acid grassland;
- B2.2 Semi-improved neutral grassland;
- B5 Marsh/marshy grassland;
- C1.1 Bracken continuous;
- C1.2 Bracken scattered;
- C3.1 Tall ruderal;
- D1.1 Acid dry dwarf shrub heath;
- D3 Lichen/ bryophyte heath
- D5 Dry heath/ acid grassland mosaic
- E1.2 Raised bog;
- E2.1 Acid flush;
- G1 Standing water;
- G2 Running water;
- I1.1.1 Natural inland cliff
- I2.2 Rock exposure artificial – Spoil;
- J2.5 Wall;
- J2.6 Ditch;
- J2.8 Earth bank;
- J3.6 Buildings structures and hardstanding;
- J4 Bare ground

These habitats are described below, and their distribution and corresponding habitat codes are provided on Phase 1 Habitat Map (Drawing GC3613-RED-0074-XX-DW-L-0005 Phase 4 – Phase 1 Habitat Survey Map (3 pages)).

Target Notes (TN), accompany the habitat descriptions, which should be read in conjunction with the Phase 1 Habitat Map Sheets 1 and 2. Target notes and their descriptions are provided in Appendix B. A botanical species list is provided in Appendix C.

4.2 Habitats

4.2.1 *Semi-natural Broadleaved Woodland*

Two small parcels of broadleaved semi-natural woodland were recorded within the redline boundary, which were also adjacent to the landslide. The woodland was categorised as upland oak woodland, as mature sessile oak (*Quercus petraea*) and pedunculate oak (*Quercus robur*) species were commonly present. Mature/notable ash (*Fraxinus excelsior*), birch species (*Betula spp.*), rowan (*Sorbus aucuparia*) hazel (*Corylus avellana*) and holly (*Ilex aquifolium*), were also recorded within the woodland. The ground flora mainly consisted of dense bracken and bramble (*Rubus fruticosus* agg.). Other ground flora species included, ancient woodland plant indicators such as bluebell (*Hyacinthoides non-scripta*) opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*), field rose (*Rosa arvensis*), dog violet (*Viola spp.*); germander speedwell (*Veronica chamaedrys*), wild strawberry (*Fragaria vesca*), common ivy (*Hedera helix*), and barren strawberry (*Potentilla sterilis*). A diversity of ferns (hard fern (*Blechnum spicant*), polypody (*Polypodium sp.*), male-fern species (*Dryopteris spp.*), lady-fern (*Athyrium filix-femina*), hart's-tongue (*Asplenium scolopendrium*) and maidenhair spleenwort (*Asplenium trichomanes*) and bryophytes were recorded on site.

Mature trees had rot/woodpecker holes, which could provide habitat opportunities for breeding birds and roosting sites for bats (TN34 and TN35). Green woodpecker was recorded in the area and other birds such as buzzard, raven, jay and grey heron were noted regularly perching on the mature oak trees.

No recent management of these woodland parcels was noted.

Other woodland categories were present adjacent to the site such as wet woodland, including willow carr. Wet woodland and willow carr were mapped along the Rhondda Fach and ditches outside of the redline boundary. These linear woodland parcels are situated in the bottom of the river valley with abundant alder (*Alnus glutinosa*) and willow species (*Salix spp.*), with occasional oak species and downy birch (*Betula pubescens*) in the canopy. An understory was present with occasional hazel, hawthorn (*Crataegus monogyna*) and abundant willow species.

The upland oak woodland and wet woodland habitat are listed as the Priority Habitats under Environmental (Wales) Act (2016) and on the RCT LBAP, therefore these habitats are considered to be of importance at the regional and county level for nature conservation.

In places the woodland habitat had been modified with the invasive species, Himalayan balsam.

4.2.2 *Coniferous Plantation*

A large parcel of a coniferous plantation was mapped adjacent to the eastern side of the redline boundary of the survey area. Sitka spruce (*Picea sitchensis*) was the dominant species within the plantation.

4.2.3 *Dense and Scattered Scrub*

Scattered scrub consisting of bramble, willow, hawthorn, saplings and immature tree species of ash, birch, alder, willow was present throughout the site. Dense and scattered scrub recorded was categorised in the following groups:

Gorse scrub

Dense and scattered scrub comprised gorse (*Ulex europaeus*) and dwarf gorse (*Ulex minor*). The gorse scrub was mainly recorded at the southern end of the site and along the drain system of the Old Smokey.

Willow scrub

Willow scrub was noted along small watercourses/ditches on site.

Bramble scrub

Mosaic of dense and scattered bramble scrub was noted along the boundaries between the habitats on site and along the road verges. Extensive mosaic of bramble and bracken (*Pteridium aquilinum*) cover was noted within the ground flora of woodland parcels and within the fridd habitat on the slope throughout the site location. This habitat comprised mainly bramble, however, other species were occasionally present such as hawthorn, dog-rose, gorse, willow species saplings of ash, oak, willow, rowen and hazel.

Bramble scrub was present across the site and willow and gorse scrub was mainly present within the coal tip areas.

4.2.4 *Mixed - Broad-leaved and Coniferous Scattered Trees*

Scattered mixed trees were recorded throughout the site. Broadleaved species included ash, alder, rowan, oak and birch species ranging from immature to mature/notable were mapped within fridd and dry-heath/acid grassland mosaic. A number of the ash and sessile oak trees recorded can be classified as notable/veteran trees, due to trunk girths exceeding 1 m metre girth (TN34 and TN35).

Coniferous species were limited to the self-seeded Sitka spruce (*Picea sitchensis*), Scots pine (*Pinus sylvestris*) and larch species (*Larix* sp.) mainly located within 'Old Smokey' tip or in close proximity reflecting tree species combination of the near-by coniferous plantation.

4.2.5 *Semi-improved Neutral Grassland*

Semi-improved neutral grassland had very limited presence within the site, only small parcels of this habitat were target-noted along the road verges (TN17) and around building ruins (TN3 and TN4) to the north of the site.

This type of grassland was mainly recorded along the road verges on steep slopes. The grassland was varied in species richness throughout the habitat. Overall, the grassland was represented by a mosaic of damp species-poor grassland, neutral semi-improved grassland and individuals of tall ruderal.

The damp poor semi-improved grassland consisted mainly of grass species such as Yorkshire-fog, false oat-grass (*Arrhenatherum elatius*) and creeping bent (*Agrostis stolonifera*) with the limited number of herbs - creeping buttercup (*Ranunculus repens*), yarrow (*Achillea millefolium*) with the occasional tufts of soft-rush (*Juncus effusus*) and tufted hair-grass (*Deschampsia*

cespitosa subsp. *cespitosa*). The neutral semi-improved grassland habitat species list included extra forbs species such as common knapweed (*Centaurea nigra*), common bird's-foot-trefoil (*Lotus corniculatus*), greater bird's-foot trefoil (*Lotus pedunculatus*), selfheal (*Prunella vulgaris*), tormentil (*Potentilla erecta*) and common ragwort (*Senecio jacobaea*).

4.2.6 Marsh/Marshy Grassland

Two categories of marshy grassland habitat were noted during the survey on site; soft-rush dominated habitat and purple moor-grass dominated habitat.

Soft-rush dominated habitat (TN19, TN20 Photograph 1), was mainly present in small patches, occupying local depressions on site. Generally, this habitat was species poor, dominated by soft-rush with low numbers of species such as foxglove (*Digitalis purpurea*), tufted hair-grass, Yorkshire-fog (*Holcus lanatus*) within an extensive carpet of bryophyte cover. Some well-established ant-hills (TN15) were recorded in this habitat and evidence of small mammals (vole species) use was observed. A small biodiverse area with additional eleven species was identified near the middle section of the haul road at TN20. The species such as marsh-bedstraw (*Galium palustre*), bog stitchwort (*Stellaria alsine*) greater bird's-foot-trefoil (*Lotus pedunculatus*), lady-fern (*Athyrium filix-femina*); male fern species (*Dryopteris* spp). common sorrel (*Rumex acetosa* subsp. *acetosa*), sharp-flowered rush (*Juncus acutiflorus*) were recorded as commonly present.

The parcels of purple-moor-grass dominated marshy grassland (TN2, TN12, TN13, TN14, Photograph 1) recorded were also low in plant diversity. The following species were recorded within the habitat: purple moor-grass (*Molinia caerulea*), heath bedstraw (*Galium saxatile*), tufted hair-grass, mat-grass (*Nardus stricta*), foxglove, tormentil, soft-rush, sweet vernal grass (*Anthoxanthum odoratum*), green-ribbed sedge (*Carex binervis*), heath-rush (*Juncus squarrosus*). Occasional well-established anthills and mammal evidence (Fox scat at TN1) were recorded within the habitat.

The purple moor-grass dominated habitat occupied gently sloping ground and was often present within a mosaic of dry heath and unimproved acid grassland habitats (TN7; TN8; TN11; TN14). contributing to a greater overall biodiversity.

Purple moor-grass and soft-rush marshy grassland habitats are listed as Priority Habitats regionally under Environmental (Wales) Act 2016 and locally as RCT Site of Importance for Nature Conservation (SINC) qualifying habitats.

Photograph 1: Marshy grassland habitat. Soft-rush dominated is at the front and purple moor-grass dominated habitat at the background



4.2.7 *Scattered and Continuous Bracken*

Scattered and continuous bracken habitat is located mainly along the redline boundary of the site over the steep slopes. The bracken was a part of so-called ffridd habitat on site. Ffridd is a mosaic of dense and scattered bracken, acid grassland and heath habitats at different stage of succession. Most of the bracken habitat stands appeared to be a species poor, where species content was limited to a few species, such as tufted hair grass, soft-rush, foxglove, creeping bent.

4.2.8 *Tall Ruderal*

Tall ruderal habitat was identified within mosaic of bramble scrub and bracken and semi-improved neutral grassland habitats located along the boundaries of the road verges, near the building ruins (TN3 and TN4), fences, walls, and occasionally along the watercourses/ditches on site. The habitat was too sparse to map. The species composition was varied and included stands of rosebay willowherb (*Chamaenerion angustifolium*), great willowherb, common nettle, broad-leaved dock and cleavers.

4.2.9 *Unimproved acid grassland; Acid Grassland and Heath Mosaic and Dry Heath*

Mosaic comprising the three habitats was widespread across the site. These habitats are also the most variable on site and at different stages of succession. There are two types of the habitats – artificially created, occupying colliery spoil tips and habitats within the natural landscape. Both are ecological valuable habitats. The habitats occupying the colliery spoil tips were generally less biodiverse, with fewer species of vascular plants present within a bryophyte ‘lawn’. Commonly recorded species in this habitat were common bent (*Agrostis capillaris*); bilberry (*Vaccinium myrtillus*), heather (*Calluna vulgaris*), mat-grass (*Nardus stricta*); wood-rush species (*Luzula* spp.), heath-grass (*Danthonia decumbens*) (Photograph 2).

Photograph 2: Unimproved acid grassland



Self-seeded, scattered Sitka spruce trees and gorse scrub were recorded in the less vegetated areas of the spoil tips, indicating that these areas are transitioning to dry heath habitat (Photograph 3 and 5).

Photograph 3: Dry heath and acid grassland mosaic habitat -heather dominated. Dwarf gorse is present



The heath and acid grassland mosaics occupying the natural landscape had a greater diversity of plant species (TN16, TN24, TN27, Photograph 4). Furthermore, higher numbers of species were recorded where the dwarf-shrub component mainly comprised bilberry (Photograph 4). The following species were also recorded commonly/frequently present: heather, common bent, sheep's fescue, red fescue, heath bedstraw, purple moor-grass, cross-leaved heath (*Erica tetralix*), green-ribbed sedge; mat-grass, heath-grass, tormentil, common vetch, lichen and bryophytes species. The area of the habitat was particularly extensive (TN27) to the south of the proposed receptor site and large parcel was noted along the proposed haul road (TN22). Well-established anthills and numerous numbers of small mammal holes were also recorded.

Photograph 4: Dry Heath with bilberry dominated habitat



Photograph 5: Mosaic of dry heath and acid grassland habitats affected by the landslide



4.2.10 *Semi-improved Acid Grassland*

A single parcel of semi-improved acid grassland habitat was mapped at the northern boundary of the site. The plant species assemblage is typical of this habitat and comprised mainly grass species such as common bent, red fescue and Yorkshire-fog, with wood-rush species and occasional tormentil was also present. Much of the grassland had been used as a pasture and signs of overgrazing were recorded.

4.2.11 *Acid Flush and Raised Bog*

Four areas of acid flush habitat (TN5, TN9, TN18 and TN25) were mapped within the redline boundary. The habitat typically comprised a carpet of bryophyte with dominant bog-moss species (*Sphagnum* spp.) cover overlaid by abundant soft-rush, star sedge (*Carex echinata*) and frequent common yellow sedge (*Carex demissa*), sharp-flowered rush, lesser spearwort (*Ranunculus*

flammula) and bulbous rush (*Juncus bulbosus*). Commonly present ivy-leaved bellflower (*Wahlenbergia hederacea*) was identified within the acid flush at TN25 and at TN31 (Photograph 6).

Photograph 6: Ivy-leaved bellflower (Near threatened) was identified within acid flush habitat.



At TN9 a succession of mire habitats was identified, where the acid flush was succeeded by a raised bog. Areas of open standing water within the habitat were also recorded. At least four bog-moss species were recorded including papillose bog-moss (*Sphagnum papillosum*), which is one of the peat forming bog-mosses indicating that the mire habitat is well established. Soft-rush, velvet bent (*Agrostis canina*), Yorkshire-fog and bulbous rush (*Juncus bulbosus*) were commonly present and green-ribbed sedge (*Carex binervis*), cross-leaved heath (*Erica tetralix*), common yellow-sedge (*Carex viridula* subsp. *oedocarpa*), red fescue (*Festuca rubra*), heath rush (*Juncus squarrosus*), sedge species (*Carex* spp.) and lesser spearwort (*Ranunculus flammula*) were occasionally present within the habitat. The following bog-mosses were locally abundant within the habitat: flat-topped bog-moss (*Sphagnum fallax*), fringed bog-moss (*Sphagnum fibriatum*) and red bog-moss (*Sphagnum capillifolium*).

Both habitats are listed as Priority Habitats under EWA (2016).

4.2.12 Standing Water

Two ponds were recorded approximately 500m to the south of the redline boundary at Cefn Llechau Uchaf Farm, Stanleytown within marshy grassland habitat grazed by horses (approximate grid reference ST 01658 95180)

4.2.13 Running Water

A number of small ditches were recorded, bisecting the site. The water content and flow within the ditches was weather dependent. No marginal vegetation was recorded within the habitat.

The Rhondda Fach is a main watercourse, adjacent to the south-western boundary of the site. It is a highly modified watercourse with fast flow, running in a south-easterly direction.

Although, the river is outside of the planning boundary it is located within the steep narrow valley and could be indirectly affected by the works through pollution. Following survey and extensive

monitoring of otter for the earlier phases of the remedial works it is known that otter utilise the river.

4.2.14 *Natural Inland Cliff*

There are several rock outcrops mainly sandstone throughout the sit. Lower plant species such as lichen and bryophytes were recorded at these sites (TN30 and TN34).

4.2.15 *Artificial Rock Exposure*

Tylorstown Tip (Old Smokey) is an historical colliery which resulted in artificial rock exposure across the site., This was vegetated over by a mosaic of habitats including dry heath, acid grassland, bryophyte and lichen heath, scattered trees of Sitka spruce, larch species, rowan, birch species and gorse scrub. The steep slope and shallow nutrient-poor soils were supporting the habitats in their primary succession stage.

4.2.16 *Buildings, Dry Stone Wall, Bare Ground Other Structures and hardstanding*

The ruins of two building were recorded within the redline boundaries (Photograph 7, TN3 and TN4), which situated to the northwest of the proposed receptor site. The ruins are suitable for reptile and amphibian hibernation. The closest building to the redline boundary is the Rhondda Fach Leisure Centre, which is located approximately 70m to the southwest.

Four lengths of drystone wall, or remnants of drystone wall, with diverse lichen and bryophyte cover were mapped within the redline boundary (Photograph 8).

Hardstanding included highways and bare ground included tracks, paths and landslide.

Photograph 7: Building ruins



Photograph 8: Remnants of drystone wall



An area of bare ground habitat, adjacent to the northern side of Old Smokey was mapped within the redline boundary (Photograph 9).

Photograph 9: Area of bare ground adjacent to the northern side of Old Smokey



4.3 Species

Species results combining both results from data searches and physical observations during the Phase 1 habitat survey are presented as follows. A full list of protected or priority species and species of conservation concern within a 2 km radius of the site (5 km for bats) is provided in Appendix A.

4.3.1 *European Protected Species* *Bats*

A total of 101 records for eight bat species and a further five categories for records identified only to genus level were returned from data searches within 5 km. A full list is provided in Appendix A. The closest record was for an unknown bat species (*Chiroptera* sp.) roost within a house located approximately 150 m south-west of the western extent of the development area.

The grasslands, dry-heath and woodland habitats are likely to provide foraging bats,

Numerous semi-mature, mature and notable trees within the survey area, particularly in association with woodland and scattered trees habitats are likely to provide roosting opportunities for bats.

Otter

No records were returned for otter from SEWBRc data searches. The River Rhondda Fach which flows to the west of the western section of the development area, is however cited as supporting breeding otter populations

Otter activity was recorded in the Rhondda Fach during ecological assessment and supervision of works for Phases 2 and 3 of the remedial scheme. Evidence included the presence of resting holts and spraint (Redstart, 2020).

Great Crested Newt

No records were returned for great crested newt (*Triturus cristatus*) within the 2 km search area.

The two ponds located at Cefn Llechau Uchaf Farm, over 500 m to the south of the redline boundary have potential to support breeding great crested newt. Marshy grassland habitat on site is suitable terrestrial habitat for great crested newt, however, being more than 500m the chance to encounter GCN on site is low.

4.3.2 *UK Protected/Priority Species* *Protected Plant Species*

Seven records of protected/priority plants were returned from data searches, all comprising bluebell (*Hyacinthoides non-scripta*). The closest of these was located approximately 300 m west of the western extent of the development area on the connected slopes.

Ivy-leaved bellflower (TN25 and at TN31, Photograph 6), listed on RCT LBAP and currently classified as a 'Nearly Threatened' species was identified within the acid flush habitat on site.

Badgers

Four records for badger (*Meles meles*) were returned within the 2 km search area. The closest record being for a single adult and nearby sett located approximately 1 km south-east of the eastern section of the development area.

The woodland is suitable to support badger and the grassland habitats offer semi-optimum (secondary) foraging habitat.

Invertebrates

A total of 21 records were returned for six priority/protected invertebrate species. Records comprised butterfly and moth species and include species such as grayling (*Hipparchia semele*) and small pearl-bordered fritillary (*Boloria selene*) butterflies; and cinnabar (*Tyria jacobaeae*) and buff ermine (*Spilosoma lutea*) moths. The closest record was for small heath butterfly (*Coenonympha pamphilus*) located approximately 120 m west of the western extent of the development area. Records for grayling, small pearl-bordered fritillary and dingy skipper (*Erynnis tages*) also exist within 300 m both west and east of the development area. SINC's in the surrounding area are cited as supporting a range of invertebrates particularly butterfly species.

No species-rich bracken habitat or violet-rich habitats suitable to support fritillary butterfly species were present within the redline boundary.

Amphibians (excluding great crested newt)

A total of 13 records were returned for three protected/priority amphibians, comprising of common frog (*Rana temporaria*), common toad (*Bufo bufo*) and palmate newt (*Lissotriton helveticus*). The closest record was for common frog spawn located approximately 50 m north of the central section of the development area in a drainage ditch associated with the St Gwynno Forest. SINC's in the surrounding area are cited as supporting amphibians and/or contain habitats (i.e. marshy grassland) which are highly likely to support amphibians.

The marshy grassland, standing water and ditches with standing open water across the site are suitable to support common amphibians.

Reptiles

Seven records for reptiles were returned from data searches, comprising common lizard (*Zootoca vivipara*) and slow worm (*Anguis fragilis*). The closest record was for a slow worm located 750 m north-west of the western extent of the development around the area of Blaenllechau. SINC's in the surrounding area are cited as supporting reptiles and/or contain habitats (i.e. mosaics of fridd, acid grassland and heath) which are highly likely to support reptiles.

The heath habitats are likely to support slow-worm, grass snake and common lizard, although much of the area is marshy grassland and unsuitable for slow worm and common lizard. Intact and remnant drystone walls are likely to provide shelter and basking habitat for common lizards.

Reptiles were recorded on the lower slopes of the site and were observed during Phase 2 and 3 works (Capita, 2020a; 2020b). Low numbers of slow-worm and common lizard were recorded in the less densely vegetated habitats on old colliery material with slightly higher numbers recorded on the densely vegetated ballast of the disused tramway.

Birds

Data searches returned a total of 285 records for 25 protected/priority bird species including eight Schedule 1 species comprising barn owl (*Tyto alba*), brambling (*Fringilla montifringilla*), common crossbill (*Loxia curvirostra*), fieldfare (*Turdus pilaris*), goshawk (*Accipiter gentilis*), peregrine (*Falco peregrinus*), red kite (*Milvus milvus*) and redwing (*Turdus iliacus*).

The closest non-schedule 1 species records were for tree pipit (*Anthus trivialis*) and skylark (*Alauda arvensis*) which were recorded directly along the central section of the development area. The closest Schedule 1 record was for barn owl located approximately 200 m south-east of the eastern extent of the development area. SINC's in the surrounding area are also cited as supporting assemblages of both common upland birds and common woodland bird species, alongside breeding habitat for both Schedule 1 species such as goshawk and non-schedule 1 species such as nightjar (*Caprimulgus europaeus*).

Grasslands, dry-heath, scrub, woodland and open water habitat within the survey area offer suitable habitats for breeding, migratory and overwintering birds. The grassland and bracken habitats have potential to be used by ground nesting birds, such as skylark, which was recorded within the mosaic of heath and acid grassland habitat (TN21) and stonechat (*Saxicola rubicola*).

Fish

No records were returned for priority and protected fish species however, the Rhondda Fach is cited as supporting brown trout (*Salmo trutta*) with potential for salmon (*Salmo salar*)

Brown trout were observed in the river during the ecological surveys and work supervision for Phases 2 and 3 of the remedial works (Redstart, 2020a; 2020b).

5. Evaluation of Ecological Features and Potential Impacts

The desk study and field survey revealed the following ecological features of value to nature conservation.

5.1 Designated Sites

5.1.1 *Non- Statutory Designated Sites*

The entire footprint of the works is located within the Old Smokey SINC, including designated features and habitats such as unimproved acid grassland, dry-heath, lichen/ bryophyte heath and mosaic of dry-heath, acid grassland and bracken. These habitats will be directly (temporary and/or permanently) and indirectly impacted. Habitat will be permanently lost at the proposed receptor site. Potential indirect impacts include pollution, hydrological changes, disturbance and degradation of habitats (e.g. nutrient influx).

5.1.2 *Ancient Woodland*

The closest parcel of the ancient woodland is partially located within the landslide to the west; therefore, it has already been impacted upon to a degree (Figure 3). Indirect impacts could also occur from pollution and habitat degradation.

5.1.3 *Priority Habitats*

Out of ten categories of Priority Habitats identified within the redline boundary, eight will be directly (permanently and temporarily) and indirectly impacted on by the proposed works. These habitats are upland oak woodland, open mosaic habitats on previously developed land, lowland acid grassland, dry heath, purple moor-grass and rush pastures, upland flushes, fens and swamps, ffridd and linear feature - dry stone wall.

5.1.4 *Other Habitats*

Other habitats could also be indirectly impacted through pollution and habitat degradation. These include the following: dense bracken, dense scrub (bramble and gorse); scattered broadleaved and coniferous trees, neutral semi-improved grassland.

Coniferous trees on site comprised mainly one species, Sitka spruce. The trees offer habitat for breeding birds, but it is a non-native coniferous species that has self-seeded on the site and, without management, valuable habitats such as dry heath and acid grassland will be succeeded by Sitka woodland. Additionally, in some areas dense bracken is taking over steep slope areas driving succession towards a low biodiverse, single species habitat.

5.2 Habitats

5.2.1 *Permanent impact*

The proposed receptor site is mainly located within bare ground and both types of marshy grassland, purple moor-grass and soft-rush dominated habitats. However, habitats such as acid flush, dry-heath, unimproved acid grassland and mosaic are also going to be affected through the land-take, changes in hydrology, degradation and pollution.

Some of the valuable habitats such as dry-heath, unimproved acid grassland, mosaics of dry heath and acid grassland, upland oak woodland, scattered broadleaved and coniferous trees

are remaining habitats within the slip or adjacent to the slip area. These habitats will be permanently lost, as they are occupying the coal tips, which are proposed to be removed and the material relocated to the receptor site.

5.2.2 *Temporary impacts*

The following habitats such as continuous bracken, scattered bracken, marshy grassland and unimproved acid grassland and dry-heath habitats areas, acid flush located along the proposed haul road are going to be impacted temporarily through the construction.

A proposed compound area of approximately 75m x 75m of a mosaic of marshy grassland and unimproved acid grassland adjacent to the highway to the north of the proposed receptor site will be temporarily impacted through the construction.

5.2.3 *Ground water dependant terrestrial ecosystems (GWDTE)*

Two types of potential GWDTE were identified during the survey – acid flush and raised bog habitat. These were present within the redline boundary and in close proximity to the proposed receptor site. Potential changes in the hydrology caused by the works could impact on these habitats.

5.3 European Protected Species

5.3.1 *Bats*

There is potential for some of the trees within the woodland habitat to provide roosting sites for bats. If any trees are going to be removed there is potential for bat roosts to be destroyed. Excavation works and any lighting within the compound area also has potential to disturb roosting bats in adjacent trees.

There will be temporary loss of foraging habitat for bats caused by the proposed works, however, there are large areas of suitable habitat adjacent to the site which will still be available to bats and therefore potential impacts on foraging bats is negligible.

5.3.2 *Otter*

Otter are active within the Rhondda Fach. It is not anticipated that there will be any direct impact on the river from the proposed Phase 4 works. Indirect impacts such as chemical or particulate pollution from machinery and excavation of the slip material may have an indirect impact on the water quality and therefore affect otter. Any pollution event has potential to disrupt the food chain within the riverine ecosystem, by negatively impacting on invertebrates and fish and therefore reducing food resources for otter.

5.3.3 *Great Crested Newt*

The likelihood of great crested newt being impacted upon by the proposed works is negligible. Whilst the two ponds at Cefn Llechau Uchaf Farm have potential to support breeding great crested newt, their distance from the proposed works is greater than 500 m (a distance of up to 500 m should be considered as potential newt habitat (Natural England, 2001)).

5.4 UK Protected/Priority Species

5.4.1 *Protected Plant Species*

It is highly likely that vegetation clearance and excavation of the areas where ivy-leaved bellflower was recorded will destroy individual plants and remove or damage suitable habitat for the species.

5.4.2 *Badgers*

Any removal of woodland has the potential to damage/destroy or disturb any badger setts present and removal and damage of grassland habitats on the site will lead to a reduction in the area of potential foraging habitat available to badgers.

5.4.3 *Reptiles*

The grasslands and dry-heath recorded on the site are suitable to support reptiles, however much of the area is marshy grassland and unsuitable for slow-worm and common lizard and many areas of the site are exposed and lack shelter for reptiles. It is considered that there will be a low to moderate risk to reptiles from the proposed works through accidental injury and mortalities.

As the proposed haul route is sparsely vegetated and the receptor site for Phase 4 mainly covers wet, marshy grassland, and using the numbers of reptiles recorded on the lower slopes as a reference, it is not anticipated that large numbers of common lizard and slow worms will be encountered. The receptor site for material storage is proposed mainly on secondary habitats and bare ground and only southern end of the receptor sites is taking over the natural heath habitat. Grass-snake are most likely to be present particularly in the areas of open standing water (TN26), ditches and marshy grassland (TN9, TN15, TN21) on site, but as a more mobile species it is not considered that there will be a high risk of incidental mortality.

5.4.4 *Birds*

Removal of trees, scrub, heathland and bracken may result in a moderate overall adverse impact on nesting birds if works are conducted during the breeding season (March to September inclusive). If works are conducted outside the breeding season the impact due to the loss of foraging and shelter habitat is considered to be low and short term as the surrounding environment offers suitable habitat for displaced birds during the duration of the works.

5.4.5 *Amphibians (excluding great crested newt)*

The ponds and ditches recorded in the survey area are suitable habitats for supporting amphibians, there is low potential for individual animals to be killed or injured by machinery during the works and some suitable habitat will be damaged or lost, however, due to suitable habitat being available outside of the redline boundary the overall impact on amphibians will be low and short term.

5.4.6 *Fish*

Although the Rhondda Fach is located outside of the footprint of the proposed works, there is a risk of chemical and particulate pollution being caused by the works to remove the landslip material from the slopes above the river. Any pollution of the watercourse is likely to have an impact on fish species with the severity of impact determined by the nature and extent of the pollution. Any spills of oil, chemicals or fuel are likely to have a high short-term direct adverse impact on fish species whereas input of sediment caused by the works is likely to have indirect adverse effects such as reduction in food resources if aquatic invertebrates are affected and / or loss or reduction of spawning sites through siltation and de-oxygenation.

5.4.7 *Invertebrates*

Common invertebrate species may be temporarily impacted upon by the works through loss of habitat and disturbance, however, there is sufficient habitat in the wider landscape to ensure that there are no major detrimental effects on invertebrate populations.

5.4.8 *Invasive Non-Native Species*

Himalayan balsam was recorded on the site, as a species listed on Schedule 9 of Section 14 of this WCA makes it an offence to “plant or otherwise cause” the species to grow in the wild.

Additionally, the non-native invasive species New Zealand willowherb was recorded within Tylorstown Tip (Old Smokey). The species is not a Schedule 9 listed plant, but it is good practice to take measures not to spread the species in the wild.

There is a risk that disturbance and excavation of habitat during the works will cause both these species to spread, through movement of slip material or on plant machinery, tools and the footwear of site personnel.

6. Conclusion

There are 15 non-statutory designated sites (e.g. Sites of Importance for Nature Conservation (SINCs)) within 2 km of the proposed development site, marshy grassland, unimproved acid grassland, mosaic of acid grassland and dry heath, acid flush including the most biodiverse area at TN27 and TN16. Other habitats be will directly or indirectly impacted through temporarily impact due to the construction.

One Old Smokey Slopes SINC is located within the redline boundary, therefore the SINC is going to be directly and indirectly impacted through habitat loss, pollution, hydrology change and disturbance. The following habitats within SINC will be directly impacted through the permanent habitat loss to the receptor site and habitat fragmentation -

Two SINCs are adjacent to the site. These are St.Gwynno Forest SINC, which is adjacent to the northeast/ east, and Taff and Rhondda Rivers SINC, is adjacent to the west. These two SINCs may be indirectly impacted through pollution and disturbance.

Eight Priority Habitats were recorded within the redline boundary on site will be directly or indirectly impacted (habitat loss, pollution, hydrology change and disturbance). These habitats are upland oak woodland, open mosaic habitats on previously developed land, lowland acid grassland, dry heath, purple moor-grass and rush pastures; and upland flushes, fens and swamps.

The survey area contains areas of high (at least regional and county-level) ecological value including SINC-quality habitats such as upland oak woodland, wet woodland, marsh/ marshy grassland, acid grasslands, dry-heath habitats, acid flush and raised bog.

The ancient woodland parcel to the west may be directly affected.

Habitats on site have potential to support priority and protected species, including bats, otter, great crested newt, badger, breeding and wintering birds, reptiles and invertebrates and the proposed works may result in negative impacts on these species.

There will be a detrimental impact on the protected plant species, ivy-leaved bellflower due to the proposed works.

Two invasive species were recorded on the site – Himalayan balsam, which is listed on Schedule 9 WCA and New Zealand willowherb, an invasive non-native plant species.

Recommendations detailed in Section 7 will ensure that the proposed works are compliant with the relevant wildlife legislation and current good practice.

7. Recommendations

7.1 Further survey

The following surveys are recommended prior to works commencing:

- Great crested newt eDNA survey of the two ponds;
- Badger survey;
- Bat assessment of trees, if any trees are to be removed;
- Breeding bird survey;
- Wintering birds;
- Lower plants surveys
- Non-native invasive species mapping

7.2 Habitats

7.2.1 *Further Assessment*

A hydro-geomorphic assessment should be conducted to assess the dependency of the habitats on groundwater, and potential impact on the groundwater quality.

7.2.2 *Ecological Method Statement*

An Ecological Method Statement will be in place for design and all construction methods and post-construction landscape works. This will include working practices to minimise and to mitigate the impacts on the ecologically important features and to ensure works comply with wildlife legislation. The following are likely to be included in the Ecological Method Statement:

7.2.3 *Avoidance and minimisation of impact*

Measures should be in place to avoid, or minimise where avoidance is not possible, the destruction and/or damage to SINC and Priority Habitats identified within the survey. These measures include:

- Design of receptor area and landform to avoid the most highly valued habitats
- Design of landform to minimise hydrological changes
- Design of landform to provide micro-climates to aid natural regeneration and habitat diversity
- Clear demarcation of the high ecological value habitats prior to the start of construction.
- Minimising broadleaved tree removal.
- Selection of appropriate construction methods to minimise the impacts on the habitats and protected species (i.e using matting/ rafts, using low-load machinery on tracks or with balloon tyres).
- The re-use of soil free of any contaminants, including invasive plant species seeds, to retain the seedbank and allow natural regeneration of local species and habitats the following construction.

7.2.4 *Mitigation*

- Selective temporary turf storage of high ecological value grasslands during construction works. The storage bands should be mapped according to the habitats.

- Appropriate turf restoration and aftercare following reinstatement. A minimum 5-year habitat management plan should be in place.
- Translocation of ecologically high value habitat, creation and enhancement of habitats within appropriate areas identified outside the works footprint.
- Translocation of notable/protected species (e.g. ivy-leaved bellflower) into suitable receptor habitat on the site, which will be identified by an ecologist.
- Pollution prevention measures will be implemented particularly while working near watercourses. A Construction Environmental Management Plans (CEMP) following best practise such as Guidance for Pollution Prevention (GPPs) outlined in NetReg (<https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/>) should be in place for the duration of the proposed works.

7.3 Species

7.3.1 *Reptiles*

A reptile method statement for any de-vegetation, excavation or soil moving works on site to minimise risk to reptiles will be included within the overall Ecological Method Statement. Any clearance of vegetation, excavation or soil moving works should be undertaken under ecological supervision.

7.4 Invasive Species

The appointed contractors will provide an appropriate Invasive Species Method Statement for the proposed works which will be adhered to for the duration of the works to minimise the risk of spreading invasive plants species away from the site.

7.5 Toolbox Talk

An ecological toolbox talk will be delivered to all site personnel prior to the commencement of works. This will identify the ecological constraints on the site, the legislation, methods of work required and what action to take if protected species are encountered.

7.6 Ecological Supervision

An experienced ecologist will supervise all works where ecological supervision is identified as a requirement in the Ecological Method Statement.

7.7 Enhancement

Clearance of self-seeded coniferous regeneration (e.g. Sitka spruce) and bracken to promote a mosaic of acid grassland, dry heath and bracken habitats to enhance biodiversity on the site.

Design of receptor site landform to provide numerous microclimates etc. to allow for habitat diversity and assist natural regeneration to promote biodiversity, keeping the coal tip safe and secure.

The restoration and management of colliery spoil habitats on the site, through allowing natural regeneration of habitat where possible and a long term low-key habitat management plan (including conservation grazing); engaging local community and other charitable organisation/NGO in restoration, monitoring and managing the habitats to promote biodiversity, cultural history (by incorporating archaeological features) and prevent future grass fires.

8. References

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Drawings

GC3613-RED-0074-XX-DW-L-0005 Phase 4 – Phase 1 Habitat Survey Map

GC3613-RED-0074-XX-DW-L-0006 - Phase 4 – Designated Sites 1km Buffer Map

GC3613-RED-75-XX-DR-C-0063 -Proposed Excavation Area.

GC3613-RED-75-XX-DR-C-0064 – Cross Sections

GC3613-RED-75-XX-DR-C-0065 - Cross Sections

GC3613-RED-75-XX-DR-C-0066 - Cross Sections

GC3613-RED-75-XX-DR-C-0067 - Cross Sections
























GC3613-RED-75-XX-DR-C-0068 - Cross Sections

GC3613-RED-75-XX-DR-C-0069 - Cross Sections

Tylorstown Tip Phase 4 - Phase 1 Habitat Survey Map (Page 1)

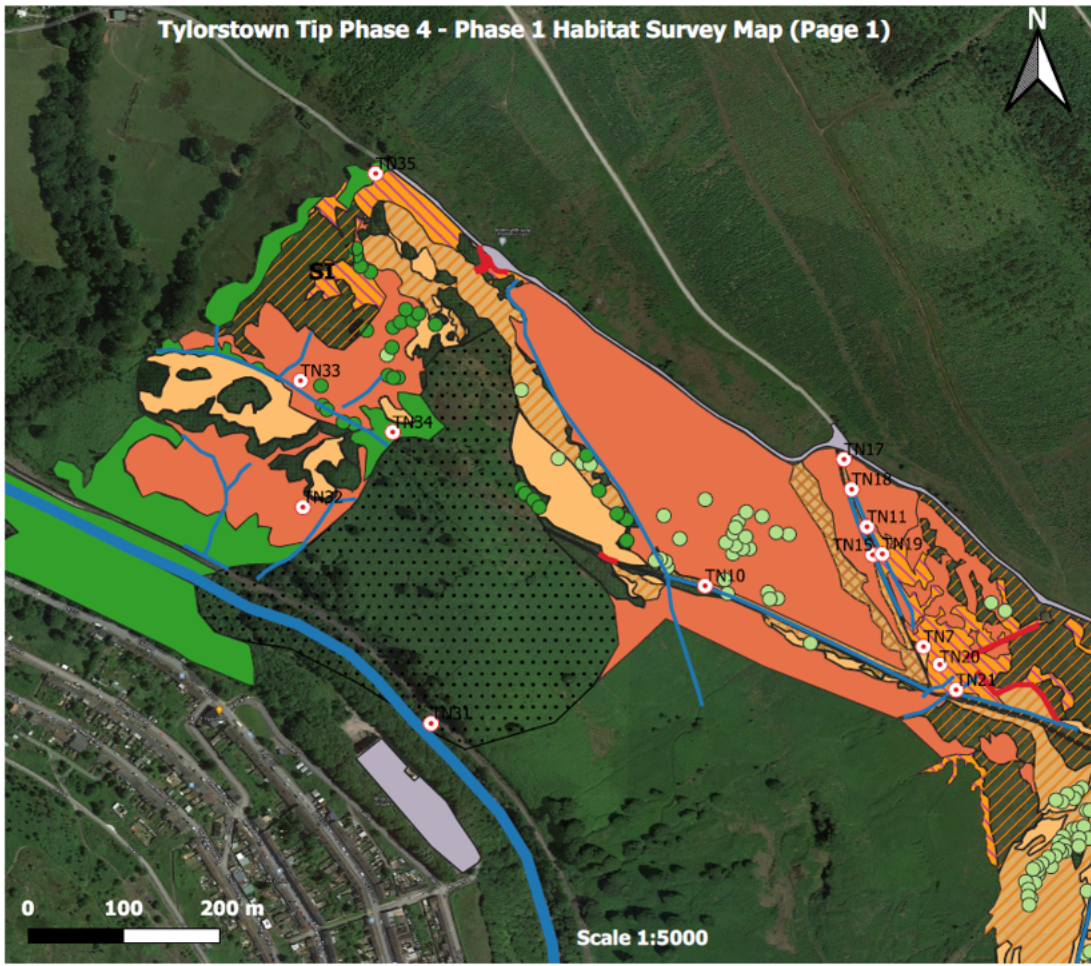


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-  Slip
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-  Broad-leaved Scattered Trees
-  Coniferous Scattered Trees
-  Dense Scrub
-  A1.2.2 Coniferous Plantation
-  B1.1 Unimproved Acid Grassland
-  Semi-improved Acid Grassland
-  B5 Marshy Grassland
-  C1.1 Bracken Continuous
-  C1.2 Bracken Scattered
-  Rhondda Fach River
-  Drain_Ditches
-  D5 Dry heath_acid grassland mosaic
-  D1 Dry Heath
-  E2.1 Acid_Neutral Flush
-  E1.6.2 Raised bog
-  J4 Bare ground
-  Dry stone wall
-  Hardstanding & Buildings
-  TN_Phase 4

Google Hybrid

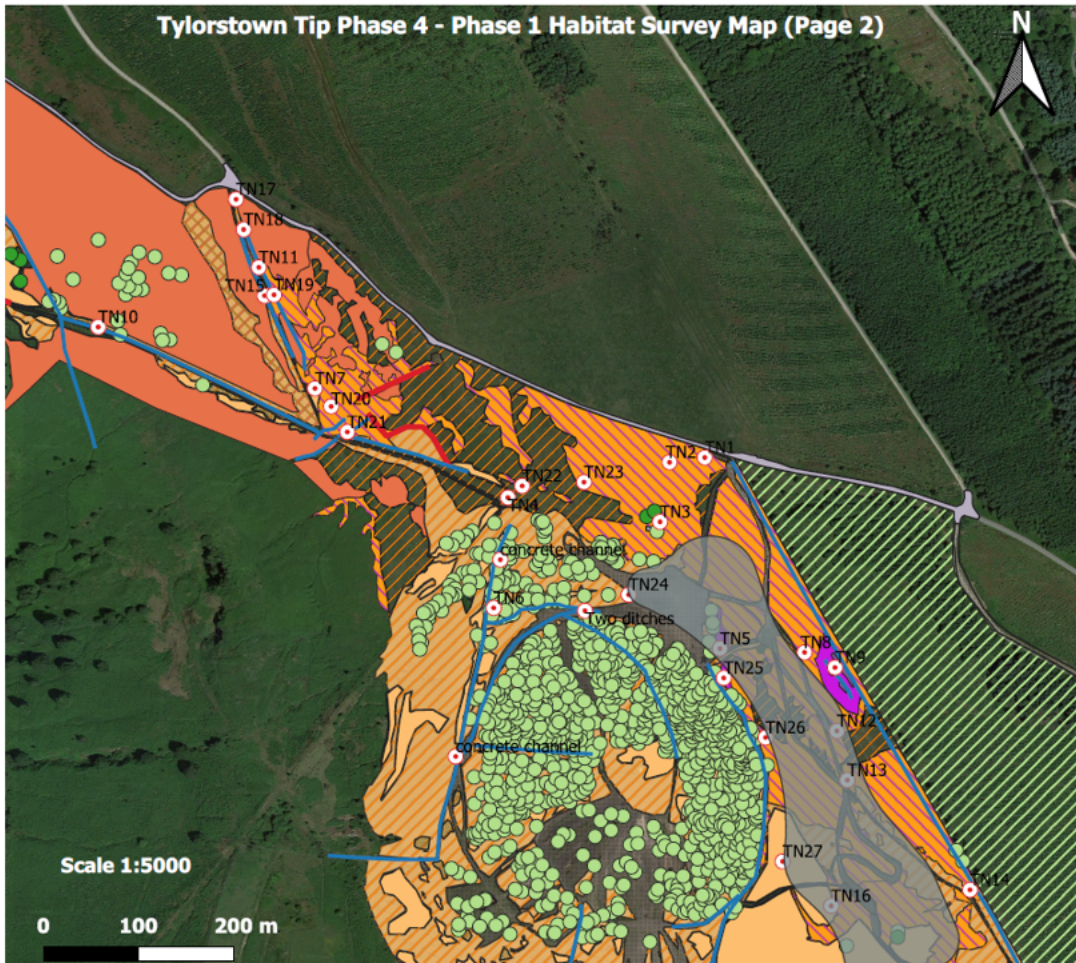
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Rhondda Cynon Taff County Borough Council	
Project:	
RCT Tylorstown Landslide – Phase 4	
Drawing:	
Phase 4 – Phase 1 Habitat Survey Map	
Project No: GC/3613	Date: Jan 2021
Drawing Identifier:	
GC3613-RED-0074-XX-DW-L-0005	
Revision PO1.0	



Scale 1:5000



Tylorstown Tip Phase 4 - Phase 1 Habitat Survey Map (Page 2)

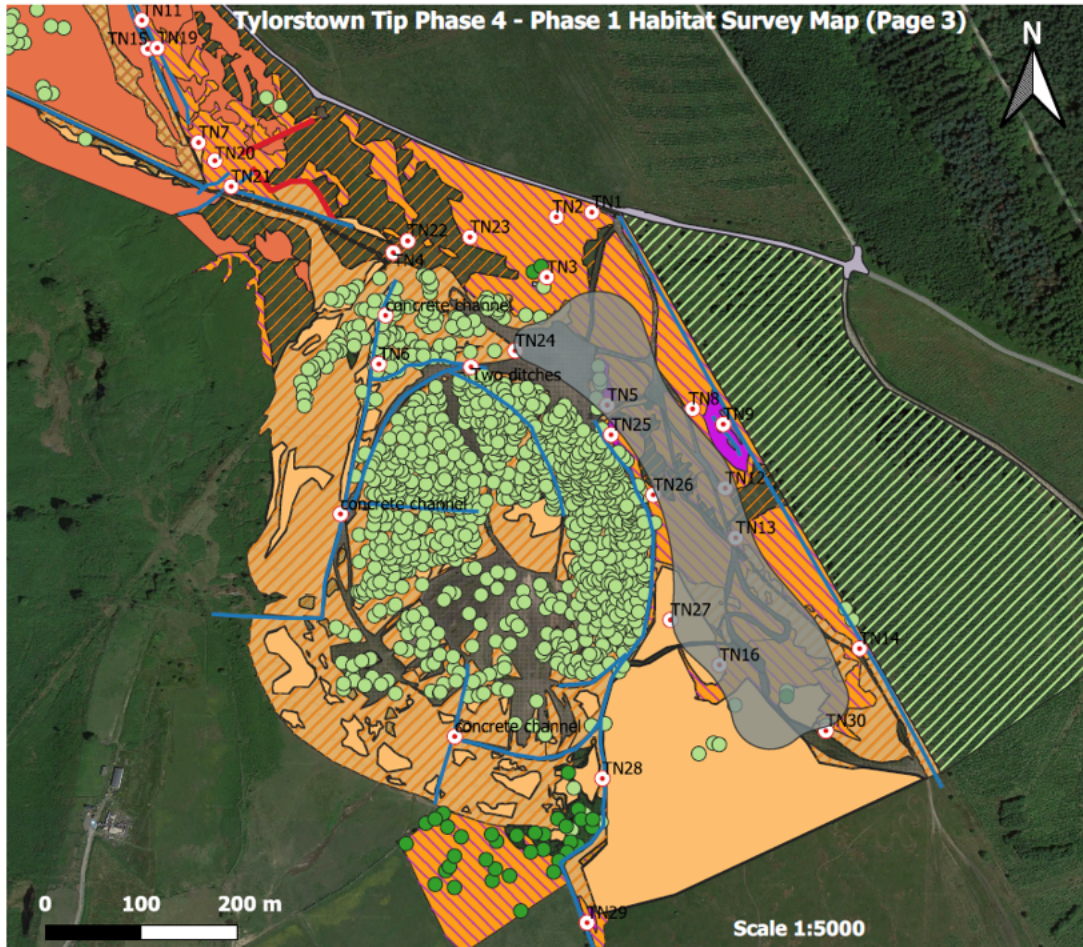


- Key:
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 - RLB_Polygon
 - Slip
 - Phase 1 Habitat Survey Habitats
 - Broad-leaved Woodland
 - Broad-leaved Scattered Trees
 - Coniferous Scattered Trees
 - Dense Scrub
 - A1.2.2 Coniferous Plantation
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 - B5 Marshy Grassland
 - C1.1 Bracken Continuous
 - C1.2 Bracken Scattered
 - Rhondda Fach River
 - Drain_Ditches
 - D5 Dry heath_acid grassland mosaic
 - D1 Dry Heath
 - E2.1 Acid_Neutral Flush
 - E1.6.2 Raised bog
 - J4 Bare ground
 - Dry stone wall
 - Hardstanding & Buildings
 - TN_Phase 4
- Google Hybrid

Purpose of use: S2 – Suitable for Information
Client: Rhondda Cynon Taff County Borough Council
Project: RCT Tylorstown Landslide – Phase 4
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Project No: GC/3613 Date: Jan 2021
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Revision: PO1.0



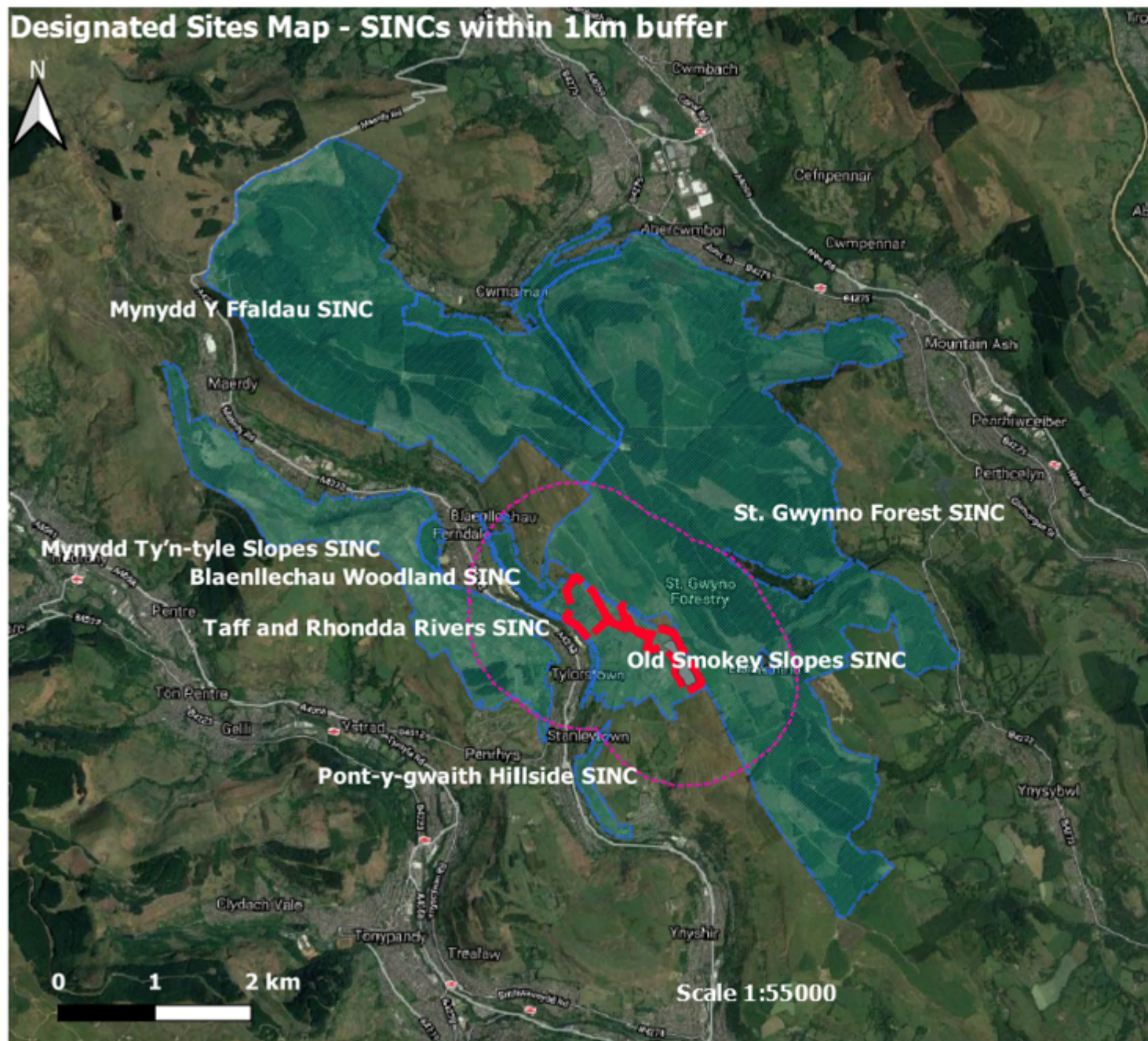
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



	Receptor_Site_C_Polygon
	RLB_Polygon
	Slip
Phase 1 Habitat Survey Habitats	
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	Broad-leaved Scattered Trees
	Coniferous Scattered Trees
	Dense Scrub
	A1.2.2 Coniferous Plantation
	B1.1 Unimproved Acid Grassland
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	B5 Marshy Grassland
	C1.1 Bracken Continuous
	C1.2 Bracken Scattered
	Rhondda Fach River
	Drain Ditches
	D5 Dry heath_acid grassland mosaic
	D1 Dry Heath
	E2.1 Acid_Neutral Flush
	E1.6.2 Raised bog
	J4 Bare ground
	Dry stone wall
	Hardstanding & Buildings
	TN_Phase 4
Google Hybrid	
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Project No: GC/3613	Date: Jan 2021
Drawing Identifier: GC3613-RED-0074-XX-DW-L-0005	
Revision PO1.0	



Designated Sites Map - SINC's within 1km buffer



Key:

-  Receptor_Site_C_Polygon
-  Buffered
-  RLB_Polygon
-  SINC's Boundaries

Google Hybrid

Purpose of use:

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Client:

Rhondda Cynon Taff County Borough Council

Project:

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Drawing:

Phase 4 – Designated Sites 1km Buffer Map

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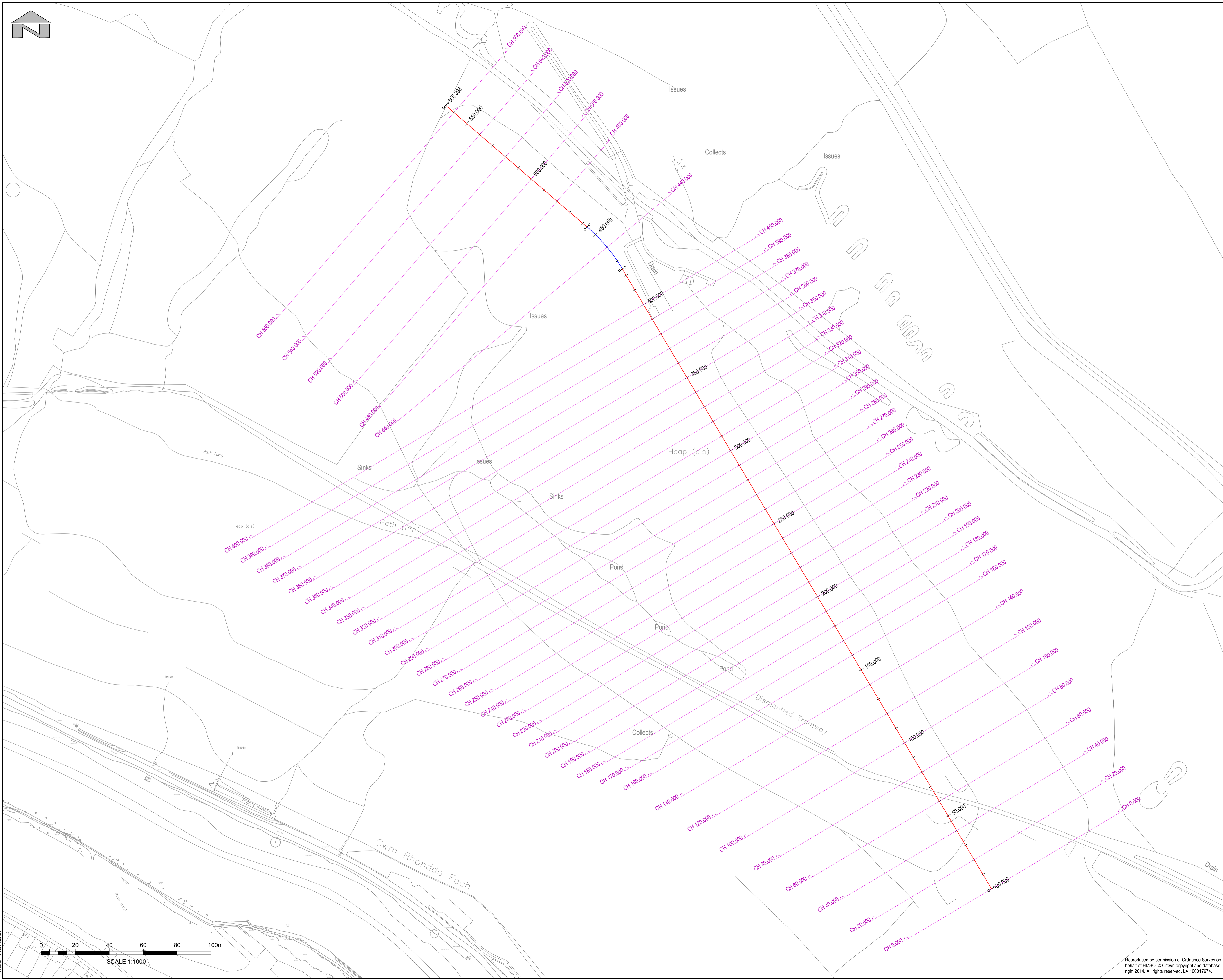
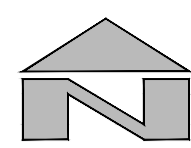
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Revision PO1.0



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Notes:
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Rev	Drawn	Chkd	Appd	Description	Date
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Purpose of Issue
S0 - Work in Progress

Classification
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Client
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Project
Tylorstown Landslide

Drawing
**Phase 4 Works - Tip Re-profile
 Cross Section Markers
 Sheet 1 of 7**

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Project No.	Date
GC/3613	Sept 2020



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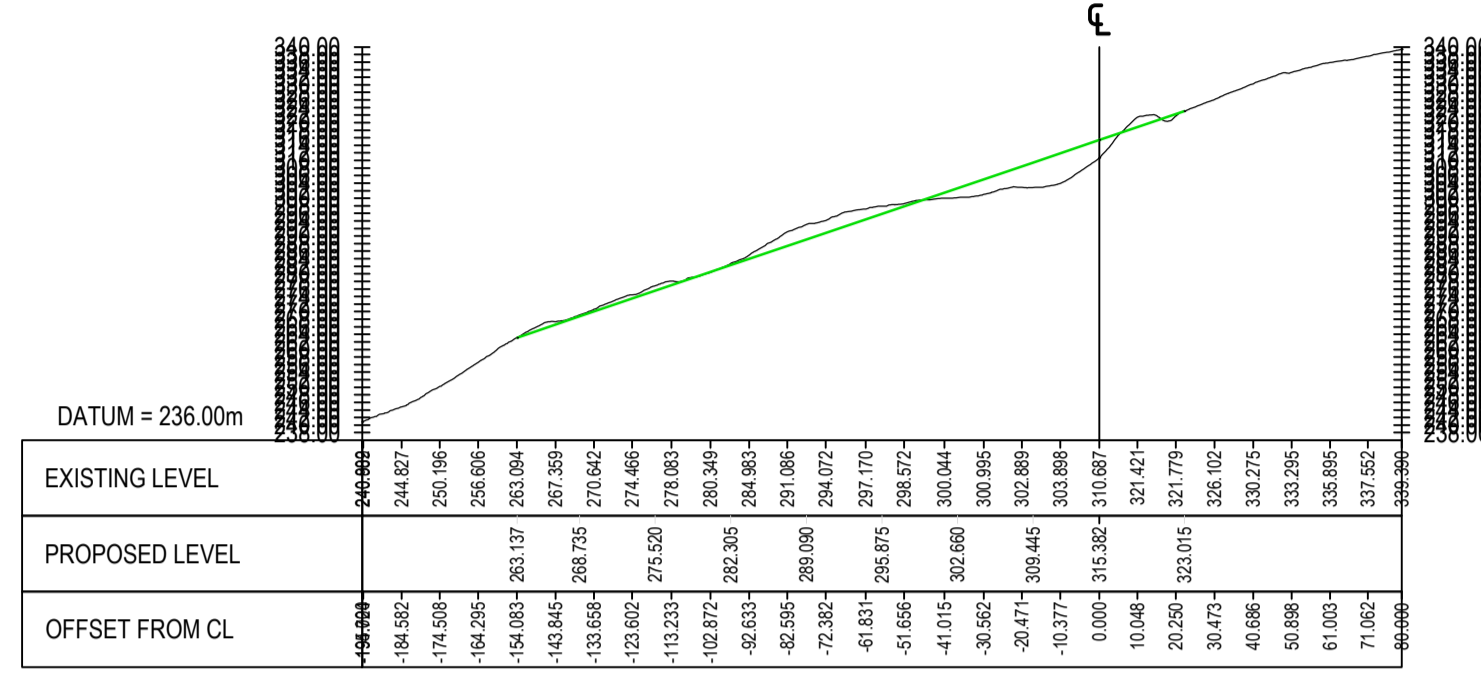


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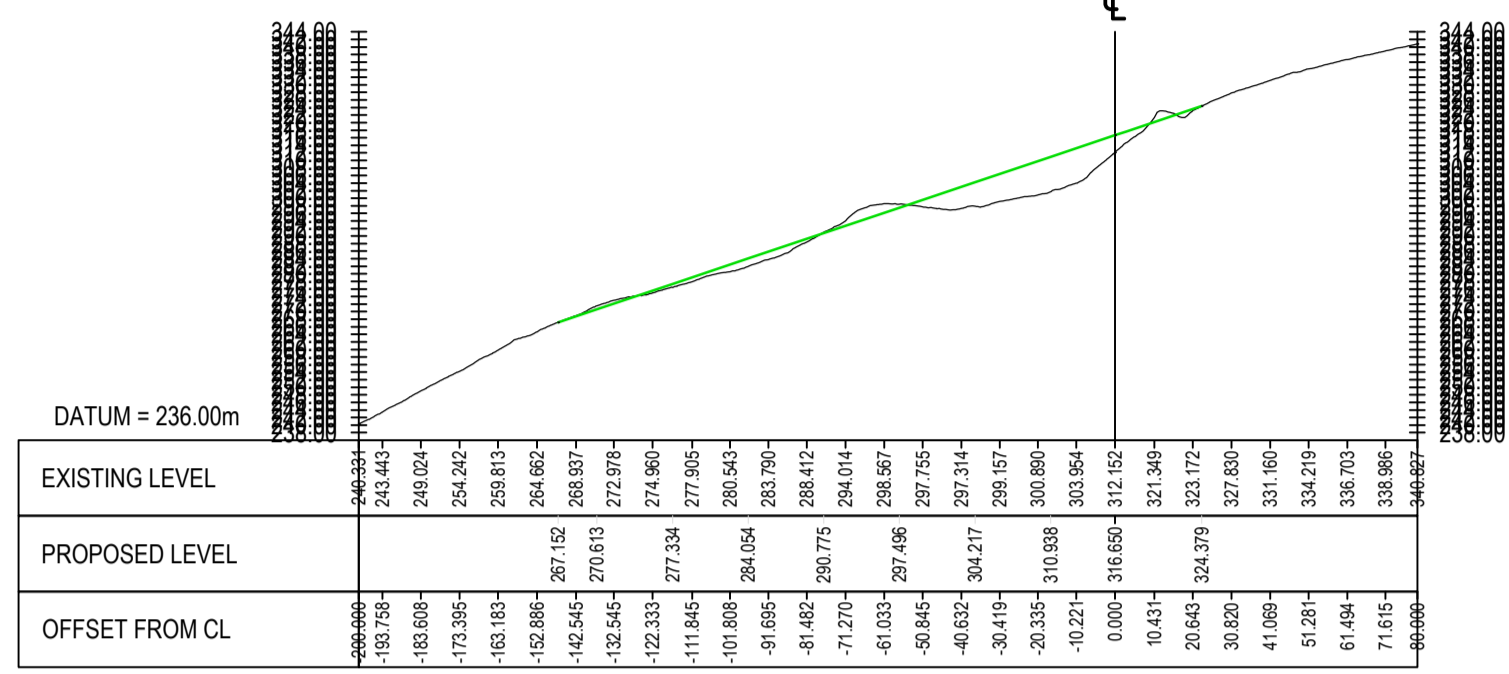
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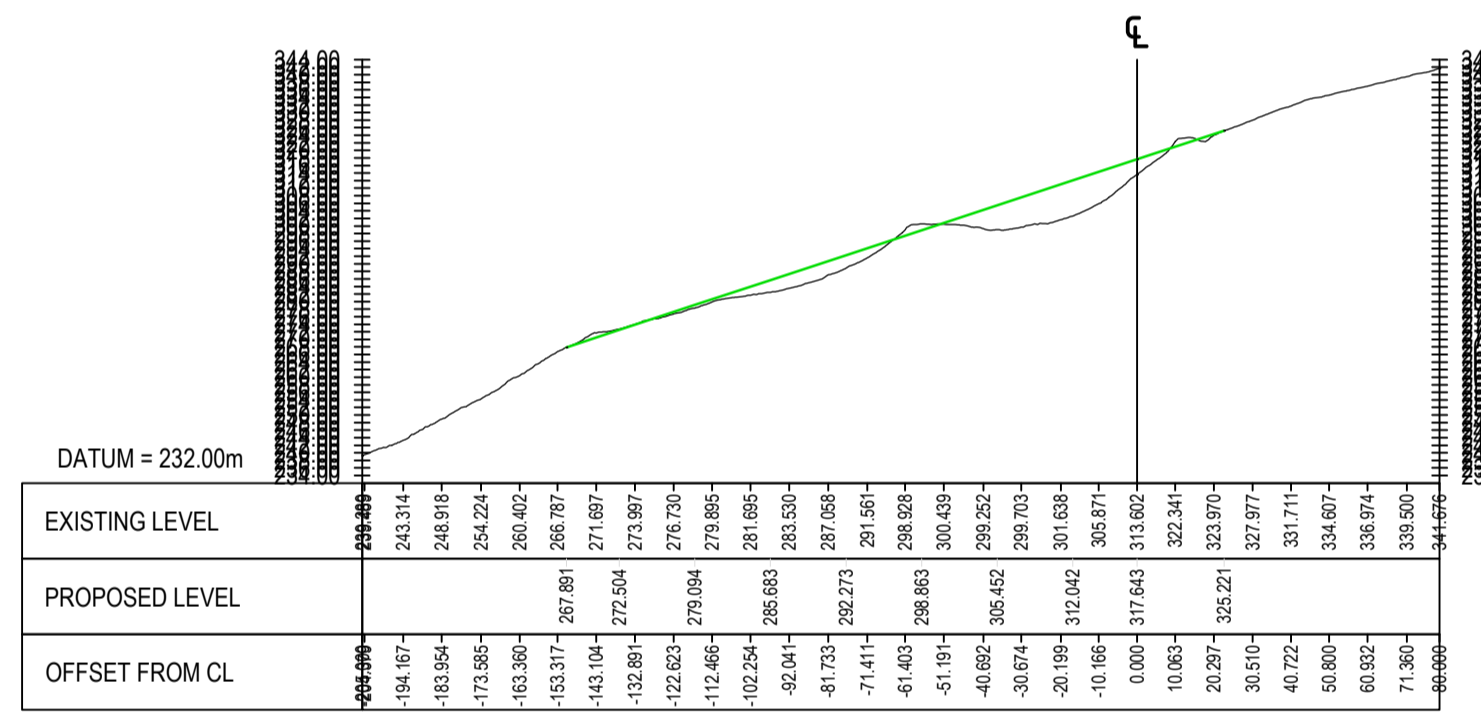
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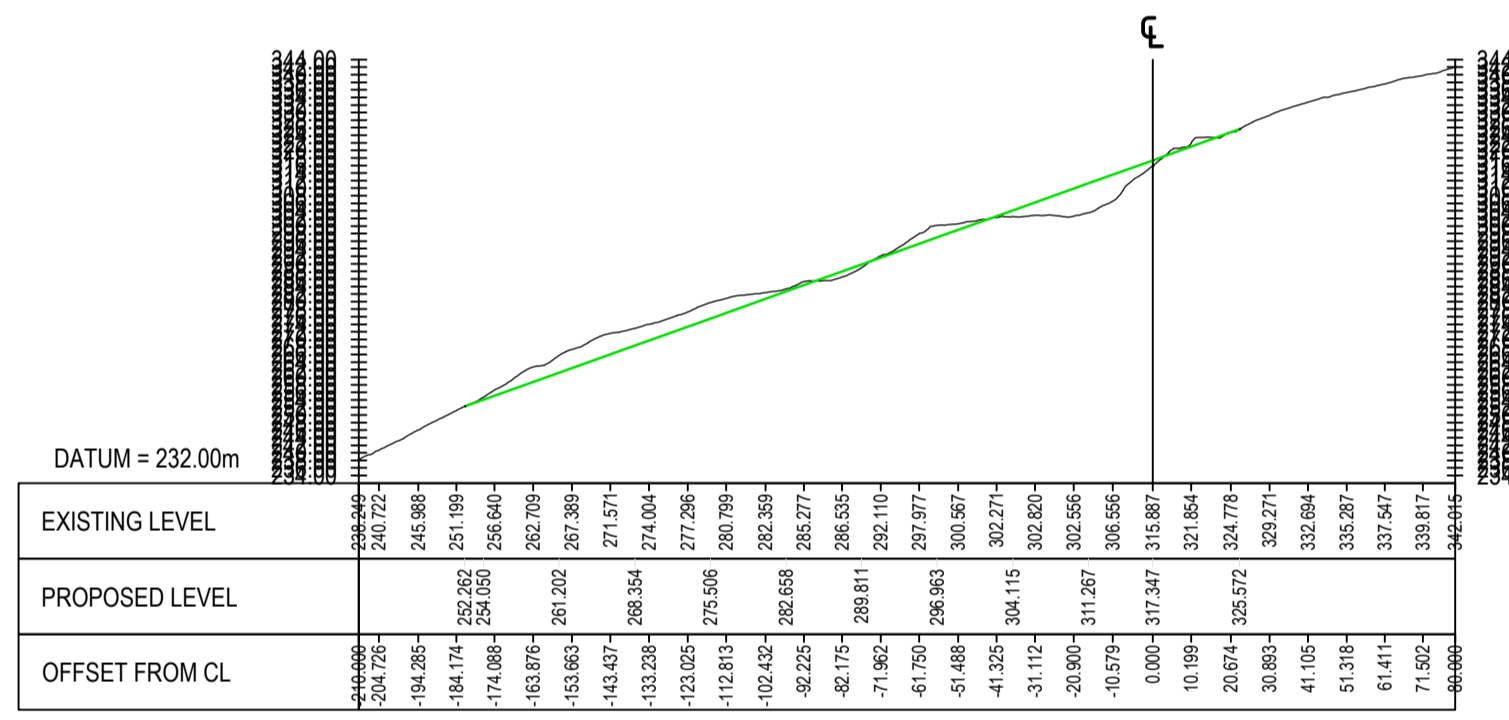
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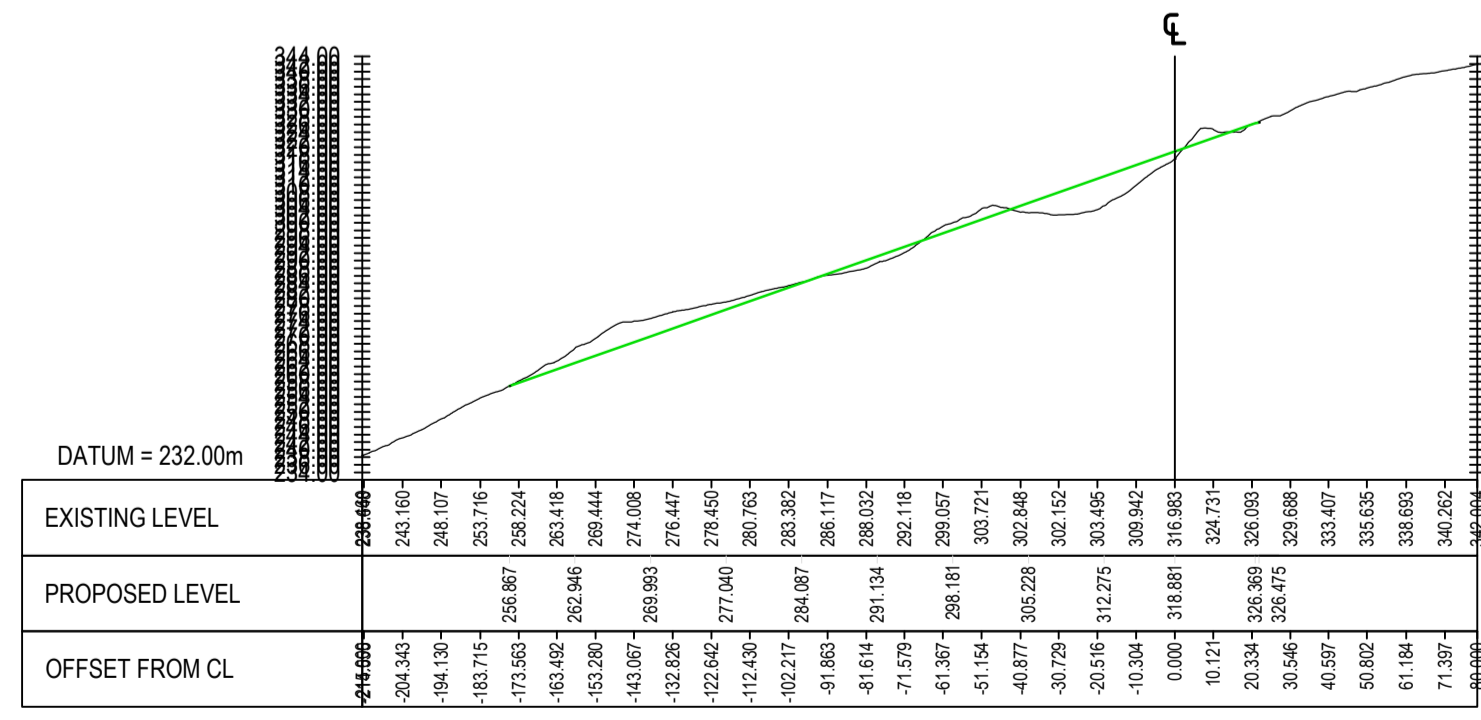
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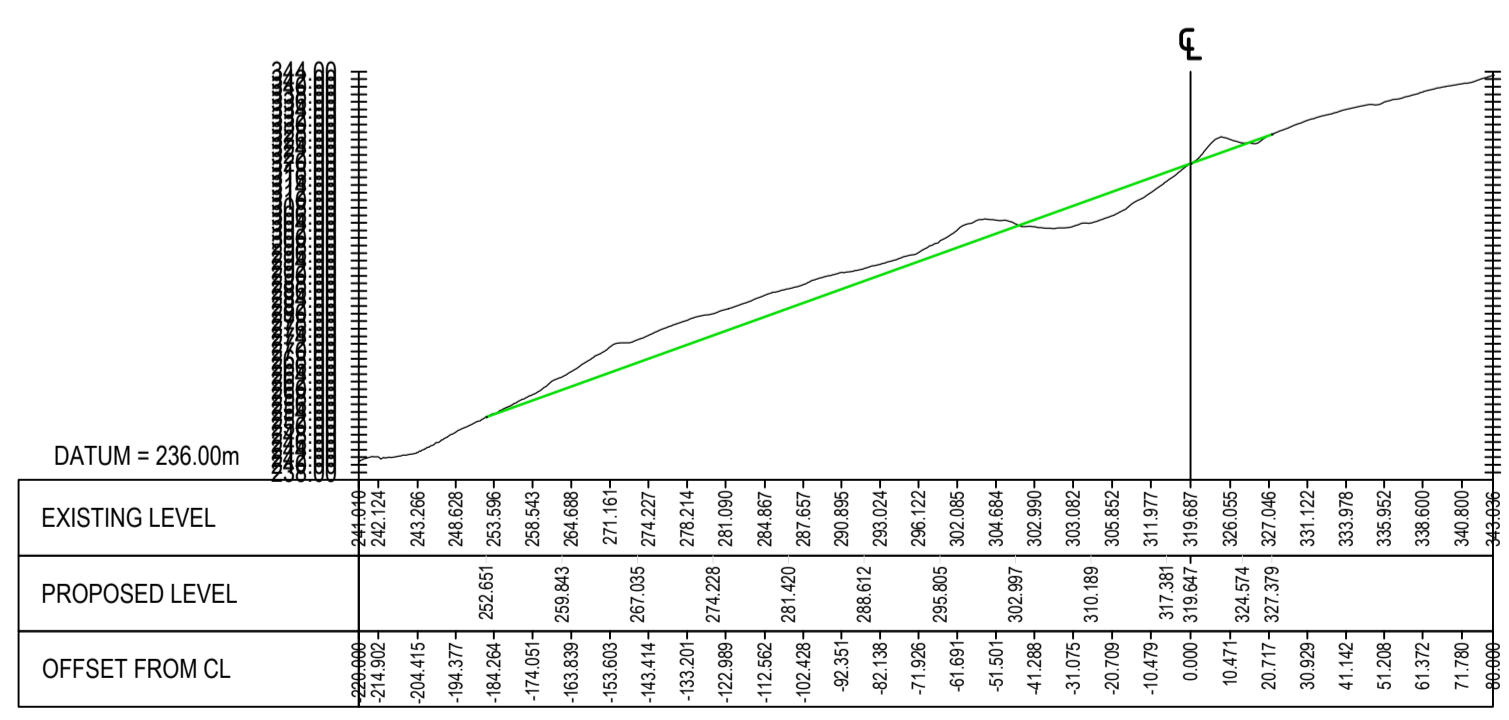
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Notes:
 1. For cross sections markers refer to drawings GC3613-RED-75-XX-DR-C-0063
 2. Geoterra ground model information based on 1m grid.

Rev	Drawn	Chkd	Appd	Description	Date
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Purpose of Issue
S0 - Work in Progress

Classification
Confidential

Client
**Rhondda Cynon Taf
 County Borough Council**

Project
Tylorstown Landslide

Drawing
**Phase 4 - Tip Re-profile
 Cross Sections
 Sheet 4 of 7**

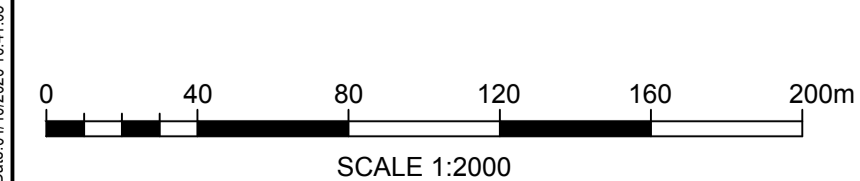
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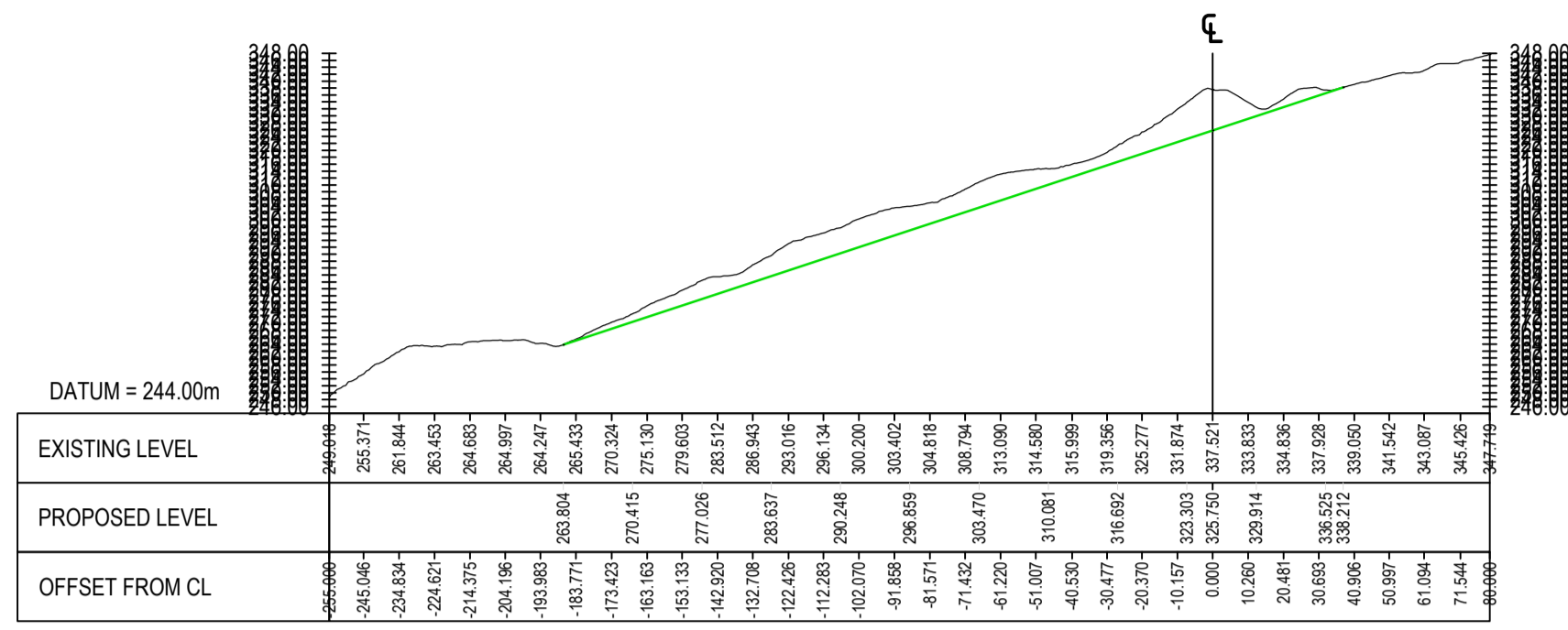
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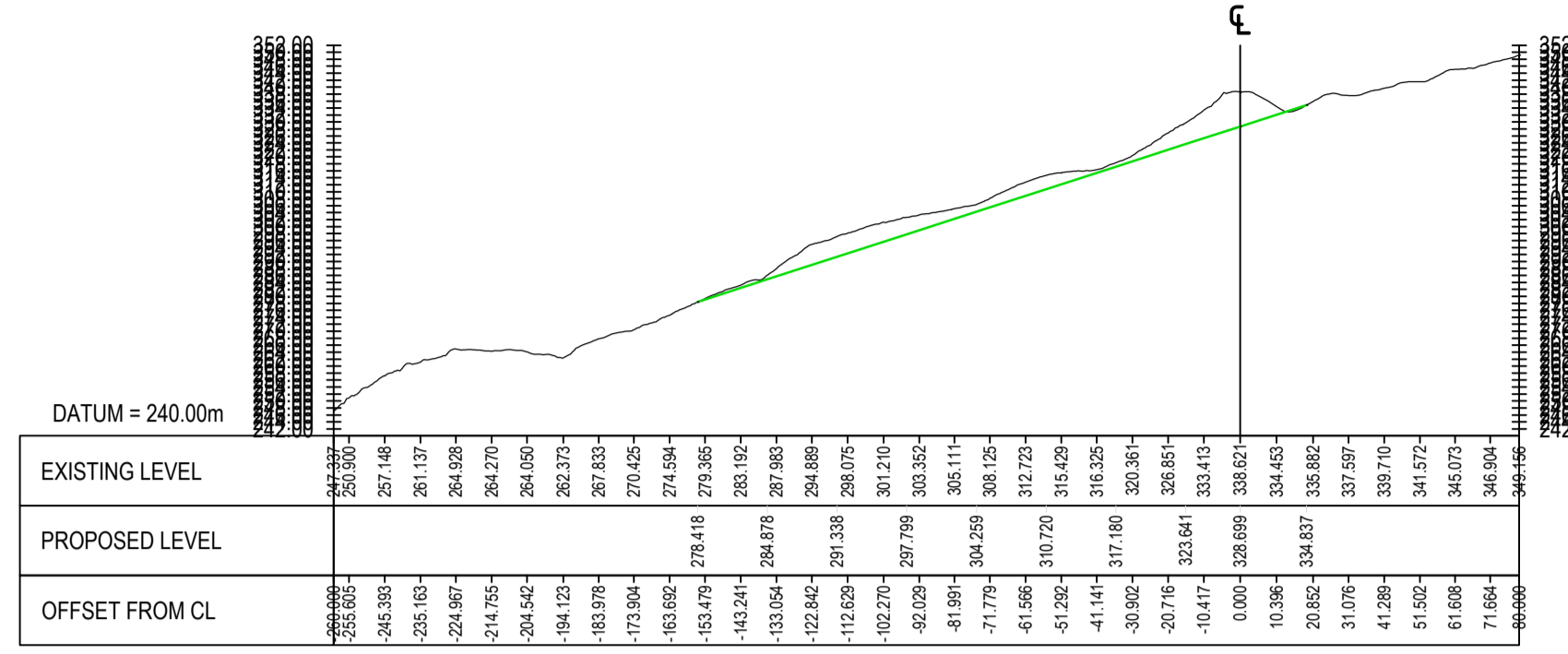
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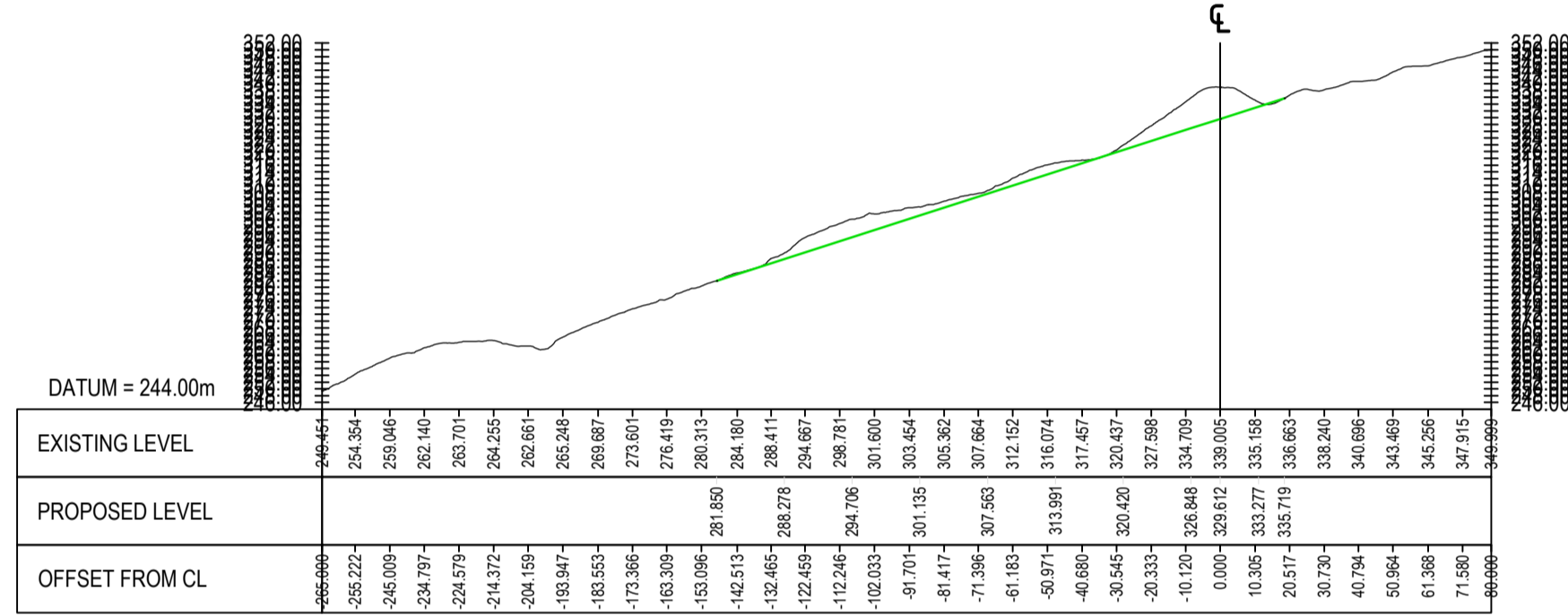
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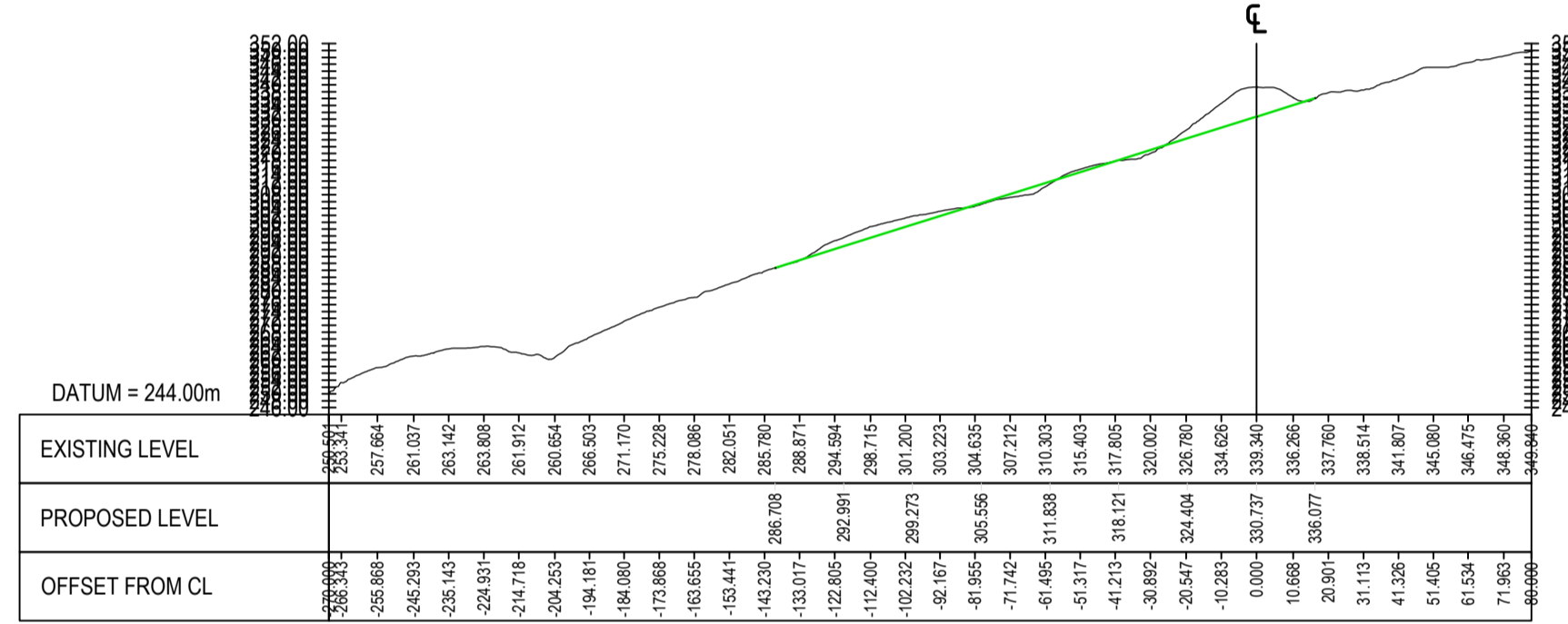
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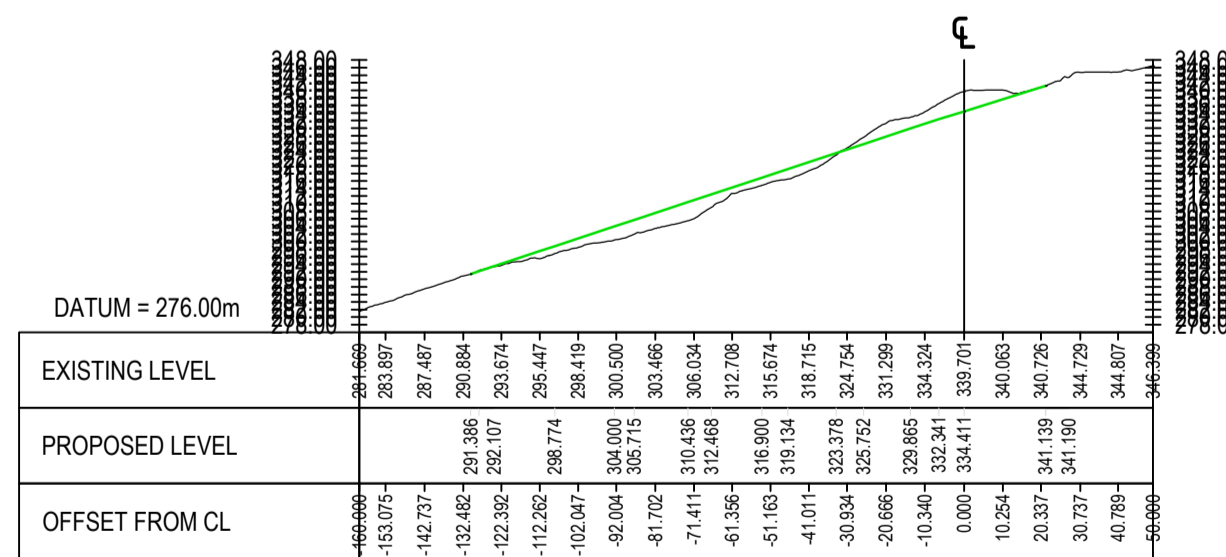
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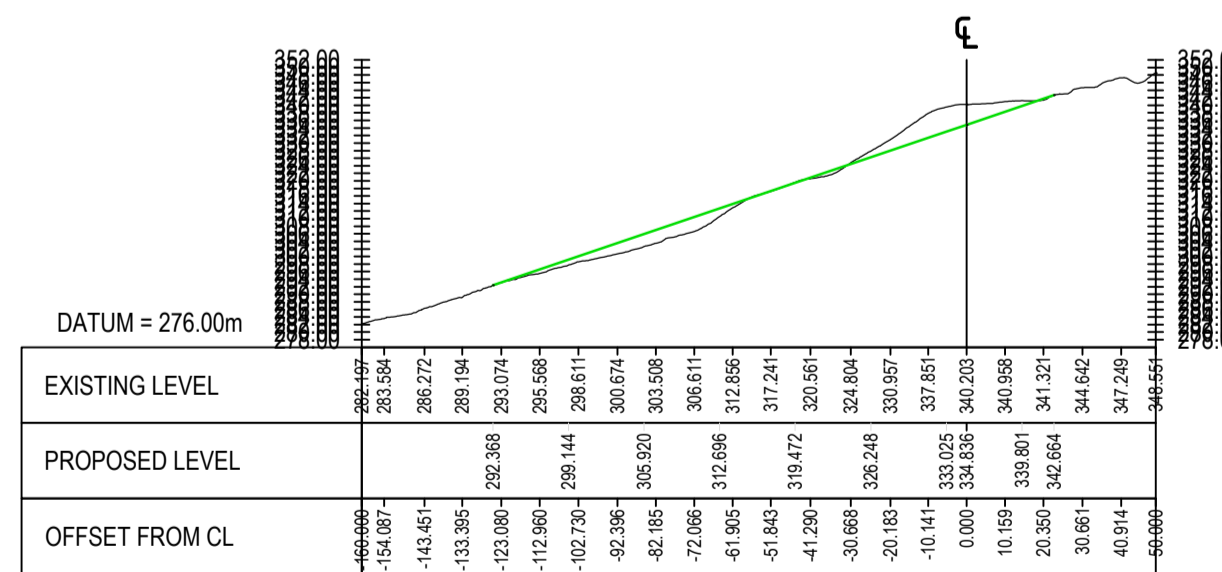
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- Notes:
 1. For cross sections markers refer to drawings GC3613-RED-75-XX-DR-C-0063
 2. Geoterra ground model information based on 1m grid.

Rev	Drawn	Chkd	App'd	Description	Date

Purpose of Issue
S0 - Work in Progress

Classification
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Client
Rhondda Cynon Taf County Borough Council

Project
Tylorstown Landslide

Drawing
Phase 4 -Tip Re-profile Cross Sections Sheet 6 of 7

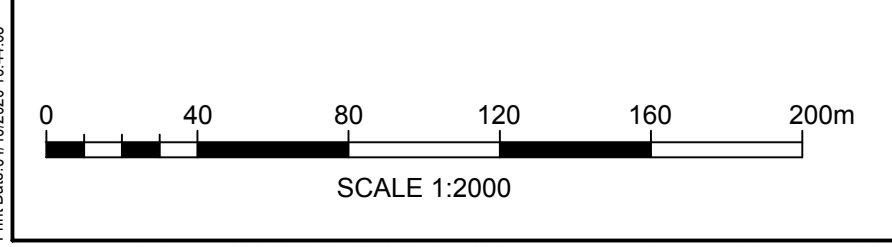
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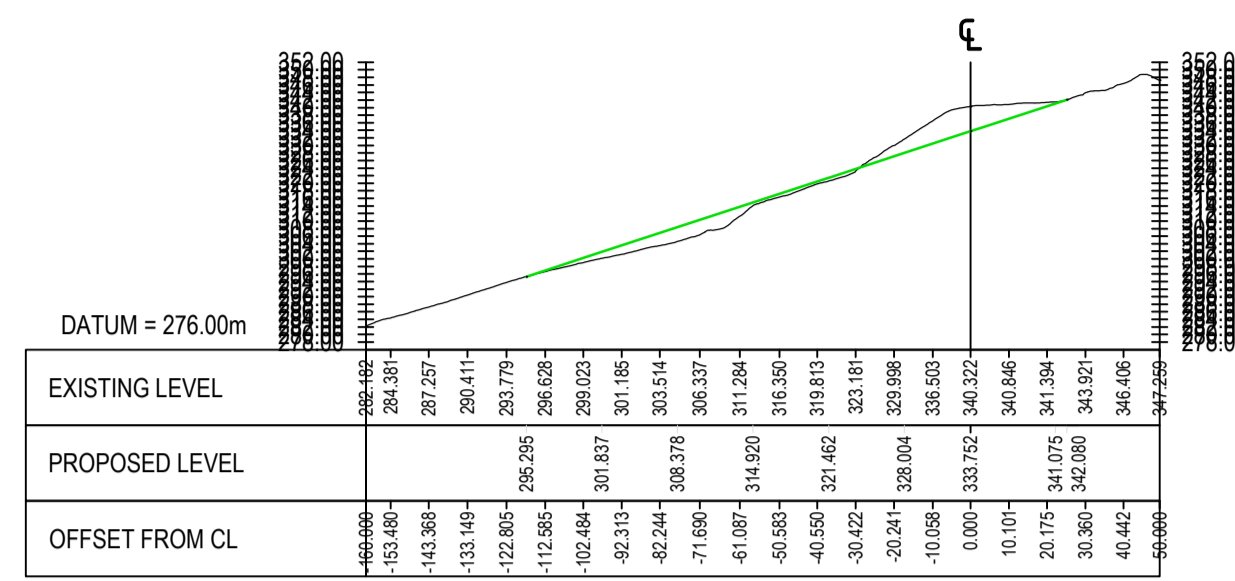
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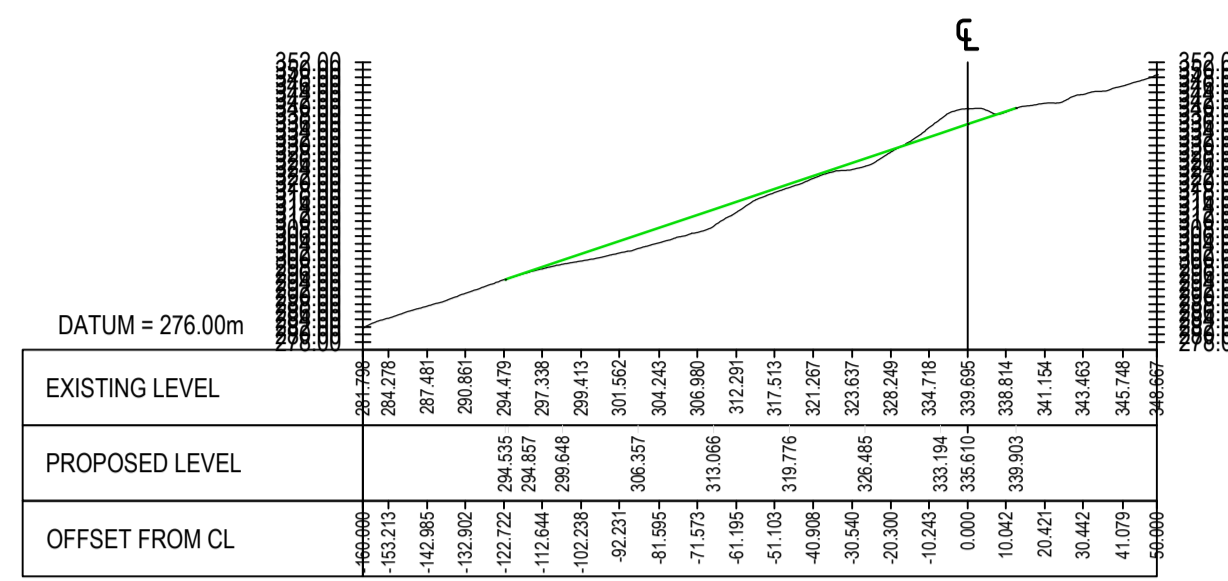


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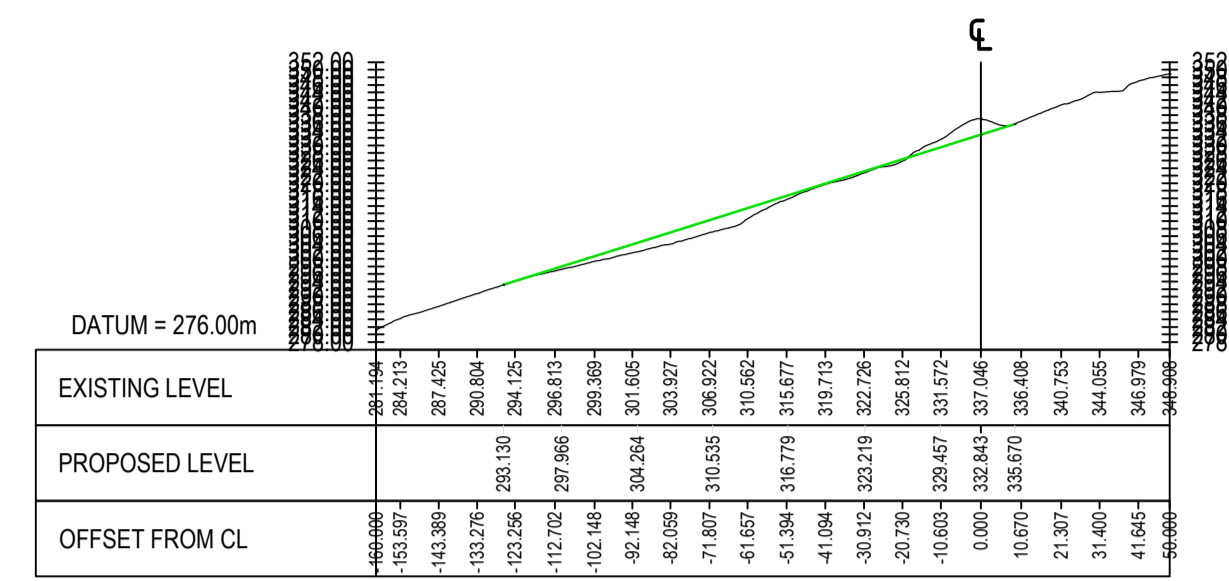




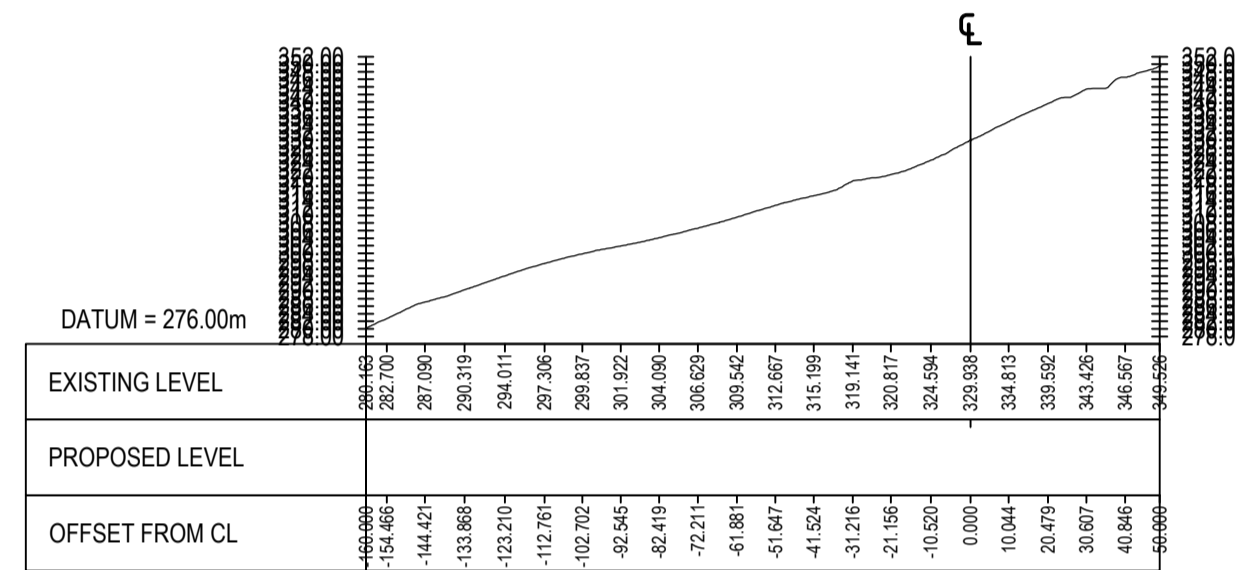
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- Notes:
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Rev	Drawn	Chkd	Appd	Description	Date
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Purpose of Issue

S0 - Work in Progress

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Tylorstown Landslide

Drawing

Phase 4 - Tip Re-profile
Cross Sections
Sheet 7 of 7

Scale @ A1	Drawn	Checked	Approved
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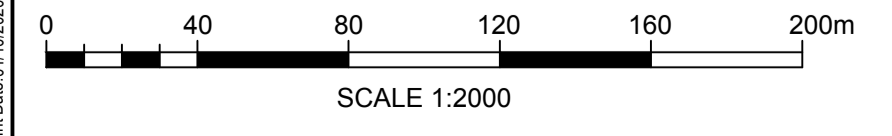
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Print Date: 01/10/2020 16:46:00



Appendix A Desk Study Species Data Table

Bats Within 5 km				
Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Brandt's bat	<i>Myotis brandtii</i>	Bern, EPS, HDir, RD2(UK), WCA5, LBAP[ANG, DEN, FLI, GWY, POW, SNP, TRA, TRF]	1	July 2012
Brown long-eared bat	<i>Plecotus auritus</i>	EPS, HDir, WCA5, S7, UKBAP, Bonn, Bern, RD2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)	7	January 2017
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	EPS, HDir, WCA5, S7, Bonn, Bern, LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VOG)	46	July 2019
Long-eared bat species	<i>Plecotus</i>	Bern, EPS, HDir, WCA5, LBAP[ANG, DEN, FLI, SNP, TRA, TRF]	1	May 2013
Myotis bat species	<i>Myotis</i>	Bern, EPS, HDir, WCA5, LBAP[ANG, DEN, FLI, SNP, TRA, TRF]	1	May 2016
Natterer's bat	<i>Myotis nattereri</i>	EPS, HDir, WCA5, Bonn, Bern, RD2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF)	1	July 2012
Noctule bat	<i>Nyctalus noctula</i>	EPS, HDir, WCA5, S7, UKBAP, Bonn, Bern, RD2 (UK), LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)	6	July 2019
Pipistrelle	<i>Pipistrellus pipistrellus agg.</i>	EPS, HDir, WCA5, S7, Bonn, Bern, RD2 (UK), LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VOG)	4	May 2016
Pipistrelle bat species	<i>Pipistrellus</i>	EPS, WCA5, LBAP (ANG, DEN, FLI, SNP, TRA, TRF)	7	July 2019
Serotine	<i>Eptesicus serotinus</i>	Bern, EPS, HDir, RD2(UK), WCA5, LBAP[GWY, POW, TRA, TRF]	1	July 2011

Bats Within 5 km				
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	EPS, HDir, WCA5, S7, UKBAP, Bonn, Bern, RD2 (UK), LBAP (ANG, BBNP, CLY, DEN, FLI, GWY, PEM, POW, SNP, TRA, TRF, VOG)	18	July 2019
Unidentified bat	<i>Chiroptera</i>	EPS, HDir, WCA5, Bonn, Bern, LBAP (ANG, DEN, FLI, SNP, TRA, TRF)	7	October 2018
Whiskered bat	<i>Myotis mystacinus</i>	Bern, EPS, HDir, RD2(UK), WCA5, LBAP[ANG, DEN, FLI, GWY, POW, SNP, TRA, TRF]	1	2011

Protected and Priority Species within 2 km (Excluding bats)				
Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Mammals				
European badger	<i>Meles meles</i>	Bern, PBA, LBAP[CLY, CON, DEN, FLI, PEM, POW, TRF, WRE]	4	2019
West European hedgehog	<i>Erinaceus europaeus</i>	S7, UKBAP, Bern, LBAP (ANG, BGW, BRG, CON, FLI, GWY, NEW, POW, RCT, VOG)	8	August 2020
Birds				
Barn owl	<i>Tyto alba</i>	Bern, CITES, WBA, WCA1.1, WCA9, LBAP[ANG, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, VOG, WRE], LI[VC43]	6	June 2015
Brambling	<i>Fringilla montifringilla</i>	WCA1.1, LBAP[CON]	2	November 2011
Bullfinch	<i>Pyrrhula pyrrhula</i>	S7, UKBAP, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, TRF, VOG), UKBR(RSPB)	2	January 2019
Common crossbill	<i>Loxia curvirostra</i>	Bern, WCA1.1, LBAP[CON, POW], LI[VC43]	6	2019
Cuckoo	<i>Cuculus canorus</i>	S7, UKBAP, WBR(RSPB), LBAP (CON, DEN, FLI, GWY, VOG), UKBR(RSPB), UKBAm(RSPB)	18	June 2018
Curlew	<i>Numenius arquata</i>	BDir2.2, S7, UKBR, WBR, LBAP[ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, VOG], LI[VC43]	1	March 2010
Dunnock	<i>Prunella modularis</i>	S7, UKBAP, Bern, LBAP (CON, POW, VOG), UKBAm(RSPB)	123	January 2019
Fieldfare	<i>Turdus pilaris</i>	BDir2.2, UKBR, WBA, WCA1.1, LBAP[CON, POW]	1	March 2011
Goshawk	<i>Accipiter gentilis</i>	CITES, WCA1.1, WCA9, LBAP[CLY, CON, POW, VOG]	5	March 2015
Grasshopper warbler	<i>Locustella naevia</i>	S7, UKBR, WBR, LBAP[BBNP, CON, DEN, FLI, GWY, POW, VOG]	4	2018
Herring gull	<i>Larus argentatus</i>	BDir2.2, S7, UKBR, WBR, LBAP[CON, GWY, POW, VOG]	8	January 2019

House sparrow	<i>Passer domesticus</i>	S7, UKBAP, Bern, LBAP (CLY, CON, FLI, GWY, VOG), WBAm(RSPB), UKBR(RSPB)	20	May 2020
Kestrel	<i>Falco tinnunculus</i>	Bern, CITES, S7, UKBA, WBR, LBAP[ANG, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG], LI[VC43]	8	June 2020
Lesser redpoll	<i>Acanthis cabaret</i>	S7, UKBR, WBR, LBAP[CON, DEN, POW, VOG]	8	June 2018
Linnet	<i>Linaria cannabina</i>	Bern, S7, UKBR, WBR, LBAP[ANG, BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, VOG]	2	September 2019
Nightjar	<i>Caprimulgus europaeus</i>	BDir1, Bern, S7, UKBA, WBA, LBAP[BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, MON, PEM, POW, SNP, VOG], LI[VC43]	18	June 2018
Peregrine	<i>Falco peregrinus</i>	BDir1, Bern, CITES, WCA1.1, LBAP[ANG, CLY, CON, GWY, PEM, POW, TRF, VOG], LI[VC43]	3	April 2020
Red kite	<i>Milvus milvus</i>	BDir1, WCA1.1, WCA9, Bonn, CITES, RD1 (UK), LBAP (CON, CRM, GWY, POW), WBAm(RSPB), UKBAm(RSPB)	2	April 2020
Redwing	<i>Turdus iliacus</i>	BDir22, WCA1.1, LBAP (CON, POW), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	1	October 2018
Reed bunting	<i>Emberiza schoeniclus</i>	Bern, S7, UKBA, WBA, LBAP[BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG]	6	May 2019
Skylark	<i>Alauda arvensis</i>	BDir22, S7, LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG), WBAm(RSPB), UKBR(RSPB)	13	February 2020
Song thrush	<i>Turdus philomelos</i>	BDir22, S7, UKBAP, Bern, LBAP (ANG, BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG, WRE), WBAm(RSPB), UKBR(RSPB)	19	January 2019
Starling	<i>Sturnus vulgaris</i>	BDir22, S7, UKBAP, Bern, WBR(RSPB), LBAP (BBNP, CON, FLI, GWY, VOG), UKBR(RSPB)	2	May 2020

Tree pipit	<i>Anthus trivialis</i>	Bern, S7, UKBR, WBA, LBAP[CON, DEN, FLI, GWY, POW, VOG]	5	June 2018
Wood warbler	<i>Phylloscopus sibilatrix</i>	S7, UKBR, WBR, LBAP[CON, GWY, SNP, VOG]	2	May 2016
Reptiles				
Common lizard	<i>Zootoca vivipara</i>	WCA5, S7, UKBAP, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, TRF, VOG)	3	September 2019
Slow worm	<i>Anguis fragilis</i>	WCA5, S7, UKBAP, Bern, LBAP (ANG, CLY, CON, DEN, FLI, GWY, POW, SNP, TRA, VOG)	4	September 2017
Amphibians				
Common frog	<i>Rana temporaria</i>	HDir, WCA5, Bern, LBAP (ANG, CLY, CON, FLI, POW, TRA)	8	March 2020
Common toad	<i>Bufo bufo</i>	Bern, S7, WCA5, LBAP[ANG, CLY, CON, DEN, FLI, GWY, POW, TRA, VOG]	3	June 2018
Palmate newt	<i>Lissotriton helveticus</i>	WCA5, Bern, LBAP (ANG, CLY, CON, DEN, FLI, POW, TRA), LI(BIS)	2	March 2019
Invertebrates				
Buff ermine	<i>Spilosoma lutea</i>	S7, LBAP[GWY, VOG]	1	June 2018
Cinnabar	<i>Tyria jacobaeae</i>	S7, LBAP[GWY, VOG]	3	2019
Dingy skipper	<i>Erynnis tages</i>	RD1(UK)VU, S7, LBAP[BGW, BRG, CON, FLI, GWY, SWN, VOG], LI[SEWBRcC]	5	2019
Grayling	<i>Hipparchia semele</i>	S7, UKBAP, RD1 (UK), LBAP (BRG, CDF, GWY, RCT, VOG), LI(BIS), LI(SEWBRcC), LI(VC43)	2	July 2017
Small heath	<i>Coenonympha pamphilus</i>	RD1(UK)NT, S7, LBAP[GWY, VOG]	6	2020
Small pearl-bordered fritillary	<i>Boloria selene</i>	RD1(UK)NT, S7, LBAP[BGW, BRG, CON, DEN, FLI, GWY, MTR, NEW, POW, RCT, SNP, SWN, TRF, VOG], LI[SEWBRcC, VC43]	4	2020
Plants				
Bluebell	<i>Hyacinthoides non-scripta</i>	WCA8, LBAP (ANG, CLY, CON, FLI, SNP, TRA, TRF)	7	May 2020

Species of Conservation Concern within 2 km				
Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Birds				
Coal tit	<i>Periparus ater</i>	Bern, LBAP (CON, POW), WBAm(RSPB)	150	June 2020
Common sandpiper	<i>Actitis hypoleucos</i>	UKBA, WBA	1	June 2020
Cormorant	<i>Phalacrocorax carbo</i>	Bonn, LBAP (CON, GWY, POW), WBAm(RSPB), UKBAm(RSPB)	2	2015
Dipper	<i>Cinclus cinclus</i>	Bern, UKBA, WBA, LBAP[BRG, CLY, CON, MTR, POW, RCT, TRA]	6	January 2019
Garden warbler	<i>Sylvia borin</i>	LBAP (BRG, CON, POW), WBAm(RSPB)	2	May 2020
Goldcrest	<i>Regulus regulus</i>	Bern, LBAP (CON, POW), WBAm(RSPB), UKBAm(RSPB)	11	September 2016
Green woodpecker	<i>Picus viridis</i>	Bern, LBAP (CLY, CON, DEN, FLI, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	5	2015
House martin	<i>Delichon urbicum</i>	Bern, LBAP (BRG, CON, POW, RCT, VOG), WBAm(RSPB), UKBAm(RSPB)	8	2016
Lesser black-backed gull	<i>Larus fuscus</i>	BDir22, Bonn, Bern, LBAP (CON, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	15	January 2019
Long-tailed tit	<i>Aegithalos caudatus</i>	WBAm(RSPB)	5	September 2020
Mallard	<i>Anas platyrhynchos</i>	BDir21, Bonn, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	18	June 2016
Meadow pipit	<i>Anthus pratensis</i>	Bern, UKBA, WBA, LBAP[CON]	13	September 2019
Mute swan	<i>Cygnus olor</i>	BDir2.2, UKBA, WBA, LBAP[CON, POW]	4	2015
Redstart	<i>Phoenicurus phoenicurus</i>	Bern, UKBA, WBA, LBAP[CON, GWY, POW, SNP]	4	July 2020

Short-eared owl	<i>Asio flammeus</i>	BDir1, Bern, CITES, UKBA, WBR, LBAP[CON, DEN, GWY, PEM, POW], LI[VC43]	3	January 2016
Snipe	<i>Gallinago gallinago</i>	BDir2.1, UKBA, WBA, LBAP[ANG, CON, DEN, FLI, GWY, POW], LI[VC43]	1	March 2016
Swallow	<i>Hirundo rustica</i>	Bern, LBAP (ANG, CON, GWY, POW, VOG), WBAm(RSPB), UKBAm(RSPB)	9	September 2019
Swift	<i>Apus apus</i>	LBAP (BRG, RCT, VOG), WBAm(RSPB), UKBAm(RSPB)	10	June 2016
Teal	<i>Anas crecca</i>	BDir2.1, CITES, UKBA, WBA, LBAP[ANG, CON, DEN, FLI, GWY], LI[VC43]	2	2015
Whitethroat	<i>Sylvia communis</i>	LBAP (CON, POW), WBAm(RSPB)	9	June 2019
Willow warbler	<i>Phylloscopus trochilus</i>	WBR(RSPB), LBAP (CON), UKBAm(RSPB)	19	April 2020
Woodcock	<i>Scolopax rusticola</i>	BDir2.1, UKBR, WBA, LBAP[CON, DEN, FLI, GWY, POW], LI[VC43]	2	September 2019
Invertebrates				
Tipula yerburyi	<i>Tipula yerburyi</i>	RD2(UK)N	2	July 2015
Plants and Bryophytes				
Lady's mantle	<i>Alchemilla acutiloba</i>	RD1(UK)VU, RD2(UK)R, LI[VC47]	1	October 2011
Balding pincushion	<i>Ulotia calvescens</i>	RD1(Wales)EN, LI[LR, VC45, VC48, WWBIC]	1	March 2018
Welsh poppy	<i>Meconopsis cambrica</i>	RD2(UK)S, LBAP[CON, DEN, NPT], LI[LS, VC43, VC48, VC49]	3	June 2018

Species of local concern within 2 km				
Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Birds				
Greenfinch	<i>Chloris chloris</i>	Bern, LBAP[CON, POW]	146	2015
Grey heron	<i>Ardea cinerea</i>	Bonn, LBAP (BRG, RCT)	3	2015
Mistle thrush	<i>Turdus viscivorus</i>	BDir2.2, Bern, UKBR	7	May 2019
Whinchat	<i>Saxicola rubetra</i>	Bern, UKBR, LBAP[BRG, CON, DEN, FLI, GWY, PEM, POW, RCT]	2	June 2016
Invertebrates				
Brindled plume	<i>Amblyptilia punctidactyla</i>	LI[BIS]	1	September 2016
Common carder-bee	<i>Bombus pascuorum</i>	LBAP[FLI, MTR]	9	2018
Dark green fritillary	<i>Argynnis aglaja</i>	LBAP[BRG, FLI, GWY, TRF], LI[SEWBRcC, VC43]	1	July 2016
Dark spectacle	<i>Abrostola triplasia</i>	LI[BIS]	1	July 2014
Dingy skipper	<i>Erynnis tages tages</i>	LBAP[FLI], LI[SEWBRcC]	4	2020
Early bumblebee	<i>Bombus pratorum</i>	LBAP[FLI, MTR]	4	June 2016
Emerald damselfly	<i>Lestes sponsa</i>	LBAP[CLY, SNP], LI[SEWBRcC, VC42, VC43, VC47, VC50]	2	September 2016
Forest cuckoo bee	<i>Bombus sylvestris</i>	LBAP[MTR]	1	June 2016
Golden-ringed dragonfly	<i>Cordulegaster boltonii</i>	LBAP[CLY, SNP], LI[BIS, SEWBRcC]	4	June 2017
Golden-rod pug	<i>Eupithecia virgaureata</i>	LI[BIS]	2	September 2016
Heath bumblebee	<i>Bombus jonellus</i>	LBAP[FLI, MTR]	1	June 2016
Keeled skimmer	<i>Orthetrum coerulescens</i>	LBAP[BGW, BRG, CLY, SNP], LI[BIS, SEWBRcC]	1	June 2019
Red sword-grass	<i>Xylena vetusta</i>	LBAP[BGW, BRG]	1	October 2012
Small garden bumblebee	<i>Bombus hortorum</i>	LBAP[FLI, MTR]	1	July 2015

Vestal (Southern) cuckoo bee	<i>Bombus vestalis</i>	LBAP[MTR]	1	July 2015
White-tailed bumblebee	<i>Bombus lucorum</i>	LBAP[FLI, MTR]	2	June 2016
Plants, Bryophytes and Fungi				
Beaked bow-moss	<i>Dicranodontium denudatum</i>	RD1(Wales)LC, LI[LR, LS, VC41, VC42, VC43, VC44, VC45, VC46, VC50, WWBIC]	1	September 2014
Beech fern	<i>Phegopteris connectilis</i>	LI[LS, SEWBRc, VC47, VC50]	2	2014
Bee orchid	<i>Ophrys apifera</i>	CITES, LBAP[CLY, GWY, TRA, TRF], LI[LR, LS, SEWBRc, VC47, VC48, VC49]	1	July 2018
Betony	<i>Stachys officinalis</i>	LI[VC47]	1	September 2014
Bilberry	<i>Vaccinium myrtillus</i>	LI[VC47]	11	September 2019
Black bent	<i>Agrostis gigantea</i>	LI[LS, VC48]	2	July 2018
Bog pimpernel	<i>Anagallis tenella</i>	LI[VC47]	1	September 2014
Bog pondweed	<i>Potamogeton polygonifolius</i>	LI[VC47]	1	July 2018
Brown bent	<i>Agrostis vinealis</i>	LI[LR, VC51]	1	September 2014
Carnation sedge	<i>Carex panicea</i>	LI[VC47]	1	September 2014
Changing forget-me-not	<i>Myosotis discolor</i>	LI[VC47]	1	July 2018
Ciliated fringewort	<i>Ptilidium ciliare</i>	RD1(Wales)LC, LI[LR, VC41]	2	March 2018
Cladonia crispata var. cetrariiformis	<i>Cladonia crispata</i> var. <i>cetrariiformis</i>	RD1(Wales)LC, LI[R, VC42, VC47]	1	April 2011
Common feathermoss	<i>Kindbergia praelonga</i>	RD1(Wales)LC, LBAP[CON]	6	March 2018
Common fleabane	<i>Pulicaria dysenterica</i>	LI[LS, VC48]	5	July 2018
Common pawwort	<i>Barbilophozia floerkei</i>	RD1(Wales)LC, LI[LR, LS, VC45, VC51, WWBIC]	1	March 2018
Common stork's-bill	<i>Erodium cicutarium</i>	LI[VC43, VC47]	1	September 2014

Common threadwort	<i>Cephaloziella divaricata</i>	RD1(Wales)LC, LI[LR, VC51]	1	March 2018
Corn mint	<i>Mentha arvensis</i>	LI[LR, VC50]	1	September 2014
Creeping forget-me-not	<i>Myosotis secunda</i>	LI[VC47]	2	July 2018
Deergrass	<i>Trichophorum caespitosum</i>	LI[LR, VC50]	1	September 2019
Delicate germanderwort	<i>Riccardia multifida</i>	RD1(Wales)LC, LI[LR, LS, VC35, VC51]	1	March 2018
Dense fringe-moss	<i>Racomitrium ericoides</i>	RD1(Wales)LC, LI[EX, VC52]	4	March 2018
Devil's-bit scabious	<i>Succisa pratensis</i>	LI[VC47]	1	September 2016
Early marsh-orchid	<i>Dactylorhiza incarnata</i>	LBAP[BRG, GWY, TRA], LI[LR, LS, SEWBReC, VC43, VC47, VC49, VC51]	1	July 2018
Eyebright	<i>Euphrasia nemorosa</i>	LI[LR, VC47, VC50]	1	July 2015
Eyebright agg.	<i>Euphrasia officinalis</i> agg.	LI[VC47]	2	2019
Field maple	<i>Acer campestre</i>	LI[LS, VC48, VC49]	1	July 2015
Field pansy	<i>Viola arvensis</i>	LI[LS, VC48]	1	September 2014
Fingered cowlwort	<i>Colura calyptrifolia</i>	RD1(Wales)LC, LI[LR, VC52]	3	March 2018
Flea sedge	<i>Carex pulicaris</i>	LI[VC47]	1	September 2014
Greater fork-moss	<i>Dicranum majus</i>	RD1(Wales)LC, LI[LR, VC51]	2	May 2016
Glaucous sedge	<i>Carex flacca</i>	LI[VC47]	3	July 2018
Goldenrod	<i>Solidago virgaurea</i>	LI[VC47]	1	March 2017
Greater pond-sedge	<i>Carex riparia</i>	LBAP[BRG, DEN, GWY], LI[LS, SEWBReC, VC43, VC47, VC48, VC49, VC50, VC52]	1	September 2014
Greater tussock-sedge	<i>Carex paniculata</i>	LI[VC47]	1	March 2014
Green field-speedwell	<i>Veronica agrestis</i>	LI[LS, SEWBReC, VC48]	1	September 2014

Grove earwort	<i>Scapania nemorea</i>	RD1(Wales)LC, LI[LR, VC51]	3	March 2018
Hairy wood-rush	<i>Luzula pilosa</i>	LI[VC47]	1	September 2014
Hard rush	<i>Juncus inflexus</i>	LI[LR, VC48]	3	July 2015
Heath speedwell	<i>Veronica officinalis</i>	LI[VC47]	1	September 2014
Heath wood-rush	<i>Luzula multiflora</i>	LI[VC47]	2	June 2018
Heath-grass	<i>Danthonia decumbens</i>	LI[VC47]	2	June 2018
Intermediate polypody	<i>Polypodium interjectum</i>	LI[LS, VC51]	3	June 2018
Lemon-scented fern	<i>Oreopteris limbosperma</i>	LI[LR, LS, VC51, VC52]	2	July 2018
Lesser hawkbit	<i>Leontodon saxatilis</i>	LI[VC47]	1	September 2014
Lesser skullcap	<i>Scutellaria minor</i>	LI[LR, VC50, VC51]	1	September 2014
Marsh forklet-moss	<i>Dichodontium palustre</i>	RD1(Wales)LC, LI[LR, LS, VC35, VC51, VC52]	1	March 2018
Marsh pennywort	<i>Hydrocotyle vulgaris</i>	LI[VC47]	1	September 2014
Marsh speedwell	<i>Veronica scutellata</i>	LI[VC47]	1	September 2019
Marsh violet	<i>Viola palustris</i>	LI[VC47]	3	July 2018
Mistletoe	<i>Viscum album</i>	LBAP[CDF, TRF], LI[LR, SEWBRc, VC48, VC51]	1	March 2019
Musk thistle	<i>Carduus nutans</i>	LI[LS, VC48, VC49, VC52]	1	September 2014
Navelwort	<i>Umbilicus rupestris</i>	LI[LS, VC51]	1	June 2018
Parmeliopsis ambigua	<i>Parmeliopsis ambigua</i>	RD1(Wales)LC, LI[R, VC47]	1	April 2011
Parrot wax-cap	<i>Gliophorus psittacinus</i>	LBAP[CDF, DEN, GWY]	6	2020
Pignut	<i>Conopodium majus</i>	LI[VC47]	1	July 2018
Pill sedge	<i>Carex pilulifera</i>	LI[LS, VC43, VC51]	1	September 2019

Purple willow	<i>Salix purpurea</i>	LBAP[BGW], LI[LR, LS, SEWBRcC, VC43, VC47, VC48, VC50, VC51, VC52]	1	July 2018
Pyramidal orchid	<i>Anacamptis pyramidalis</i>	LBAP[BRG, CLY, TRA], LI[LS, SEWBRcC, VC47, VC48]	1	July 2020
Ragged robin	<i>Silene flos-cuculi</i>	LI[VC47]	3	June 2019
Ramsons	<i>Allium ursinum</i>	LI[VC47]	1	May 2020
Red bartsia	<i>Odontites vernus</i>	LI[VC47]	1	September 2016
Roof plait-moss	<i>Hypnum cupressiforme</i> var. <i>lacunosum</i>	RD1(Wales)LC, LI[LR, VC45, WWBIC]	3	March 2018
Rough hawkbit	<i>Leontodon hispidus</i>	LI[LS, VC52]	1	June 2019
Rustyback	<i>Ceterach officinarum</i>	LI[LS, VC50, VC51]	3	2018
Silky-leaved Osier	<i>Salix viminalis</i> x <i>cinerea</i> = <i>S. x holosericea</i>	LI[LS, VC50, VC51]	1	September 2014
Slender sandwort	<i>Arenaria serpyllifolia</i> subsp. <i>leptoclados</i>	LI[LR, LS, SEWBRcC, VC43, VC47, VC48, VC49]	1	September 2014
Slender St John's-wort	<i>Hypericum pulchrum</i>	LI[VC47]	3	July 2018
Small cudweed	<i>Filago minima</i>	LBAP[BRG, CON, DEN], LI[LR, LS, SEWBRcC, VC43, VC47, VC48, VC49, VC50, VC51, VC52]	1	September 2014
Smooth-stalked sedge	<i>Carex laevigata</i>	LI[LS, VC47, VC50, VC51]	1	September 2014
Soft-shield fern	<i>Polystichum setiferum</i>	LI[VC52]	2	June 2018
Tufted forget-me-not	<i>Myosotis laxa</i>	LI[VC47]	1	July 2018
Wall lettuce	<i>Mycelis muralis</i>	LI[LS, VC52]	2	June 2018
Water figwort	<i>Scrophularia auriculata</i>	LI[LR, LS, VC48, VC52]	2	July 2018
Whorled mint	<i>Mentha arvensis</i> x <i>aquatica</i> = <i>M. x verticillata</i>	LI[LS, VC51]	2	2014
Willow	<i>Salix caprea</i> x <i>cinerea</i> = <i>S. x reichardtii</i>	LI[LR, VC52]	1	September 2014

Wood-sorrel	<i>Oxalis acetosella</i>	LI[VC47]	3	2018
Wood horsetail	<i>Equisetum sylvaticum</i>	LI[LR, LS, VC47, VC49, VC52]	3	2019
Yellow foot waxcap	<i>Hygrocybe flavipes</i>	LBAP[CDF, DEN, GWY]	1	September 2019
Yellow pimpernel	<i>Lysimachia nemorum</i>	LI[VC47]	3	July 2018
Yellow water-lily	<i>Nuphar lutea</i>	LBAP[BGW], LI[LR, SEWBRcC, VC49]	1	June 2018
Yellow-glandular hawkweed	<i>Hieracium sabaudum</i>	LI[LR, VC50]	1	September 2014
Wood-rust	<i>Nowellia curvifolia</i>	RD1(Wales)LC, LI[LR, VC52]	2	March 2018

Invasive Non- Native Species within 2 km				
Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Birds				
Canada goose	<i>Branta canadensis</i>	BDir21, WCA9, Bonn, INNS	2	2015
Plants				
Cherry laurel	<i>Prunus laurocerasus</i>	INNS	2	September 2014
Himalayan balsam	<i>Impatiens glandulifera</i>	WCA9, INNS	2	September 2019
Himalayan honeysuckle	<i>Leycesteria formosa</i>	INNS	3	March 2019
Hollyberry cotoneaster	<i>Cotoneaster bullatus</i>	INNS, WCA9	1	September 2014
Japanese knotweed	<i>Fallopia japonica</i>	WCA9, INNS	3	July 2019
Montbretia	<i>Crocasmia pottsii</i> x <i>aurea</i> = <i>C. x crocosmiiflora</i>	INNS, WCA9	2	June 2018
New Zealand willowherb	<i>Epilobium brunnescens</i>	INNS	2	June 2018
Pampas-grass	<i>Cortaderia selloana</i>	INNS	1	October 2011
Rhododendron	<i>Rhododendron ponticum</i>	INNS, WCA9	2	June 2019
Spanish bluebell	<i>Hyacinthoides hispanica</i>	INNS	1	June 2010

KEY TO SPECIES STATUS ABBREVIATIONS:	LOCAL BIODIVERSITY ACTION PLAN ABBREVIATIONS	
BA = Protection of Badgers Act	South East Wales LBAPs	
UKBAP = UK Biodiversity Action Plan Priority Species	BGW	Blaenau Gwent
UKBAP (R) = UK Biodiversity Action Plan Priority Species (Research only species)	BRG	Bridgend
BDir1 = EC Birds Directive Annex 1 Species	CDF	Cardiff
BDir21 = EC Birds Directive Annex 2.1 Species	CLY	Caerphilly
BDir22 = EC Birds Directive Annex 2.2 Species	MON	Monmouthshire
Bern = The Bern Convention on the Conservation of European Wildlife and Natural Habitats	MTR	Merthyr Tydfil
Bonn = The Bonn Convention on the Conservation of Migratory Species of Wild Animals Species	NEW	Newport
CITES = Convention on International Trade in Endangered Species	NPT	Neath Port Talbot
EPS = European Protected Species	RCT	Rhondda Cynon Taff
HDir = EU Habitats Directive Species	SWN	Swansea
NRW = Natural Resources Wales Priority Species	TRA	Trunk Roads Estate
RD1 (Wales) = Welsh Red Data Book listing based on IUCN guidelines	TRF	Torfaen
RD1 (UK) = UK Red Data Book listing based on IUCN guidelines	VoG	Vale of Glamorgan
RD2 (UK) = UK Red Data Book listing not based on IUCN guidelines (Nationally Rare and Scarce)	Other Welsh LBAPs	
WBR (RSPB) = RSPB Welsh Red listed birds (not based on IUCN criteria)	ANG	Isle of Anglesey
WBAm (RSPB) = RSPB Welsh Amber listed birds (not based on IUCN criteria)	BBNP	Brecon Beacons National Park
UKBR (RSPB) = RSPB UK Red listed birds (not based on IUCN criteria)	CRM	Cardiganshire
UKBAm (RSPB) = RSPB UK Amber listed birds (not based on IUCN criteria)	CER	Ceredigion
S42 = Natural Environment and Rural Communities Act 2006 (Section 42)	CON	Conwy
S7 = Environment Act (Wales) Section 7 Species	DEN	Denbighshire
WCA1.1 = Wildlife and Countryside Act Schedule 1 Part 1 Species	FLI	Flintshire
WCA5 = Wildlife and Countryside Act Schedule 5 Species	GWY	Gwynedd
WCA8 = Wildlife and Countryside Act Schedule 8 Species	POW	Powys
WCA9 = Wildlife and Countryside Act Schedule 9 Species	PEM	Pembrokeshire
INNS = Invasive Non-Native Species	SNP	Snowdonia National Park
WSG.P = Guidelines for the Selection of Wildlife Sites in South Wales - Primary species	WRE	Wrexham
WSG.C = Guidelines for the Selection of Wildlife Sites in South Wales - Contributory species		
WVP = IUCN Threat Listing of Welsh Vascular Plants		
LBAP (xxx) = Local Biodiversity Action Plan Species (see key below)		
LI (SEWBReC) = Locally Important Species (as identified by local specialists) in SEWBReC area.		
LI (BIS) = Locally Important Species (as identified by local specialists) in BIS* area.		
LI (BRYO-MON) = Locally or nationally scarce or rare bryophyte in Monmouthshire.		
LI (VC##) = Locally Important Species (as identified by local specialists) in Vice County ##		
LI (VC##, LS) = Locally Scarce in Vice County ##		
LI (VC##, LR) = Locally Rare in Vice County ##		
LI (VC##, EX) = Extinct in Vice County ##		
LI (VC##, UR) = Under Recorded in Vice County ##		
## = Vice County number. For more information on Vice Counties please visit the BBS website.		
* BIS = Biodiversity Information Service for Powys and Brecon Beacons National Park		

Appendix B Target Notes and Descriptions

TN Number	Grid Reference	Description
TN1	ST 02043 95929	Fox scat
TN2	ST 02006 95924	Purple moor-grass dominated marshy grassland habitat
TN3	ST 01996 95861	Building ruins with moss covered concrete panels and scattered scrub and trees. Small area with neutral semi-improved grassland.
TN4	ST 01837 95886	Building ruins - with moss covered concrete panels. Reptile, amphibian's habitat, including hibernacula.
TN5	ST 02059 95727	Acid flush with sphagnum and soft-rush species dominated habitat.
TN6	ST 01821 95770	Invasive non-native species New Zealand willowherb.
TN7	ST 01633 96002	Dry heath habitat
TN8	ST 02148 95723	Biodiverse habitat. Mosaic of acid grassland, dry heath and marshy grassland.
TN9	ST 02180 95707	Mosaic of habitats - raised bog, acid flush and open standing water.
TN10	ST 01405 96067	Large hole between rocks in the bank - reptiles, amphibians and small mammal potential.
TN11	ST 01574 96130	Dry heath habitat
TN12	ST 02182 95640	Mosaic of marshy grassland with purple moor-grass dominated and acid grassland.
TN13	ST 02193 95588	Marshy grassland habitat
TN14	ST 02322 95472	Mosaic of marshy grassland with soft-rush and purple moor-grass; dry heath with heather dominated and acid grassland.
TN15	ST 01580 96100	Well-established anthills
TN16	ST 02176 95455	Dry heath habitat with bilberry locally abundant. Green-ribbed sedge frequently present.
TN17	ST 01550 96202	Small area of semi-improved Neutral grassland on the road verge.
TN18	ST 01558 96170	Narrow area of acid flush within the track approximately 30m, 14 species recorded.
TN19	ST 01590 96101	Marshy grassland. 5 species recorded

TN Number	Grid Reference	Description
TN20	ST 01650 95983	Marshy Grassland, small section biodiverse with 12 species of vascular plants recorded.
TN21	ST 01667 95956	Small area of damp semi-improved neutral grassland with false-oat grass dominated, as evidence of nutrient influx/run-off within acid grassland habitat. Area with large well-established anthills and small mammals.
TN22	ST 01851 95899	Vegetated by unimproved acid grassland tram-track. A well-used track located to the south could be used for the haul road to avoid damaging acid grassland habitat.
TN23	ST 01916 95903	Skylark was recorded within purple moor-grass dominated marshy grassland habitat.
TN24	ST 01963 95784	Acid unimproved grassland
TN25	ST 02063 95696	Acid flush with ivy-leaved bell flower abundant
TN26	ST 02107 95633	Standing water in depression along the fence line. 15X5m.
TN27	ST 02125 95502	Dry heath Habitat with bilberry abundant
TN28	ST 02054 95336	Possible fox earth. No recent activity.
TN29	ST 02038 95185	Ivy-leaved bellflower location in the concrete channel
TN30	ST 02287 95386	Small sandstone outcrop – reptile/ amphibian potential.
TN31	ST 01119 95919	Ivy-leaved bellflower location
TN32	ST 00986 96149	Himalayan balsam commonly present within the ffridd habitat.
TN33	ST 00983 96287	Himalayan balsam commonly present within the ffridd habitat.
TN 34	ST 01080 96230	Mature trees. Sandstone outcrop.
TN35	ST 01060 96509	Mature trees

Appendix C Botanical Species List

Common Species Name	Scientific Name	ACFOR frequency
Broad-leaved Scattered Trees		
Sessile oak	<i>Quercus petraea</i>	C
Rowan	<i>Sorbus aucuparia</i>	C
Silver birch	<i>Betula pendula</i>	C
Willow species	<i>Salix</i> spp.	C
Downy birch	<i>Betula pubescens</i>	O
Coniferous Scattered Trees		
Sitka spruce	<i>Picea sitchensis</i>	A
Larch species	<i>Larix</i> sp.	C
Scots pine	<i>Pinus sylvestris</i>	F
Dense and scattered scrub		
Bramble	<i>Rubus fruticosus</i> agg.	A
Willow species	<i>Salix</i> spp.	F
Gorse	<i>Ulex europaeus</i>	F
Dwarf gorse	<i>Ulex minor</i>	O
Hawthorn	<i>Crataegus monogyna</i>	O
Grey willow	<i>Salix cinerea</i> subsp. <i>cinerea</i>	O
Eared willow	<i>Salix aurita</i>	R
Coniferous plantation		
Sitka spruce	<i>Picea sitchensis</i>	A
Unimproved acid grassland and Dry Heath		
Common bent	<i>Agrostis capillaris</i>	A/LF
Mat-grass	<i>Nardus stricta</i>	C/LA
Heath-grass	<i>Danthonia decumbens</i>	C/LA
Red fescue	<i>Festuca rubra</i>	C/LA
Heath bedstraw	<i>Galium saxatile</i>	C/LA
Sweet vernal-grass	<i>Anthoxanthum odoratum</i>	C
Heath wood-rush	<i>Luzula multiflora</i>	C

Common Species Name	Scientific Name	ACFOR frequency
Heath rush	<i>Juncus squarrosus</i>	F/LA
Bilberry	<i>Vaccinium myrtillus</i>	F/LA
Bank haircap species	<i>Polytrichum species</i>	F/LA
Heather	<i>Calluna vulgaris</i>	F/LA
Cladonia species	<i>Cladonia spp.</i>	F/LA
Mouse-ear-hawkweed	<i>Pilosella officinarum</i>	F/LA
Common sorrel	<i>Rumex acetosa</i> subsp. <i>acetosa</i>	F
Sheep's-fescue	<i>Festuca ovina</i>	F
Tormentil	<i>Potentilla erecta</i>	F
Green-ribbed sedge	<i>Carex binervis</i>	F
Foxglove	<i>Digitalis purpurea</i>	F
Heath speedwell	<i>Veronica officinalis</i>	O/LA
New Zealand willowherb	<i>Epilobium brunnescens</i>	O/LA
Wavy hair-grass	<i>Deschampsia flexuosa</i>	O/LC
Carlina thistle	<i>Carlina vulgaris</i>	O/LC
Common vetch	<i>Vicia sativa</i> subsp. <i>segetalis</i>	O
Sheep's sorrel	<i>Rumex acetosella</i>	O
Trailing tormentil	<i>Potentilla anglica</i>	O
Purple moor-grass	<i>Molinia caerulea</i>	O
Cross-leaved heath	<i>Erica tetralix</i>	O
Black medick	<i>Medicago lupulina</i>	O
Sheep's-bit	<i>Jasione montana</i>	O
Hard-fern	<i>Blechnum spicant</i>	O
Ribwort plantain	<i>Plantago lanceolata</i>	O
Cat's-ear	<i>Hypochaeris radicata</i>	O
Slender St John's-wort	<i>Hypericum pulchrum</i>	O
Common Dog-violet	<i>Viola riviniana</i>	O
Common Yellow-sedge	<i>Carex viridula</i> subsp. <i>oedocarpa</i>	O
Slippery Jack	<i>Suillus luteus</i>	O
Yorkshire-fog	<i>Holcus lanatus</i>	O

Common Species Name	Scientific Name	ACFOR frequency
Hawkweed species	<i>Hieracium sp.</i>	R
Heath milkwort	<i>Polygala serpyllifolia</i>	R
Saffron milkcap species	<i>Lactarius sp.</i>	R
Bryophyte cover		Up to 100%
Neutral Semi-improved Grassland		
False oat-grass	<i>Arrhenatherum elatius</i>	C
Creeping bent	<i>Agrostis stolonifera</i>	C
Yorkshire-fog	<i>Holcus lanatus</i>	C
Red fescue	<i>Festuca rubra</i>	C
Creeping buttercup	<i>Ranunculus repens</i>	C
Crested dog's-tail	<i>Cynosurus cristatus</i>	F
Slender rush	<i>Juncus tenuis</i>	F
Creeping thistle	<i>Cirsium arvense</i>	O/LC
Yarrow	<i>Achillea millefolium</i>	O/LC
Common bird's-foot-trefoil	<i>Lotus corniculatus</i>	O/LF
Soft-rush	<i>Juncus effusus</i>	O
Common vetch	<i>Vicia sativa</i> subsp. <i>segetalis</i>	O
Perennial rye-grass	<i>Lolium perenne</i>	O
Ribwort plantain	<i>Plantago lanceolata</i>	O
Tormentil	<i>Potentilla erecta</i>	O
Tufted hair-grass	<i>Deschampsia cespitosa</i> subsp. <i>cespitosa</i>	O
Foxglove	<i>Digitalis purpurea</i>	O
Meadow buttercup	<i>Ranunculus acris</i>	O
Common ragwort	<i>Senecio jacobaea</i>	O
Selfheal	<i>Prunella vulgaris</i>	O
Common knapweed	<i>Centaurea nigra</i>	O
Marshy Grassland		
Purple moor-grass	<i>Molinia caerulea</i>	A/LF
Soft-rush	<i>Juncus effusus</i>	A/LF
Yorkshire-fog	<i>Holcus lanatus</i>	C
Foxglove	<i>Digitalis purpurea</i>	F

Common Species Name	Scientific Name	ACFOR frequency
Red fescue	<i>Festuca rubra</i>	F
Tufted hair-grass	<i>Deschampsia cespitosa</i> subsp. <i>cespitosa</i>	F
Heath bedstraw	<i>Galium saxatile</i>	F
Greater bird's-foot-trefoil	<i>Lotus pedunculatus</i>	O/LC
Marsh thistle	<i>Cirsium palustre</i>	O
Jointed Rush	<i>Juncus articulatus</i>	O
Lady-fern	<i>Athyrium filix-femina</i>	O
Male fern species	<i>Dryopteris</i> spp.	O
Bog stitchwort	<i>Stellaria alsine</i>	O
Common sorrel	<i>Rumex acetosa</i> subsp. <i>acetosa</i>	O
Common ragwort	<i>Senecio jacobaea</i>	O
Bitter-vetch	<i>Lathyrus linifolius</i>	R
Sharp-flowered rush	<i>Juncus acutiflorus</i>	R
Marsh-bedstraw	<i>Galium palustre</i>	R
Bryophytes cover		up to 100%
Dense and scattered bracken		
Bracken	<i>Pteridium aquilinum</i>	A
Tall Ruderal		
Rosebay willowherb	<i>Chamerion angustifolium</i>	C
Great willowherb	<i>Epilobium hirsutum</i>	F/LA
Creeping thistle	<i>Cirsium arvense</i>	O/LA
Common nettle	<i>Urtica dioica</i>	O
Acid/Neutral Flush		
Soft-rush	<i>Juncus effusus</i>	A
Velvet bent	<i>Agrostis canina</i>	A
Bank haircap species	<i>Polytrichum</i> sp.	F/LA
Foxglove	<i>Digitalis purpurea</i>	F
Yorkshire-fog	<i>Holcus lanatus</i>	F
Heath bedstraw	<i>Galium saxatile</i>	O/LA on anthills
Compact rush	<i>Juncus conglomeratus</i>	O/LC
Tufted hair-grass	<i>Deschampsia cespitosa</i> subsp. <i>cespitosa</i>	O
Cuckooflower	<i>Cardamine pratensis</i>	O
Wavy bitter-cress	<i>Cardamine flexuosa</i>	O
Hairy bitter-cress	<i>Cardamine hirsuta</i>	O

Common Species Name	Scientific Name	ACFOR frequency
Common sorrel	<i>Rumex acetosa</i> subsp. <i>acetosa</i>	O
Green-ribbed sedge	<i>Carex binervis</i>	O
Tormentil	<i>Potentilla erecta</i>	O
Ivy-leaved bellflower	<i>Wahlenbergia hederacea</i>	R/LA
Bog-moss species	<i>Spagnum</i> spp.	up to 90% cover
Raised bog		
Soft-rush	<i>Juncus effusus</i>	C
Yorkshire-fog	<i>Holcus lanatus</i>	C
Red fescue	<i>Festuca rubra</i>	C
Heath rush	<i>Juncus squarrosus</i>	C
Bulbous rush	<i>Juncus bulbosus</i>	C
Velvet bent	<i>Agrostis canina</i>	C
Green-ribbed sedge	<i>Carex binervis</i>	O
Cross-leaved heath	<i>Erica tetralix</i>	O
Common yellow-sedge	<i>Carex viridula</i> subsp. <i>oedocarpa</i>	O/LA
Sedge species	<i>Carex</i> spp.	O/LC
Lesser spearwort	<i>Ranunculus flammula</i>	R/LA
Papillose Bog-moss	<i>Sphagnum papillosum</i>	R/LA
Flat-topped bog-moss	<i>Spahgnum fallax</i>	R/LA
Fringed bog-moss	<i>Shagnum fibriatum</i>	R/LA
Red bog-moss	<i>Sphagnum capillifolium</i>	R/LA
Dry stone wall & Building ruins		
Maidenhair spleenwort	<i>Asplenium trichomanes</i>	F
Rustyback	<i>Asplenium ceterach</i>	F
Mouse-ear-hawkweed	<i>Pilosella officinarum</i>	O/LA
Lady-fern	<i>Athyrium filix-femina</i>	O

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Appendix 9.2

Lower Plants Survey report

Tylorstown Landslip Remedial Works

LOWER PLANT SURVEY REPORT

November 2020





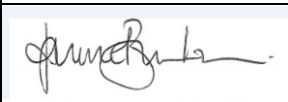
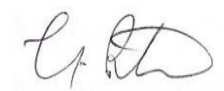
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Rev:P01

CLIENT: Rhondda Cynon Taf County Borough Council
ISSUE DATE: November 2020

Tylorstown Landslip Remedial Works
Lower Plant Survey Report

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**ISSUE
RECORD**

REV	DATE	DESCRIPTION/COMMENTS	AUTHOR/ PREPARED	APPROVED FOR ISSUE BY:
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Executive Summary

Site Location	North east of the town of Tylorstown, Rhondda Cynon Taf. (approximate site central grid reference ST 01449 96043)
Proposed Development	<ul style="list-style-type: none"> Phase 4 of landslide remedial works to include removal of coal spoil from the landslide area north east of Tylorstown to a receptor site approximately 1 km south south- east, adjacent to Old Smokey (an existing coal spoil tip site). Construction of haul road between the landslide and receptor site, utilising an existing former tram road. Reprofiling of landslide area and receptor site.
Dates of survey and names of surveyors	8th October 2020 Alan Orange
Overview of Results	<ul style="list-style-type: none"> The site comprises a range of semi-natural habitats which support a diversity of lichens and bryophytes. The nationally rare lichen species <i>Lecidea promixta</i> was recorded on a stone within grassland to the north of the landslip. The route of the proposed haul track, leading from the slip to the receptor site is well drained, with very sparse lichens and bryophytes. The reception site is dominated by acid grassland with damp areas. Small areas dominated by <i>Juncus effusus</i> were poor in bryophytes. Sphagnum was recorded in a broad shallow depression at the top of the slope. Stones on tracks at the reception site support a number of lichens of disturbed habitats. The: nationally scarce <i>Scapania lingulata</i> (a small liverwort) was recorded on site, possibly the first record for the species in Glamorgan.
Recommendations	<ul style="list-style-type: none"> Retention or creation of open habitats at the site where possible to benefit <i>Scapania lingulata</i>. Avoid spreading the spoil into a level expanse, allow it to rest as heaps, or one steep-sided heap. No reseeding or application of fertiliser; allowing natural colonisation of the bare soil to benefit species of open habitats. Ideally management through grazing would be implemented on site to prevent scrub or woodland developing.

1. Introduction

Following a landslip at Tylorstown Tip due to storm "Dennis", approximately 1.5 km south of Station Road, Ferndale, urgent remedial works are required. Redstart was commissioned by Rhondda Cynon Taf County Borough Council (RCTCBC) to carry out a lower plants survey for the proposed Phase 4 of landslide remedial works.

The survey was carried out to identify any ecological constraints related to bryophytes and lichens to the proposed works related to bryophytes and lichens. This report includes details of the survey methodology, results, a discussion of the results and contains recommendations for further survey/ mitigation where appropriate.

1.1 Site Description

The landslide is located immediately north east of the town of Tylorstown in the Rhondda Valley, Rhondda Cynon Taf and the proposed receptor site approximately 1 km east of the settlement, adjacent to the local landmark of Old Smokey spoil tip.

The area of works is located between Ferndale and Tylorstown to the northwest of Cardiff (Grid Reference ST001972); and is situated in the river valley of the Rhondda Fach, which runs from northwest to the southeast approximately 30 m to the west

Most of the site comprised unimproved/semi-improved acid grassland, bracken slopes and marshy grassland. Semi-natural broadleaved woodland was present to the south western extent of the site area. An isolated farmstead was located to the south west of Old Smokey.

1.2 Proposed Works

It is proposed to move material from the slip uphill to a reception site on the north-east and east side of a prominent spoil heap known locally as 'Old Smokey'. Access for vehicles will be via a haul road created along the route of a former dram road. Works will include reprofiling both the landslide area and receptor site.

2. Methodology

The site is within the National Grid 1 km squares ST01.95, 01.96 and 02.95, in the botanical vice-county of Glamorgan (V.C. 41) (Fig. 2). The site was visited on 8 October 2020.

Conservation evaluations of species follow Sanderson *et al.* (2018) for lichens, and Bosanquet *et al.* (2018) for bryophytes.

3. Results

Species recorded are listed in Table 1, numbers refer to localities in Table 2 and shown in Figures 1 – 16 in Appendix A. Grid references for numbered localities are in Table 2.

Table 1: Species recorded at Tylorstown Landslip area

Bryophytes	
<i>Archidium alternifolium</i>	10 on damp soil of track.
<i>Bryum capillare</i>	on thin soils over spoil, occasional. 1, 4, 12.
<i>Bryum pseudotriquetrum</i>	13 wet grassland.
<i>Calliergonella cuspidata</i>	10 wet soil on track, rare. 14 small mire with <i>Juncus effusus</i> .
<i>Campylopus introflexus</i>	on thin soils over spoil, occasional. 2, 4.
<i>Cephaloziella divaricata</i>	on soil, rare. 4.
<i>Ceratodon purpureus</i>	on open ground over spoil, abundant on ant hills, locally frequent. 1, 2, 4.
<i>Cratoneuron filicinum</i>	13 wet grassland.
<i>Dicranum scoparium</i>	frequent. 1, 7.
<i>Didymodon fallax</i>	1 on thin and slightly calcareous soils over spoil, local. 12 old concrete culvert.
<i>Diplophyllum albicans</i>	11 soil bank by track.
<i>Fissidens adianthoides</i>	13 wet grassland.
<i>Grimmia pulvinata</i>	on stone, rare. 5.
<i>Hylocomium splendens</i>	13 acid grassland.
<i>Hypnum cupres-siforme</i> var. <i>lacunosum</i>	1 on thin and possibly slightly calcareous soils over spoil, rare. 12 old concrete culvert.
<i>Hypnum jutlandicum</i>	on the ground, occasional. 1, 4, 7, 15.
<i>Jungermannia gracillima</i>	10, 11 wet soil on track.
<i>Kindbergia praelonga</i>	wet ground amongst <i>Juncus effusus</i> . 14, 16.
<i>Lophocolea bidentata</i>	16 wet ground amongst <i>Juncus effusus</i> .
<i>Metzgeria furcata</i>	7 on gorse stem.

<i>Microlejeunea ulicina</i>	7 on gorse stem.
<i>Philonotis fontana</i>	10 wet soil on track, rare.
<i>Pleurozium schreberi</i>	amongst <i>Calluna</i> and acid grassland, occasional. 7, 13.
<i>Pogonatum umigerum</i>	10 wet ground by track.
<i>Pohlia nutans</i>	on thin soil over spoil, rare. 3.
<i>Polytrichum commune</i>	wet ground, occasional. 10, 14, 15.
<i>Polytrichum formosum</i>	on soil, locally frequent. 6, 7.
<i>Polytrichum juniperinum</i>	on thin soils over spoil, locally frequent. 1, 4,
<i>Polytrichum piliferum</i>	on thin soils over spoil, occasional. 1, 2, 3, 5.
<i>Pseudoscleropodium purum</i>	on the ground, frequent. 1, 7, 12, 13.
<i>Ptilidium cilare</i>	on the ground on thin soil and amongst <i>Calluna</i> , occasional. 1, 7,
<i>Rhytidiadelphus squarrosus</i>	on the ground, frequent. 1, 10, 13, 16.
<i>Scapania irrigua</i>	10 on damp soil of track.
<i>Scapania lingulata</i>	10 on damp soil of track.
<i>Schistidium crassipilum</i>	12 old concrete culvert.
<i>Sphagnum denticulatum</i>	10 wet ground by track, 15 wet ground.
<i>Sphagnum fallax</i>	15 wet ground, rare.
<i>Sphagnum fimbriatum</i>	15 wet ground, rare.
<i>Sphagnum papillosum</i>	15 wet ground, rare.
Lichens and lichenicolous fungi	
<i>Bachmanniomyces punctum</i> [LF]	4 on dying thalli of <i>Cladonia uncialis</i> .
<i>Bacidia delicata</i>	7 on gorse stem.
<i>Baeomyces rufus</i>	10 eroded soil bank by track.
<i>Buellia aethalea</i>	on stones. 1.
<i>Buellia ocellata</i>	on stones over thin soil, very local. 4, 6.

<i>Caloplaca chlorina</i>	9 level stones in old flight of steps.
<i>Caloplaca flavocitrina</i>	on stones, rare. 1.
<i>Caloplaca holocarpa</i>	on stones, rare. 1.
<i>Candelariella vitellina</i>	on stones, rare. 5, 6.
<i>Cladonia alpina/polydactyla</i>	on thin soils over spoil, occasional. 2, 3, 6. Poorly developed, thin- layer chromatography is needed for confirmation.
<i>Cladonia arbuscula</i>	on steep slope on thin soil over spoil, very local. 6.
<i>Cladonia cervicornis</i>	on thin soil over spoil, rare. 7.
<i>Cladonia chlorophaea</i>	locally frequent on thin soil. 1, 2, 4,
<i>Cladonia ciliata</i> var. <i>ciliata</i>	on thin soil over spoil, rare. 8.
<i>Cladonia coccifera</i>	on thin soils over spoil, occasional. 2, 3,
<i>Cladonia furcata</i>	locally frequent on thin soil. 1, 2, 6.
<i>Cladonia gracilis</i>	on thin soil over spoil, local, rare. 4, 8.
<i>Cladonia portentosa</i>	on thin soils over spoil, locally frequent. 1, 4, 8
<i>Cladonia ramulosa</i>	on thin soils over spoil, occasional. 1, 4.
<i>Cladonia subulata</i>	on part of old car seat, rare. 7.
<i>Cladonia uncialis</i>	on open ground, locally frequent in small quantities. 1, 6.
<i>Clauzadea monticola</i>	12 concrete culvert.
<i>Lecanora dispersa</i>	on stones, rare. 4.
<i>Lecanora muralis</i>	6 on a stone, very rare.
<i>Lecanora polytropa</i>	on stones over thin soil, very local. 4, 6.
<i>Lecidea promixta</i>	6 on a stone; rare.
<i>Lichenomphalia</i> sp.	8 on vegetation remains on thin soil, rare.
<i>Lichenosticta alpicornaria</i> [LF]	4 on squamules of <i>Cladonia</i> sp.
<i>Parmelia saxatilis</i>	on large stones, very local. 7.
<i>Parmotrema perlatum</i>	very rare, on one stone. 1.

<i>Peltigera hymenina</i>	locally frequent on thin soil. 1, 2, 6.
<i>Peltigera membranacea</i>	16 wet ground amongst <i>Juncus effusus</i> .
<i>Physcia caesia</i>	on stone, rare. 5.
<i>Physcia tenella</i>	on stones, rare. 1,
<i>Polysporina simplex</i>	on a stone, very rare. 6.
<i>Porpidia macrocarpa</i>	6 on a stone; rare.
<i>Porpidia tuberculosa</i>	on brick fragment, rare. 4.
<i>Protoblastenia rupestris</i>	12 old concrete culvert.
<i>Rhizocarpon reductum</i>	on stones, locally frequent. 1, 4, 6.
<i>Trapelia coarctata/elacista</i>	on stones, rare. 6, 12. Probably <i>T.elacista</i> but DNA sequencing is needed to be certain.
<i>Trapelia obtogens</i>	on small stones on thin soil, local. 3, 4, 5. <i>Sorediate</i> morph.
<i>Trapelia placodioides</i>	on a stone, very rare. 6.
<i>Trapeliopsis gelatinosa</i>	11 slightly overhanging surfaces of soil bank by track.
<i>Verrucaria muralis</i>	12 concrete culvert.
<i>Verrucaria nigrescens</i>	12 old concrete culvert.
<i>Verrucaria</i> sp.	on stones, occasional. 4, 12. One of a number of poorly known species, identification would require DNA sequencing.
<i>Xanthoria mougeotii</i>	on a stone, rare. 6.
<i>Xanthoria parietina</i>	on stone, rare. 5.

LF = lichenicolous fungus.

Table 2: Numbered localities

Number	Grid ref.	GIS reference	
		x	y
1	ST01149.96408	301149	196408
2	ST01127.96419	301127	196419
3	ST01116.96416	301116	196416
4	ST01109.96399	301109	196399
5	ST01148.96389	301148	196389
6	ST01115.96389	301115	196389

7	ST01127.96368	301127	196368
8	ST01111.96340	301111	196340
9	ST01174.96417	301174	196417
10	ST01551.96179	301551	196179
11	ST01602.96049	301602	196049
12	ST01842.95860	301842	195860
13	ST01862.95847	301862	195847
14	ST02062.95710	302062	195710
15	ST02180.95680	302180	195680
16	ST02103.95638	302103	195638

The old vegetated spoil heaps north of the landslip are covered by acid grassland with a little heather; steep slopes have open vegetation on thin parched soil, and *Cladonia* species are locally frequent and conspicuous, including the 'reindeer lichens' *Cladonia arbuscula*, *C. ciliata* and *C. portentosa*, and other *Cladonia* species including *C. chlorophaea*, *C. coccifera*,

C. furcata and *C. gracilis* (Figs. 3, 4). This vegetation is referable to the NVC community U1, *Festuca-ovina*-*Agrostis capillaris*-*Rumex acetosella* grassland. Small stones here support mainly lichens of disturbed habitats, including the Nationally Rare *Lecidea promixta* (seen on one stone), and the stones are often slightly calcareous. Such steeper slopes are relatively rich in lichens and bryophytes. Areas of dense *Calluna* have relatively large, common mosses between the bushes, but also the liverwort *Ptilidium ciliare*. Areas with dense gorse are very shady and most bryophytes and lichens are excluded.

The track running downhill from the minor road is wet and has not been heavily used recently; patches of bare soil have a number of small bryophytes typical of disturbed habitats, including *Archidium alternifolium*, *Jungermannia gracillima* and *Scapania irrigua*, but also small amounts of the Nationally Scarce liverwort *Scapania lingulata* (Locality 10 in Fig. 2). A short section of slightly overhanging soil bank beside the track supports the lichens *Baeomyces rufus* and *Trapeziopsis gelatinosa*.

The main track leading from the slip to the reception site is well drained, with very sparse lichens and bryophytes, and is of low interest (Fig. 6).

The reception site is dominated by acid grassland, damp in places, with some areas dominated by *Molinia*. A few small areas dominated by *Juncus effusus* (one also with *Wahlenbergia hederacea*) were poor in bryophytes, but in a broad shallow depression at the top of the hill Sphagnum species are present with *Juncus* in one area at ST0218.9568 (Fig. 8), with *S. denticulatum*, *S. fallax*, *S. fimbriatum* and *S. papillosum* (Figs. 9–11). Some areas of damp grassland are slightly more base-enriched, with *Bryum pseudotriquetrum* and *Fissidens adianthoides*. Stones on tracks at the reception site carry a number of lichens of disturbed habitats.

Two notable species were recorded at the site:

Scapania lingulata is a small liverwort that is Nationally Scarce (occurring in 16–100 10 km grid squares in Britain), with only a few scattered records from Wales. It is likely to be a little under-recorded, however, as it was formerly confused with the commoner *S. scandica*, and the two

need microscopic examination to separate them. It was detected on moist, bare, clayey soil on a track at ST0155.9618, growing with *Jungermannia gracillima* and *Archidium alternifolium*. The material had leaf cells (25–)30(–32) μm wide, containing (3–)4–8(–9) oil-bodies per cell (Figs. 12–14). This may be the first record for Glamorgan.

Lecidea promixta is a lichen which is Nationally Scarce, with most records from South Wales and northern England (Figs. 15–16). Other records from South Wales are from Corn Du and Pen y Fan, and west of Pontypool, on recently exposed rock or on stones in disturbed places, at altitudes of 350–885 m. Possibly it is rather upland in distribution, though it does occur at sea level in Scotland. It is a rather nondescript species and is probably overlooked. It is designated as 'Data Deficient' by Sanderson *et al.* (2018), meaning that its distribution is insufficiently known, but it was also graded as 'Notable'. It may well be fairly frequent on tracks and trampled places in the uplands. *Lecidea promixta* needs rather recently exposed surfaces created by disturbance or instability, provided at Tylorstown by summer parching and/or slight instability on steep slopes.

4. Discussion and Mitigation

Overall, the site comprises a range of semi-natural habitats which support a good range of species, though with few rare ones. Old colliery spoil heaps are a rich and distinctive local habitat, as recognised by Olds & Wistow (2018) and Olds (2019), and initiatives such as the Colliery Coal Spoil Biodiversity Initiative (<https://collieryspoilbiodiversity.wordpress.com/>) and the 2017–2020m, TIPical Valleys Project (<http://www.welshcoalmines.co.uk/forum/read.php?5,70901>). There does not seem to have been any systematic survey of the lichens of the South Wales tips, though a very few have been surveyed (Orange, 2009).

It is not practicable to protect the track which has *Scapania lingulata*, as without periodic disturbance the bare-ground habitat will be lost. Retention or creation of open habitats at the site is the best way of conserving such species.

As far as it is compatible with safety, when remedial work is carried out the ideal would be to avoid spreading the spoil into a level expanse, but to allow it to rest as heaps, or one steep-sided heap. Also, it would be best if no reseeded or application of fertiliser was carried out. The bare spoil will allow natural colonisation, and benefit species of open habitats.

All the open habitats at the site will only persist if there is sufficient grazing, otherwise the site will develop into scrub or woodland of low interest. In places the tips are being invaded by trees, including the non-native Sitka Spruce, as noted by Olds (2019).

5. References

- Bosanquet, S.D.S., Genney, D.R. and Cox, J.H.S. (2018) *Guidelines for the Selection of Biological SSSIs. Part 2: Detailed Guidelines for Habitats and Species Groups. Chapter 12 Bryophytes*. Joint Nature Conservation Committee, Peterborough.
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- Sanderson, N. A., Wilkins, T.C., Bosanquet, S.D.S and Genney, D.R. (2018) *Guidelines for the Selection of Biological SSSIs. Part 2: Detailed Guidelines for Habitats and Species Groups. Chapter 13 Lichens and associated microfungi*. Joint Nature Conservation Committee, Peterborough.

Appendix A – Figures 1 – 16

Figure. 1.: Photograph of the landslip, tweeted by NPAS (<https://twitter.com/NPASSouthWest/status/1229109098546946049>).



Figure 2: Map of site, showing numbered localities. Orange line = approximate area surveyed.

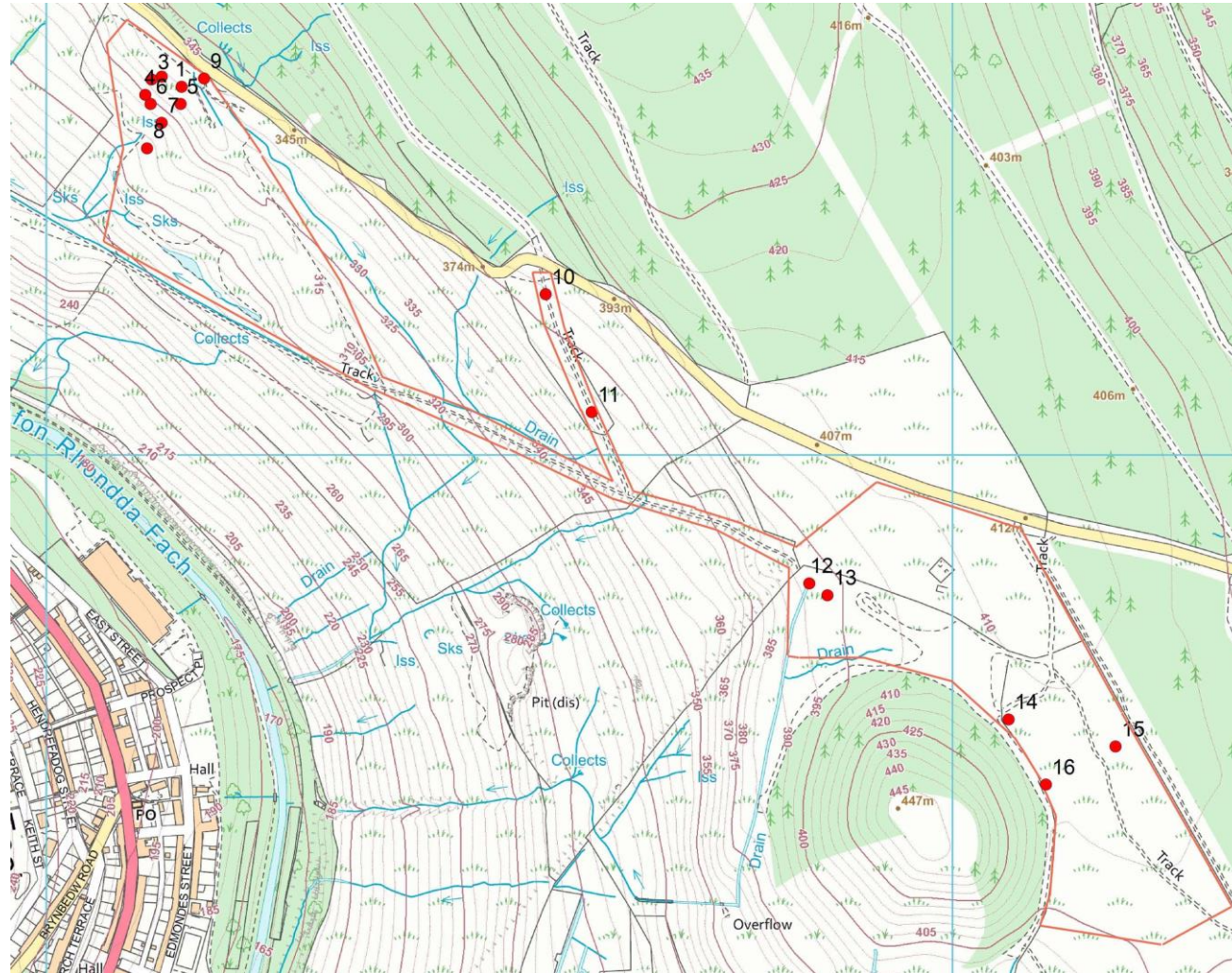


Figure 3: Steep slopes on old spoil have open vegetation with locally abundant lichens. Locality



Figure 4: A steep slope with the reindeer lichen *Cladonia arbuscula* (pale patches). Locality 6.



Figure 5: The top of the landslip.



Figure 6: The track leading from the landslip to the reception site is of low interest for bryophytes and lichens.



Figure 7: Soil bank with *Trapeliopsis gelatinosa* (paler patches) and *Baeomyces rufus* (greener patches). Locality 10.



Figure 8: Wet ground with abundant soft rush, with patches of *Sphagnum* species. Locality 15.



Figure 9: *Sphagnum papillosum*, with robust, warm brown branches.



Figure 10: *Sphagnum fallax*, with orange-brown branches.



Figure 11: *Sphagnum fimbriatum*, with green, slender branches.



Figure 12: *Scapania lingulata*. The leaves are divided into two lobes, the smaller one bent back over the larger. Scale = 1mm.



Figure 13: *Scapania lingulata*. Detail of leaf, showing the absence of any differentiated marginal row of cells.

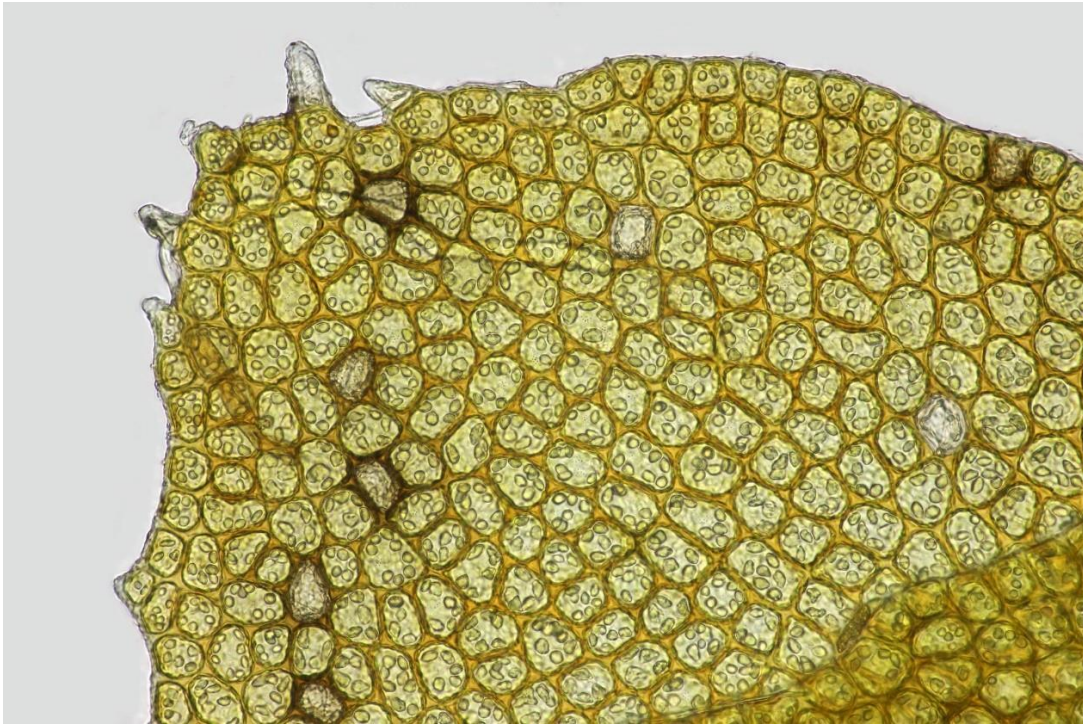


Figure 14: *Scapania lingulata*. Detail of leaf, showing cells containing numerous oil-bodies, one of the distinctions from the similar *S. scandica*.

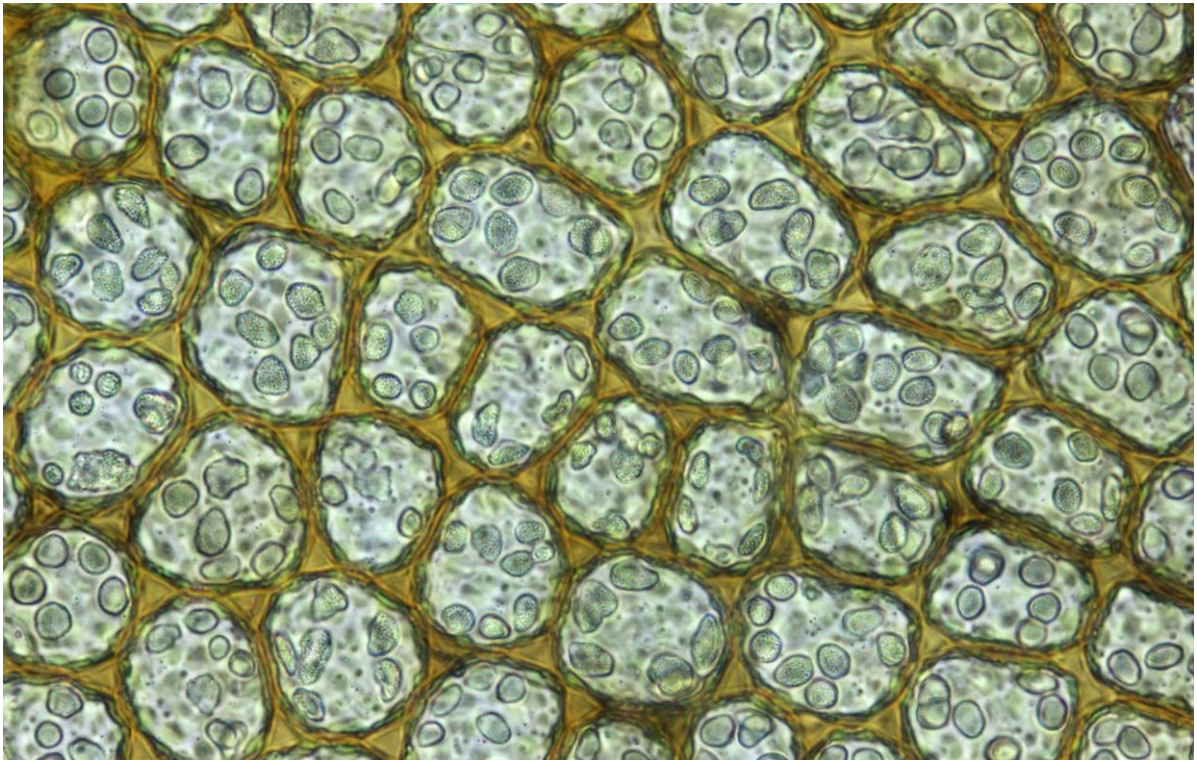
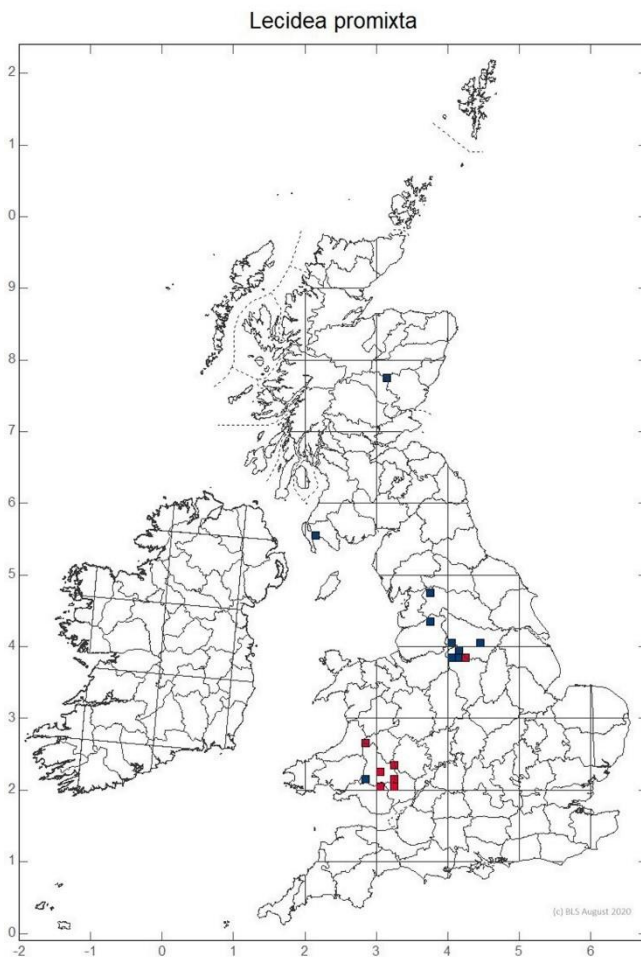


Figure 15: *Lecidea promixta*. The thallus is inapparent, sunken amongst the rock grains, but the black fruiting bodies sit on the surface of the rock. Scale = 1 mm



Figure 16: Distribution of *Lecidea promixta*. (Red = since 2000, blue = before 2000).

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Appendix 9.3

Great Crested Newts eDNA Survey report

Project: RCT Tylorstown Landslide (Phase 4)

Our Reference: GC3613-RED-0074-XX-RP-L-0006 P003

Prepared by: Rebecca Howells

Date: 17/08/2020

Approved by: Janine Burnham

Checked by: Trevor Fletcher

Subject: Great Crested Newt eDNA Survey

Introduction

Rhondda Cynon Taf County Borough Council (RCTCBC) propose to undertake four phases of work to remove and stabilise a land slip at Tylorstown.

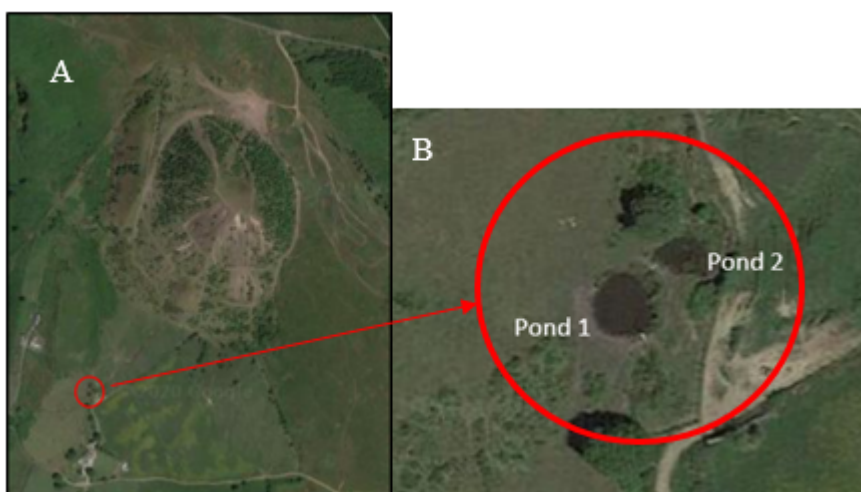
This Technical Note relates to Phase 4 of the development which involves removing material from the land slip area to a receptor site located around the base of the north east facing slope of the existing Tylorstown coal spoil tip (Old Smokey).

Redstart ecologists were commissioned to carry out a Habitat Suitability Index (HSI) and environmental DNA (eDNA) survey of waterbodies to identify presence/ likely absence of great crested newt (*Triturus cristatus*) (GCN) in relation to the proposed works, scheduled to start in the early summer of 2021. This report presents the findings of the survey.

The waterbodies are located within a horse grazed field at Cefn Llechau Uchaf Farm, approximately 200 m southwest of the south slope of Old Smokey (Grid Reference ST 01658 95180) (Table 1, Photographs 1 and 2).

Surface runoff flows from the coal spoil tip in a southerly direction down the valley and supplements the water levels of Ponds 1 and 2 (Figure 1).

Figure 1: Location of ponds in relation to Old Smokey (A) and detail of Ponds 1 and 2 (B) (Aerial image adapted from Google Maps 2020)



Technical Note

Methodology

An HSI and eDNA survey was undertaken on two ponds located within 500 m of 'Old Smokey' coal tip on 24th June 2020.

Habitat Suitability Index (HSI)

The HSI assessed ten attributes that are known to influence the likelihood of great crested newt being present within a waterbody, including; geographic location; pond size; pond permanence; water quality (based on invertebrate diversity within the pond); level of shading; presence of waterfowl; presence of fish; number of ponds within 1 km; terrestrial habitat suitability; and macrophyte cover in accordance with *Oldham et al. (2000)*.

The HSI score estimates the ponds suitability for great crested newt, with higher scores indicating a greater suitability, as shown below (*ARG, 2010*):

< 0.5 Poor

0.5 – 0.59 Below average

0.6 – 0.69 Average

0.7 – 0.79 Good

> 0.8 Excellent

Environmental DNA (eDNA) sampling

Surveyors collected water samples from 20 locations at each waterbody, the locations were as evenly spaced around the perimeter of the waterbody as possible.

Samples were sent to an appropriate technical laboratory for analysis to determine if great crested newt eDNA was present or absent within each waterbody.

Samples were taken in strict accordance with the published technical advice note *Defra Science and Research Project WC1067 (Biggs et al, 2014)*.

Limitations

At the time of survey both Ponds 1 and 2 contained low water levels, which created difficult conditions for collecting water samples, however, adequate samples were taken to enable the correct testing procedure to be followed.

Any ecological survey can only identify what was present on site at the time it was conducted and habitat use by species can change over time. The length of time survey data remains valid will depend on a case-by-case basis, but it is generally considered that if the development or proposed works do not commence within 2 years of the date of this report an update may be required.



Technical Note

Results

Habitat Suitability Index (HSI) sampling


The HSI results indicated that both Pond 1 and 2 had 'average' habitat suitability to support GCN (refer to table 1).

eDNA Survey


The DNA analysis report received by Fera (Appendix A) stated that eDNA for great crested newt was detected in the sample taken from Pond 1 and not detected in the sample taken from Pond 2 (refer to table 1).

Technical Note

Table 1: Survey results, ecological constraints and recommended actions.

Results			Rationale	Recommended Ecological Action	Site Photographs
HSI Results			<p>It is an offence under the Conservation of Habitats and Species Regulations 2017 and Wildlife and Countryside Act 1981 (as amended) to deliberately capture, injure, kill, disturb, destroy the eggs or breeding site or resting place of GCN.</p>	<p>The receptor site should be designed to ensure that no spoil is deposited within 500 m of ponds 1 and 2.</p> <p>Suitable pollution prevention measures, forming part of a Construction Environmental Management Plan (CEMP), should be in place to ensure that no runoff from the receptor site impacts on watercourses or waterbodies on or near the development site.</p> <p>No further survey of ponds 1 and 2 is required. However, precautionary approach is recommended - the proposed works should be carried out under a method statement that should include the following:</p> <p>Amphibian/reptile fencing should be erected to exclude any</p>	<p>Photograph 1: Pond 1</p>  <p>Photograph 2: Pond 2</p>
Pond ID	HSI Score	Habitat Suitability Rating			
1	0.62	Average			
2	0.60	Average			
eDNA Results					
Pond ID	Fera Reference Number	eDNA Result			
1	S20-013280	Positive			
2	S20-013279	Negative			

Technical Note

Results			Rationale	Recommended Ecological Action	Site Photographs
				<p>amphibians/reptiles entering the work area prior to any deposition of material. The amphibian/reptile fences should be in installed line with best practice.</p> <p>The installation of the fencing, topsoil stripping and the initial deposition of material on the receptor site should be carried out under ecological supervision.</p> <p>The fence line should be regularly checked and maintained throughout the duration of the works.</p> <p>Where possible any earth-moving works should be avoided during amphibian/reptile hibernation period late October to early March inclusive – temperature dependent.</p> <p>Any hibernating amphibians/reptiles encountered on site will be removed by the ECoW, who will be on site, and taken into captivity for the hibernation period and released back onto the</p>	



Technical Note

Results			Rationale	Recommended Ecological Action	Site Photographs
				site when the temperatures are suitable and food is available.	

Conclusion

Ponds 1 and 2 are located approximately 200 m southwest of 'Old Smokey' coal spoil tip.

Surface runoff flows from the coal tip in a southerly direction down the valley and supplements the water levels of Ponds 1 and 2.

Ponds 1 and 2 scored an 'average' habitat suitability rating to support great crested newt

Pond 1 returned a positive eDNA result for great crested newt.

Pond 2 returned a negative eDNA result, but it is within 3 m of, and hydrologically connected to, Pond 1 via an overflow outlet and therefore it is also likely great crested newt may be present at times.

The proposed works will be unlikely to adversely impact on the ponds for the following reasons.:

The proposed works are outside of the influence zone of great crested newt metapopulation. (Both ponds are located more than 500 m from the proposed works site. The next closest pond is approximately 1.5km to the northeast of the area of works). However, great crested newt has been recorded dispersing up to 1000m (Langton *et al*, 2001).

The likelihood of dispersal of great crested newt to the proposed receptor site is low due to the semi-optimal terrestrial habitat and steep elevation (approximately 100m) on the "Old Smokey" tip. The slopes of "Old Smokey" are also intersected by steep sided concrete drainage channels and channels eroded by off road motorbikes, which are likely to act as a barrier.

Therefore, no further survey of the waterbodies is required, and precautionary measures under an appropriate method statement will be a suitable approach. The method statement should be produced for this phase of works before any material deposition commences.

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Technical Note

Appendix A

Fera – DNA Analysis Report

DNA Analysis Report - Commercial in Confidence



Customer: Capita Property and Infrastructure Ltd

Address:

Contact:

Email:

Tel:

Report date: 07-Jul-2020

Order Number: GCN20-1295

Samples: Pond Water

Analysis requested: Detection of Great Crested Newt eDNA from pond water.

Thank you for submitting your samples for analysis with the Fera eDNA testing service. The details of the analysis are as follows:

Method:

The method detects pond occupancy from great crested newts (GCN) using traces of DNA shed into the pond environment (eDNA). The detection of GCN eDNA is carried out using real time PCR to amplify part of the cytochrome 1 gene found in mitochondrial DNA. The method followed is detailed in Biggs J., et al, (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

The limits of this method are as follows: 1) the results are based on analyses of the samples supplied by the client and as received by the laboratory, 2) any variation between the characteristics of this sample and a batch will depend on the sampling procedure used. 3) the method is qualitative and therefore the levels given in the score are for information only, they do not constitute the quantification of GCN DNA against a calibration curve, 4) a 'not detected' result does not exclude presence at levels below the limit of detection.

The results are defined as follows:

Positive: DNA from the species was detected.

eDNA Score: Number of positive replicates from a series of twelve.

Negative: DNA from the species was not detected; in the case of negative samples the DNA extract is further tested for PCR inhibitors and degradation of the sample.

Inconclusive: Controls indicate degradation or inhibition of the sample, therefore the lack of detection of GCN DNA is not conclusive evidence for determining the absence of the species in the sample provided.

DNA Analysis Report - Commercial in Confidence



CustomerReference	Fera Reference	GCN Detection	eDNA Score	Inhibition	Degradation
Pond 2	S20-013279	Negative	0	No	No
Pond 1	S20-013280	Positive	1	n/a	n/a

The results indicate that eDNA for great crested newts was detected in one of the samples and in the remaining sample eDNA was not detected (as detailed in the table above). Analysis was conducted in the presence of the following controls: 1) extraction blank, 2) appropriate positive and negative PCR controls for each of the TaqMan assays (GCN, Inhibition, and Degradation). All controls performed as expected.

This test procedure was developed using research funded by the Department of Environment, Food and Rural Affairs.

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Appendix 9.4

Breeding Bird survey report

RCT Tylorstown Landslip Remedial Works

BREEDING BIRD SURVEY REPORT

December 2020





Project No: GC/003613


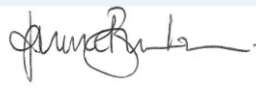
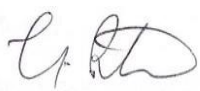
Doc Ref: GC3613-RED-0074-XX-RP-L-0009

Rev:P01

CLIENT: Rhondda Cynon Taf County Borough Council

ISSUE DATE: December 2020

**RCT Tylorstown Landslip Remedial Works - Phase 4
Breeding Bird Survey Report**

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**ISSUE
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Drawings

GC3613-RED-74-XX-DR-L-0001-Breeding Bird Survey Results
GC3613-RED-74-XX-DR-L-0002-Designated Sites Map

Appendices

Appendix A - Survey Data
Appendix B- Legislation and Conservation Designation
Appendix C- Nature Conservation Value-Definition of Terms
Appendix D- Breeding Bird Species of High and Medium Conservation Concern-County Status
Appendix E- Desk Top Study Data

Non-Technical Summary

Site Location	North east of the town of Tylorstown, Rhondda Cynon Taf. (approximate site central grid reference ST 01449 96043)
Proposed Development	Phase 4 of the remedial works following the landslide to include removal of material from the landslide area north east of Tylorstown to a receptor site approximately 1 km south south-east, adjacent to Old Smokey (an existing coal spoil tip site). Construction of haul road between the landslide and receptor site, utilising an existing former tram road. Reprofilling of landslide area and receptor site.
Purpose of survey/s	To identify ecological constraints to the development relating to breeding birds.
Dates of survey and names of surveyors	<p>22/06/2020 Trevor Fletcher (Ecologist) and Daniel Lewis (Assistant Ecologist)</p> <p>01/07/2020 Trevor Fletcher (Ecologist) and Daniel Lewis (Assistant Ecologist)</p> <p>07/07/2020 Trevor Fletcher (Ecologist) and Daniel Lewis (Assistant Ecologist)</p>
Overview of Results	<ul style="list-style-type: none"> ● No nationally or internationally protected statutory designated sites (i.e. Sites of Special Scientific Interest (SSSIs) or Special Areas of Conservation (SACs)) lie within 2 km of the proposed development site. ● There are five non-statutory designated sites (e.g. Sites of Importance for Nature Conservation (SINCs)) within 1 km of the proposed development site with relevance to breeding bird species. ● 54 species of bird were recorded during the surveys and 13 of these were confirmed as breeding, 10 as probably breeding and four as possibly breeding. ● 59 breeding bird territories were identified within the survey area. ● Breeding territories for 11 species of high conservation concern and 2 species of medium conservation concern were recorded in the survey area. ● The majority of breeding species recorded were considered to be of site level importance in terms of nature conservation value, 17 species were considered to be of local level importance. ● Breeding bird territories were recorded across the site, including the landslide area, proposed haul road and receptor site.

	<ul style="list-style-type: none"> ● The site is considered to be of no more than local level importance in terms of nature conservation value for breeding birds.
<p>Mitigation</p>	<ul style="list-style-type: none"> ● Vegetation / topsoil clearance should ideally be carried out between September and February inclusive to avoid disturbance to breeding birds. If works are to be carried out outside this period, an ecologist should be employed to survey for nest sites immediately prior to works commencing. ● Avoid siting plant/ machinery, compounds and access routes in habitat identified in this report as most suitable for bird species to nest. Discuss appropriate locations with an ecologist with ornithological experience before commencement of works. ● Pollution control measures should be in place to ensure the Rhondda Fach and any other watercourses are protected. Pollution control measures should be detailed within a Construction Environmental Management Plan (CEMP). ● Measures should be in place to ensure that the receptor site is designed to minimise impact on habitats most likely to support breeding species such as schedule 1 common crossbill and priority species such as skylark. ● A tool-box talk is required prior to commencement of works to ensure appropriate action is taken if protected bird species are unexpectedly encountered.
<p>Compensation and enhancement</p>	<ul style="list-style-type: none"> ● Provision of bird boxes across the site/in adjacent suitable habitat to benefit a range of common breeding species and raptor species kestrel. ● Planting areas of the re-profiled donor and receptor sites to include appropriate native species to benefit birds in terms of breeding, shelter and food provision.

1. Introduction

Redstart was commissioned by Rhondda Cynon Taf County Borough Council (RCTCBC) to carry out a breeding bird survey for the proposed Phase 4 of landslide remedial works near Tylorstown, Rhondda Cynon Taff.

The breeding bird survey was carried out to identify any ecological constraints related to breeding birds to the proposed works and this report includes details of the survey methodology, results, a discussion of the results and contains recommendations for further survey/ mitigation where appropriate.

1.1 Site Description

The proposed Phase 4 planning boundary and a 500 m ecological survey buffer zone is referred to as the 'site' in this report. The planning boundary is referred to as the footprint.

The landslide is located immediately north east of the village of Tylorstown in the Rhondda Valley, Rhondda Cynon Taf and the proposed receptor site approximately 1 km east of the settlement, adjacent to the local landmark of Old Smokey spoil tip.

Most of the site comprised unimproved/semi-improved acid grassland, bracken slopes and marshy grassland. Semi-natural broadleaved woodland was present to the south western extent of the site area. An isolated farmstead was located to the south west of Old Smokey.

Figure 1 – Photograph of site adapted from Google Earth. (Google Earth, 2020). Approximate 500 m survey boundary in red.



1.2 Proposed Works

The proposed works for Phase 4 of the project consist of removal of coal spoil from a landslide area located north of Tylorstown to a receptor site approximately 1 km south southeast adjacent to Old Smokey (an existing coal spoil tip site). Access for vehicles will be via a haul road created

along the route of a former dram road. Works will include reprofiling both the landslide area and receptor site.

The site is illustrated on Drawing GC3613-RED-74-XX-DR-L-0001.

2. Methodology

The following resources were accessed for information regarding breeding bird records and their distribution in the study area;

- South East Wales Biodiversity Records Centre (SEWBRc, 2020)
- British Trust for Ornithology (BTO) Birdtrack
- East Glamorgan Bird Atlas 2007-11. (Glamorgan Bird Club, 2014)
- Eastern Glamorgan Bird Report No.57 (Glamorgan Bird Club, 2018)

Aerial photographs and Ordnance Survey (OS) maps were reviewed to identify buildings with potential for breeding sites.

2.1 Field Survey

A breeding bird survey was undertaken using methodology broadly based on the British Trust for Ornithology's (BTO) Common Bird Census (CBC) (Bibby *et al.*, 2000; Gilbert *et al.*, 1998 and Marchant, 1983). This territory mapping method allows the distribution of bird territories across the survey area to be determined. From this an estimate of the number of breeding pairs for each species can be derived. An advantage of this survey method is that it enables the relative importance of different parts of the survey area to breeding birds to be evaluated.

A transect route was mapped within a 500 m radius of the line of the proposed haul road between the landslide area and the proposed receptor site. The surveys being undertaken and devised to ensure a representative sample of habitats across the site were incorporated. This methodology diverges from CBC, which specifies as best practice recording to within 50 m of the whole site but is considered to provide an accurate representation of the breeding bird assemblage of the site. All significant habitat types present on site were incorporated in the transect design and transect routes were devised to ensure that there was particularly thorough survey coverage along the proposed haul road and within and adjacent to the receptor site.

The transect route is illustrated in Drawing GC3613-RED-74-XX-DR-L-0001.

Three appropriately spaced survey visits were undertaken on each of the transect routes between 22nd June 2020 and 7th July 2020 (full details of surveys can be found in Appendix A).

In accordance with CBC methodology surveys were conducted in the early morning, avoiding the hour before sunrise, and completed before noon. An additional evening survey was carried out to ensure that species predominantly active during the period of early evening to dusk were adequately surveyed for, particularly as nightjar, an uncommon summer breeding species in East Glamorgan, is known to breed in nearby Llanwonno (SEWBRc, 2020).

During each visit the survey area was walked at a slow, steady pace to ensure birds could be detected by sight or sound. Frequent stops were made to scan for singing and calling birds.

Surveys were carried out in appropriate weather conditions; avoiding days with high winds, heavy rain or poor visibility, guarding against the possibility of under recording due to bird activity being suppressed.

Surveys were complete by personnel with knowledge and experience of the likely species assemblage for the geographical location and habitat types.

All bird species and their locations were recorded on large scale maps using standard two - letter British Trust for Ornithology (BTO) codes and bird activity was recorded using standard BTO behaviour codes.

A list of all bird species for the survey area was compiled. Peak counts for non-territorial species were recorded (i.e. the maximum number of a particular species noted during a single survey visit).

The criteria used in the assessment of breeding birds has been adapted from the standard criteria proposed by the European Ornithological Atlas Committee (EOAC 1979), as follows:

Confirmed breeding - Evidence of nesting activity was observed, such as a nest containing eggs/young, distraction display/injury feigning observed, adults carrying food or where used nests or eggshells were located.

Probable breeding - A pair of birds in suitable nesting habitat and displaying behaviours such as singing, breeding or alarm calls and were recorded from a similar area on more than one survey visit. These species were also considered to be holding permanent territories.

Possible breeding - A pair of bird species were noted in suitable nesting habitat or a single singing male was noted on only one survey visit.

Non-breeding - Species observed during the three surveys that were either flying over the survey area or displayed no signs of breeding or nesting, and for which the habitat is not considered suitable for nesting.

Opportunistic observations made during other ecological surveys within the survey area were noted and incorporated in the analysis where they provided pertinent additional information on species presence or breeding evidence.

2.2 Data analysis

Territorial analysis was carried out based on a standard technique (Marchant, 1983; Bibby *et al.*, 1992) to determine the approximate location and number of bird territories within the survey area. A single map showing all indicative breeding bird territories was produced from the analysis of the three surveys.

The results of the three breeding bird surveys were collated to produce a complete list of all bird species present in the survey area.

The conservation importance of the species recorded on site during the survey has been evaluated using two different approaches; conservation status and nature conservation value:

Conservation status

The bird species recorded in the survey area were compared to published lists of species of conservation concern. These are birds listed in one or more of the following:

- Wildlife and Countryside Act 1981 (as amended) Schedule 1 (Statutorily protected species with additional protection against disturbance (S1));
- Environment (Wales) Act 2016 Section 7 (Species of 'Principal importance (SPI) for the purpose of maintaining and enhancing biodiversity in relation to Wales);
- UK Red, Amber and Green List BoCC4 (Birds of Conservation Concern); and
- Wales Red, Amber and Green List- BoCCW3 Birds of Conservation Concern in Wales.

Subsequently, each species of bird identified as breeding during the survey was allocated a level of relative protection status/conservation concern based upon their statutory/non-statutory designation (outlined in Table 1). Further details of these designations for birds are detailed in Appendix B.

Table 1: Classification levels for birds of conservation concern.

Level of conservation concern/protection status	Legislation
High	S1/SPI/UK Red list/Wales Red list
Medium	UK Amber list/Wales Amber list
Low	UK Green list/ Wales Green list

Nature Conservation Value

The Chartered Institute of Ecology and Environmental Management (CIEEM) guidance on Ecological Impact Assessment (CIEEM, 2018) assesses nature conservation value within a geographical context. In order to attain a particular value level a species population or assemblage of species should meet the criteria outlined in Appendix C.

The level of nature conservation value for a species was informed by the nature conservation status of each species and county level data taken from the East Glamorgan Bird Atlas (Glamorgan Bird Club, 2014) and most recently published East Glamorgan Bird Report (East Glamorgan Bird Club, 2018). Details for county level designations for species of high and medium conservation concern is shown in Appendix D.

Breeding species recorded during the survey were compared to these criteria and assigned to the appropriate nature conservation value level.

An assessment of conservation status in combination with nature conservation value of a species/ species assemblage, together with spatial analysis of breeding territories across the site enables evaluation of the likely impact of the development.

2.3 Survey Constraints

As survey work was commissioned after the optimal time for commencing breeding bird surveys there may be a slight positive bias in the recording of breeding bird territories for species that either breed later in the season and/or have second broods such as stonechat (*Saxicola rubicola*), skylark (*Alauda arvensis*) and meadow pipit (*Anthus pratensis*).

It is unlikely that any possible bias in recording would influence the recommendations made in this report; early breeding species such as blue tit, long-tailed tit and great tit may be under recorded but are common and widespread in East Glamorgan and of least conservation concern.

No survey method for species where there is imperfect detection can assure a full species list. It is considered that it is unlikely, given the survey method used and the similarity of results from the survey and the desk study, that any species that would alter the evaluation for any impact assessment have been overlooked.

3. Previous Reports/ Desktop Study Results

3.1 Designated sites

3.1.1 Sites of Special Scientific Interest

No nationally or internationally protected statutory designated sites (i.e. Sites of Special Scientific Interest (SSSIs) or Special Areas of Conservation (SACs)) lie within 2 km of the proposed development site.

3.1.2 Sites of Importance for Nature Conservation

Five Sites of Importance for Nature Conservation (SINC) with relevance to birds lie within 1 km of the site. SINC's are summarised in Table 2 with specific designation for birds highlighted in **bold**.

Table 2: Sites of Importance for Nature Conservation with relevance to birds within 1 km of the site.

SINC summary and designation for birds	Approximate distance and direction from proposed development
<p>Old Smokey Slopes SINC – 113 ha area.</p> <p>An extensive area of mosaic ffridd habitat, based partly on natural ground and partly on coal spoil. Acid grassland is the predominant vegetation.</p> <p>The grassland has a distinctive bird assemblage, which include stonechat (<i>Saxicola rubicola</i>) and whinchat (<i>Saxicola rubetra</i>).</p>	<p>Encompasses site area including receptor site, haul road and landslide area.</p>
<p>Blaenllechau Woodland SINC – approximately 19 ha area</p> <p>Upland ancient oak (<i>Quercus</i> sp.) woodland, with some mature birch (<i>Betula</i> sp.), rowan (<i>Sorbus acuparia</i>) and ash (<i>Fraxinus excelsior</i>). The bilberry, acid grassland and moss ground flora has been heavily grazed, but is recovering with some regeneration of oak, rowan and birch.</p> <p>The heath/acid grassland support very large grayling butterfly and mottled grasshopper colonies, and the violet rich banks of the railway sidings are likely breeding habitat for the dark green fritillary (and high brown) colony, which occurs in the vicinity.</p> <p>No specific designation for birds but likely to support common woodland species and grassland breeding species such as meadow pipit, stonechat and skylark.</p>	<p>Directly adjacent to north-west and encompasses the western boundary of the site area.</p>

SINC summary and designation for birds	Approximate distance and direction from proposed development
<p>St. Gwynno Forest SINC – approximately 1,330 ha area.</p> <p>An extensive area of Forestry Commission plantation, which runs across the ridge of Coetgate, Aberaman down to the St Gwynno Forestry. The SINC is an expanse of mixed conifer plantation (with small broadleaved components), which occurs in varying stages of maturity. The main tree species are sitka spruce (<i>Picea sitchensis</i>), larch (<i>Larix decidua</i>), and lodgepole pine (<i>Pinus contorta</i>). Recent years has seen major clear fells.</p> <p>The SINC is a renowned ‘hot-spot’ for nightjar (<i>Caprimulgus europaeus</i>), which occur in large numbers within the clear-fell and recently replanted areas. The site is also breeding habitat for goshawk (<i>Accipiter gentilis</i>), crossbill (<i>Loxia</i>), siskin (<i>Spinus spinus</i>) and redpoll (<i>Carduelis spp.</i>).</p>	<p>Directly adjacent to north east sector of receptor site and within boundary of survey area.</p>
<p>Taff and Rhondda Rivers SINC – approximately 246 ha area</p> <p><i>Only the relevant Rhondda river section of the citation is described.</i></p> <p>The Rhondda River (Fach and Fawr) is a typical ‘spatey’ upland river, with pools and riffle sequences.</p> <p>The river supports a good breeding bird assemblage; dipper (<i>Cinclus cinclus</i>) and grey wagtail (<i>Motacilla cinerea</i>) are common breeders, and kingfisher (<i>Alcedo atthis</i>) is also frequently reported (although nesting Sites are more limited). Sand martins (<i>Riparia riparia</i>) breed in a number of locations, using drainage holes in retaining walls. In the winter goosander (<i>Mergus merganser</i>) are a frequent visitor, and grey heron (<i>Ardea cinerea</i>) feed along the river throughout the year.</p>	<p>Adjacent to landslide area and within boundary of survey area.</p>

SINC summary and designation for birds	Approximate distance and direction from proposed development
<p>Pont-y-gwaith Hillside SINC – <i>approximately 19 ha area.</i></p> <p>A large area of dry heath and acid grassland and scattered bracken on the hillside above Pont-y-gwaith.</p> <p>No specific designation for birds but likely to support upland breeding species.</p>	<p>700 m south-west of southern boundary of survey area.</p> <p>(940 m south-west of receptor site)</p>

The locations of the designated sites are illustrated on Drawing GC3613-RED-74-XX-DR-L-0002.

3.2 Priority Habitats

Much of the site area (as determined from SEWBRc data) was unimproved/semi-improved acid grassland and marshy grassland. Semi-natural broadleaved woodland and river were present to the south-western extent of the site area. These habitats are classed as Priority Habitats under Section 7 of the Environment (Wales) Act 2016, as being of principal importance for maintaining and enhancing biodiversity in relation to Wales. All the priority habitats on site had the potential to support priority and protected breeding bird species.

3.3 Priority and Protected species

Appendix E lists bird species that have additional protection under the Wildlife and Countryside Act 2018 (as amended) and / or are considered priority species under the Environment (Wales) Act 2016. Non-statutory designations are also listed where they are species of high or medium conservation concern. The list shows records from within a 2 km radius of the site within the last 10 years. A summary of the records is detailed below:

3.3.1 Priority/ Protected/ Red listed Species

A total of 114 records of birds of 26 species were returned for the last 10 years within 2 km of site. Records included eight Schedule 1 species: barn owl (*Tyto alba*), brambling (*Fringilla montifringilla*), common crossbill (*Loxia curvirostra*), goshawk (*Accipiter gentilis*) peregrine (*Falco peregrinus*), red kite (*Milvus milvus*), fieldfare (*Turdus pilaris*) and redwing (*Turdus iliacus*).

Species listed as priority under Section 7 of the Environment (Wales) Act 2016 included bullfinch (*Pyrrhula pyrrhula*), cuckoo (*Cuculus canorus*), curlew (*Numenius torquatus*), dunnoek (*Prunella modularis*), grasshopper warbler (*Locustella naevia*), house sparrow (*Passer domesticus*),

herring gull (*Larus argentatus*) kestrel (*Falco tinnunculus*), lesser redpoll (*Acanthis cabaret*), linnet (*Linaria cannabina*), nightjar (*Caprimulgus europaeus*), reed bunting (*Emberiza schoeniculus*), skylark (*Alauda arvensis*), song thrush (*Turdus philomelos*), starling (*Sternus vulgaris*), tree pipit (*Anthus trivialis*) and wood warbler (*Phylloscopus sibilatrix*).

Willow warbler (*Phylloscopus trochilus*) and whitethroat (*Sylvia communis*) have no statutory or priority species status but are included on the UK red list.

The nearest records for Schedule 1 species consisted of barn owl located approximately 240 m east of the receptor site.

3.3.2 *Other species of conservation concern*

There were 57 records of amber listed species of medium conservation concern, relating to 18 species.

Dipper (*Cinclus cinclus*), house martin (*Delichon urbicum*) and swift (*Apus apus*) are also listed as Local Biodiversity Action Plan (LBAP) species for Rhondda Cynon Taff.

Stonechat was recorded within the footprint of the haul road and dipper was recorded 34 m from the south west margin of the landslide area.

4. Results

4.1 Field survey

A total of 54 species were recorded during the breeding bird survey; 13 of these species were confirmed to have bred within the survey boundary, 10 species were probably breeding, and four species were considered to be possibly breeding.

Fifteen species were assessed as non-breeding or flying over the survey area. Species in this category include species of principal importance in Wales (SPI); herring gull and kestrel.

A full list of bird species recorded during the breeding bird survey is presented in Table 3 along with each species relative level of conservation concern, statutory and non-statutory designation and assigned conservation value level.

Table 3 also provides a peak count for all non-territorial/ colonial nesting species and non-breeding / species flying over the site.

Species that are not identified as being on the red or amber lists in Table 3 or are not an SPI are all green listed species of low conservation concern.

Some breeding birds of low conservation concern are listed as LBAP species in Rhondda Cynon Taff and include buzzard (*Buteo buteo*) and stonechat, these have been classified as of local importance for nature conservation value in Table 3.

Table 3: Summary of data for all bird species recorded during the breeding bird survey

Common name	Scientific name	WACA Schedule 1	SPI Wales	UK Red List	UK Amber List	Wales Red list	Wales Amber list	Breeding	Conservation importance of breeding species	Nature conservation value of breeding species	Breeding territories	Peak count
Grey heron	<i>Ardea cinerea</i>						*	No. Fly over only				1
Common buzzard	<i>Buteo buteo</i>							Possible	Low	Local		2
Kestrel	<i>Falco tinnunculus</i>		*		*	*		No. Fly over only		Local		1
Lesser black-backed gull	<i>Larus fuscus</i>				*		*	No. Fly over only				3
Herring gull	<i>Larus argentatus</i>		*			*		No. Fly over only		Site		6
Rock dove/feral pigeon	<i>Columba livia</i>							No. Fly over only	Low			c.20
Woodpigeon	<i>Columba palumbus</i>							Probable	Low	Site	2	60 +
Swift	<i>Apus apus</i>				*		*	No				1
Great spotted woodpecker	<i>Dendrocopos major</i>							No. Fly over only	Low			1
Skylark	<i>Alauda arvensis</i>		*	*			*	Confirmed	High		7	

Barn swallow	<i>Hirundo rustica</i>						Confirmed	Low	Site	1 colonial site	5
House martin	<i>Delichon urbicum</i>			*			No. Fly over only				5
Tree pipit	<i>Anthus trivialis</i>		*			*	Confirmed	High	Local	2	
Meadow pipit	<i>Anthus pratensis</i>			*		*	Confirmed	Medium	Local	6	
Grey wagtail	<i>Motacilla cinerea</i>			*		*	Confirmed	High	Local	1	
Pied wagtail	<i>Motacilla alba</i>						Probable	Low	Site	1	
Wren	<i>Troglodytes troglodytes</i>						Confirmed	Low	Site	6	
Dunnock	<i>Prunella modularis</i>		*		*		Confirmed	High	Local	2	
Robin	<i>Erithacus rubecula</i>						Probable	Low	Site	2	
Stonechat	<i>Saxicola rubicola</i>						Confirmed	Low	Local	3	
Blackbird	<i>Turdus merula</i>						Probable	Low	Site	2	
Song thrush	<i>Turdus philomelos</i>		*	*		*	Confirmed	High	Local	4	
Mistle thrush	<i>Turdus viscivorus</i>			*		*	Probable	High	Local	1	
Blackcap	<i>Sylvia atricapilla</i>						Probable	Low	Site	1	
Whitethroat	<i>Sylvia communis</i>					*	Confirmed	High	Site	5	
Chiffchaff	<i>Phylloscopus collybita</i>						Confirmed	Low	Site	2	
Willow warbler	<i>Phylloscopus trochilus</i>				*	*	Confirmed	High	Local	1	
Goldcrest	<i>Regulus regulus</i>					*	Probable	Medium	Local	1	

Coal tit	<i>Periparus ater</i>						No	Low			1
Blue tit	<i>Cyanistes caeruleus</i>						No	Low			1
Great tit	<i>Parus major</i>						No	Low			1
Magpie	<i>Pica pica</i>						Possible	Low	Site		3
Carrion crow	<i>Corvus corone</i>						Probable	Low	Site		7
Raven	<i>Corvus corax</i>						No. Fly over only	Low			3
Chaffinch	<i>Fringilla coelebs</i>						Probable	Low	Site	2	
Greenfinch	<i>Chloris chloris</i>					*	No				1
Goldfinch	<i>Carduelis carduelis</i>						No	Low			12
Siskin	<i>Spinus spinus</i>						No. Fly over only				3
Linnet	<i>Linaria cannabina</i>		*			*	Possible	High	Local		3
Common crossbill	<i>Loxia curvirostra</i>		*				Possible	High	Local		1+ (call only)
Bullfinch	<i>Pyrrhula pyrrhula</i>		*		*	*	Probable	High	Local	1	
Reed bunting	<i>Emberiza schoeniclus</i>		*		*	*	Confirmed	Medium	Local	2	

4.1.1 *Territorial analysis*

Territorial analysis determined the spatial distribution and number of breeding bird territories within the survey site. Species of high, medium and low conservation concern are shown in Drawing GC3613-RED-74-XX-DR-L-0001. Note that these are approximate locations of breeding territories and do not represent actual nest sites.

There were 59 breeding bird territories identified within the survey area.

4.1.2 *Species of high conservation concern*

Birds of high conservation concern comprised a total of 30 territories held by 11 different species.

Schedule 1 species common crossbill was heard in suitable breeding habitat (forestry plantation) at grid reference ST 02240 95857, approximately 100 m east of the eastern extent of the proposed receptor site.

Skylark, a ground nesting species utilising grassland habitat to breed, was the most abundant breeding species located during the survey and were recorded predominantly in the area to the south and north west of the proposed receptor site. Three skylark territories were recorded within the area of the proposed receptor site.

Photograph 1: Habitat to the south of the proposed receptor site held at least three skylark territories within the survey boundary. Photograph taken looking south east from approximate grid reference ST 02106 95378



Other species of high conservation concern were recorded in the extensive areas of bracken and patches of scrub and marshy grassland between the landslide area and the proposed receptor site. Species in this area included reed bunting, whitethroat and stonechat, an LBAP species in Rhondda Cynon Taff.

Photograph 2: Landslide area outlined in red. Area of dense bracken, scrub patches and marshy grassland supporting breeding territories of species of high conservation concern reed bunting and whitethroat and LBAP species stonechat outlined in yellow. Photograph taken looking north west from approximate grid reference ST 01834 95813.



Bullfinch was recorded breeding on the northern slope of Old Smokey. The relatively bare areas of sparse grassland to the north of Old Smokey, forming part of the proposed receptor site, held no breeding territories of birds of high conservation concern.

Photograph 3: Tree covered north east slope of Old Smokey with relatively sparse grassland which forms the north east area of the proposed receptor site. Photograph taken looking south east from approximate grid reference ST 01999 95805.



Song thrush was recorded along the river margins in woodland and scrub habitat.

A nest site was located for grey wagtail (*Motacilla cinerea*) during a separate survey. This species has a strong association with riparian habitat. The nest site was in an area where the original landslide had exposed a vertical face in the spoil on the south east bank of the river. The chicks successfully fledged on 17th July 2020.

Photograph 4: Grey wagtail chick in nest. Site located in spoil collapse on the bank of the Rhondda Fach. Location at grid reference ST0101496006.



4.1.3 *Species of medium conservation concern*

Birds of medium conservation concern comprised a total of eight territories held by two different species.

Meadow pipit, a ground nesting species, accounted for seven of the eight territories. Breeding sites were mainly located in open tussocky grassland north west of the receptor site and the species was most often recorded foraging in this habitat (Photograph 5).

Photograph 5: Typical habitat for breeding and foraging meadow pipit indicated by pale areas of grassland. The route of the proposed haul road (yellow line) cuts through this habitat. Landslide area outlined in red. Photograph taken looking north west from grid reference ST 01836 95846.



Two breeding territories for meadow pipit were recorded within the area designated for the receptor site.

The only other breeding species of medium conservation concern was goldcrest, recorded on the northern slope of Old Smokey.

4.1.4 *Species of low conservation concern*

Breeding territories (including semi colonial swallow) of species with low conservation concern made up 23 territories of 11 species identified on site. These are species listed on the BoCC green lists, having relatively stable populations that are unlikely to change as a result of development.

Territories held by birds of low conservation concern were concentrated in areas of bracken, scrub and hedgerow habitats.

An evening roost of approximately 60 woodpigeons was recorded during the survey on 10th July 2020 with birds settling in trees on the east slope of Old Smokey.

5. Discussion and Evaluation of Impacts

5.1 Non statutory sites

The Old Smokey Slopes SINC will be directly impacted by the proposed works. Habitat suitable for ground and scrub nesting birds will be lost from the landslide area and limited loss of suitable breeding habitat will result from the creation of the haul road. Suitable habitat for ground nesting birds will be lost within the proposed receptor site.

The adjacent St.Gwynno Forest SINC is unlikely to be impacted if the proposed receptor site remains within the current planning boundary.

The Blaenllechau Woodland SINC lies adjacent to the landslide area and is unlikely to be impacted if the works remain within the proposed planning boundary.

The Taff and Rhondda Rivers SINC may be indirectly impacted by pollution as a result of works to remove material from the landslide area.

All other SINC's within 1 km of site are highly unlikely to be impacted by the works.

5.2 Birds

The desk study returned records for a number of protected and priority species within 1 km of the site. The study returned records for species such as fieldfare, redwing, brambling and short eared owl that are winter visitors and therefore not considered to be breeding in the area.

Records were also returned for nightjar, goshawk and wood warbler; species with very limited suitable breeding habitat within the site area but with abundant breeding habitat in the wider landscape, their presence on site would likely be to feed/ commute rather than breed.

There was a notable lack of breeding bird territories within the landslide zone, likely to relate to bare ground created by the landslide producing unsuitable breeding habitat.

The receptor site held five of the nine breeding territories recorded within the planning boundary and included priority species skylark and LBAP species stonechat. Loss of habitat in this area may reduce breeding productivity at a site level in the short term.

Impact on breeding birds within the planning boundary is likely to be confined to individual nest sites that may be destroyed during works.

Nightjar is known to breed in forestry areas in and around Llanwonno, approximately 500 m east of the site and there are areas of suitable breeding habitat adjacent to the receptor site, however, there was no evidence of the species breeding nearby or utilising the site to feed during the evening survey when this species would be active.

The bird assemblage recorded on site is considered to be typical of the habitats present within the site and its geographical and landscape context.

The breeding bird assemblage comprised species that are generally common and widespread throughout East Glamorgan, this includes species of high and medium conservation concern.

schedule 1 species common crossbill is a scarce resident breeder in East Glamorgan, presence on site indicated possible breeding.

The site overall is considered to be of **local** nature conservation value (See Appendix C) for birds owing to;

- The occurrence of 54 bird species across the site.
- The presence of a high proportion of breeding species of high and medium conservation concern within the site, including dunnoek, song thrush, reed bunting, skylark and tree pipit; all section 7 priority species for Wales.

5.3 Impact assessment

The assessment of likely impact on breeding bird species arising from the development is based on;

- An understanding of individual species ecological requirements.
- Number and location of breeding territories across the site.
- Extent of suitable breeding habitat outside the footprint of the development, in the wider landscape.
- Conservation status based upon legislation (S1/SPI) and current non-statutory designations (red/ amber/ green listed BoCC4 and BoCCW3).
- Likely location and extent of works and associated siting of plant and access routes pre- and during construction.
- Overall design of the development, including lighting and landscaping.

5.3.1 *Potential impacts*

Potential impacts on breeding bird species as a result of the works include, but are not confined to:

- Direct mortality, habitat loss (foraging, shelter and nesting), degradation and alteration of habitats and increased disturbance (lighting, noise), air and water pollution.
- The effect of these potential impacts includes, but are not limited to; reduced species abundance, reduced species richness, reduced reproductive success, loss of breeding sites, changes to and /or loss of breeding territories.

Habitat clearance

Initial removal of habitat (vegetation and ground clearance) will be required as part of the proposed works. If work is carried out during the breeding season (i.e. March to August inclusive) the impact on breeding birds is likely to be short term and high adverse and result in inadvertent damage or destruction of nests. Breeding birds were recorded in the landslide area, proposed haul road route and in and around the proposed receptor site.

Habitat loss

Habitat suitable for breeding birds will be lost as a result of removal of material from the landslide area and deposition of the material on existing habitat in the receptor site. Construction of the haul road between the landslide area and the receptor site will also remove suitable breeding habitat.

Displacement of small numbers of bird species with potential for breeding within the planning zone and surrounding area, including species of high conservation concern such as song thrush, reed bunting and skylark; is likely to occur.

The adverse impact of habitat loss is likely to be moderate in the short term and low in the long term for most species at the local scale as there is an abundance of suitable breeding habitat within the survey area and the wider landscape.

Disturbance from construction work

Construction work will be likely to require additional lighting. Noise levels will increase and there is the possibility of air pollution. Disturbance is likely to lead to avoidance by breeding bird species of the areas where spoil is being moved from, haul road and the receptor site. Breeding success may be impaired and a reduction in feeding opportunities could cause a decline in species abundance.

Owing to the presence of suitable habitat for scrub, woodland and grassland species within the site area outside the immediate footprint of the development the adverse impact is likely to be low in the short term and negligible in the long term and highly unlikely to impact on the ongoing viability of breeding species at a local level.

River pollution and disturbance

Proposed removal of spoil from the landslide and relocation to the receptor site around Old Smokey to the east has the potential to cause pollution of the Rhondda Fach, adversely impacting water quality. Degradation of water quality can affect availability of food prey items for species such as dipper and grey wagtail that are reliant on rivers to feed and provision young.

Grey wagtail, a species of high conservation concern, was recorded breeding near the river, within the survey area.

Pollution run-off has the potential to have a high adverse impact on grey wagtail in the short term. Long term impacts are likely to be low once works are completed.

The potential short-term and long-term impacts and likely magnitude of impact discussed are based upon no mitigation measures being applied.

6. Conclusion

6.1 Summary of survey

The site was found to support a relatively diverse range of breeding bird species. The assemblage of species recorded is considered to be typical of the habitats present within the site and its context within the wider landscape.

Although 11 of the breeding species recorded are classified as species of conservation concern i.e. listed as SPI and/ or red and amber listed birds of conservation concern, most are common and widespread in East Glamorgan and territories were well represented across the site in suitable habitat.

The Schedule 1 species common crossbill was recorded as probably breeding on site in forestry plantation a minimum of 100 m east of the proposed receptor site. This species is often found to have active nests as early in the year as January, outside the general bird breeding season of March to September inclusive.

The assemblage of birds recorded across the site is assessed as of no more than **local** importance in terms of nature conservation value.

6.2 Summary of impact

The works within the footprint of the scheme will directly impact on breeding, shelter and foraging habitat for a range of species.

The surrounding survey area and wider landscape provides suitable breeding habitat for all the species recorded as breeding on site during the survey and thus the development is considered to have overall moderate short-term and low to negligible long-term impact at a local level for all species of breeding bird recorded during the survey.

Schedule 1 species common crossbill, a scarce resident breeder in East Glamorgan, have specific breeding habitat requirements and one possible breeding territory was recorded within the site. As common crossbill was recorded at least 100 m away from the nearest boundary of the receptor site and works are unlikely to commence until March / April when this early breeding species will have usually already have fledged young, it is unlikely that works will disturb the breeding activity of this species.

Removal of large volumes of material from the landslide area has the potential, through inadvertent pollution of waterways by silt/ fuel spill, to have a high short-term adverse impact on species reliant on riverine habitats such as dipper and grey wagtail.

Initial habitat clearance to create a haul road, removal of material from the landslide area and relocating spoil to the receptor site all have potential to disturb breeding birds. Impact is likely to be high in the short term for individual nesting birds that may be inadvertently disturbed. Impact on all species recorded as breeding within the site is likely to be low to negligible in the long term (i.e. in subsequent breeding seasons after completion of works).

Species recorded as breeding within the proposed receptor site (meadow pipit, stonechat and skylark) are all ground nesters and therefore nest sites are difficult to accurately locate. Any pre-construction breeding bird checks in this area will require input from an ecologist with nest finding experience to ensure no nest sites are destroyed.

Once the haul road is in place and the work commences to remove spoil from the landslide area to the receptor site, adverse impact on bird species is likely to be restricted to temporary dispersal away from the route and surrounding habitat until works are completed. Suitable breeding, shelter and feeding habitat for bird species to move into is abundant within the site and wider landscape.

The short-term and long-term impacts and likely magnitude of impact discussed are based upon no mitigation measures being adopted (see Table 4).

Table 4: Short- term and long-term potential unmitigated impacts of the development.

	<i>Unmitigated impact</i>	
	Short term	Long term
Pre-construction phase Initial habitat clearance for haul road and landslide site.	High adverse	Negligible-low adverse
Bird habitat loss at site level	Moderate adverse	Low adverse
Disturbance during construction phase activities Construction of haul road, removal of landslide material and relocation at receptor site.	High adverse	Low adverse
River pollution and disturbance –grey wagtail and dipper	High adverse	Negligible - low adverse

If the recommendations for mitigation, compensation and enhancement detailed in section 7 are followed the magnitude of the adverse impacts on breeding birds, both short and long term, will be reduced and the proposed works will also be compliant with relevant wildlife legislation.

7. Recommendations

7.1 Mitigation

7.1.1 *Timing of works*

Works should be carried out in such a way as to ensure that no birds, eggs or active nests are damaged or destroyed. The following recommendations are made in order of preference;

Option 1—All site clearance activities are undertaken outside of the breeding bird season

All site clearance (vegetation removal, topsoil stripping etc) and construction activities should be undertaken between September and February inclusive in order to avoid the main bird breeding season i.e. March to August inclusive. This is the most effective way of avoiding impacts and meeting legal requirements.

Option 2- Partial site clearance activities undertaken during the bird breeding season

If compliance with Option 1 is not fully possible then the majority of vegetation clearance should be undertaken outside the bird breeding season i.e. September to February inclusive. Clearance of vegetation should be maintained in this period and it is important to remove cut material from site to ensure the area remains of low suitability for nesting birds; species such as blackbird and dunnock select brush piles as nesting sites.

During the bird breeding season (March to August inclusive) other construction activities such as topsoil stripping should only be undertaken once a suitably experienced ecologist has checked the area for nesting birds, this should be carried out no more than 48 hours prior to commencement of works. If no nesting birds are identified works can proceed but if nesting is confirmed a species-specific no works zone of undisturbed habitat should be established (to be determined by the ecologist but no less than 5 m) until the nest is no longer active.

Option 3 - Site clearance during the bird breeding season

A pre-construction bird survey will be required if any vegetation clearance or topsoil stripping is to be undertaken during the bird breeding season.

Prior to any construction activities (vegetation clearance, topsoil removal etc.) each area of suitable habitat should be searched by a suitably experienced ecologist within 48 hours of commencement of works in order to determine if nests are present.

If Schedule 1 bird species are found to be nesting or constructing nests within 30 m of the scheme at any time during the development a risk assessment would be required to determine the likelihood of birds being disturbed by the construction activities and also to determine the appropriate extent of the exclusion zone. Any exclusion zone would need to be maintained until the end of the breeding season.

7.1.2 *Siting of plant, compounds and access routes*

Some species recorded as breeding close to the proposed receptor site have specific breeding habitat requirements and are likely to return to the same areas to breed in subsequent seasons. These include meadow pipit and skylark. Optimal habitat for these species should be retained. An ecologist with ornithological experience should be consulted prior to any construction of access routes, siting of plant, machinery or compounds to minimise loss or disturbance to suitable breeding habitat for the above species.

It should be noted that Schedule 1 common crossbill possibly bred in the forestry plantation 100 m east of the receptor site and this species often commences breeding early in the calendar year.

7.1.3 *Pollution control*

Pollution control measures in accordance with industry best practice must be implemented to prevent pollution of the Rhondda Fach or other watercourses, thus avoiding direct impact on species such as grey wagtail that are known to be breeding within the site. Pollution control measures should be detailed within a Construction Environmental Management Plan (CEMP).

7.1.4 *Toolbox talk*

All site operatives should receive a toolbox talk delivered by a suitably experienced ecologist prior to the commencement of work on site. The talk should cover the possible location of bird nests and actions to be taken should a nest be unexpectedly discovered.

7.2 Compensation and Enhancement

7.2.1 *Habitat creation*

When reprofiling and replanting of the landslide area and receptor site is carried out there is an opportunity to enhance the habitat for a range of species. Planting should be carried out to provide additional areas of dense scrub and immature woodland which will provide breeding habitat and food/ shelter opportunities for species such as whitethroat, blackcap, song thrush and mistle thrush.

Plant species suitable for birds should be native and already present in local habitats (Herbert *et al.*, 1999) and include hawthorn (*Crataegus monogyna*) and rowan (*Sorbus aucuparia*). These species will also benefit overwintering species such as redwing and fieldfare, likely to be present.

7.2.2 *Bird boxes*

Short term compensation for ground nesting species on site is not possible, however, closed and open fronted boxes for a range of common breeding bird species that take readily to boxes such as blue tit, great tit and robin, should be erected in suitable woodland habitat across the site or on adjacent woodland areas.

At least 10 bird boxes should be installed. Design and detailed siting locations should be discussed with an appropriately experienced ecologist with ornithological experience.

Kestrel, a rapidly declining species in the UK, was recorded flying over the site. Provision of at least two nest boxes suitable for kestrel should be made within the site boundary. Erection of boxes in mature trees or on extended fence line posts would provide suitable locations for kestrel to nest.

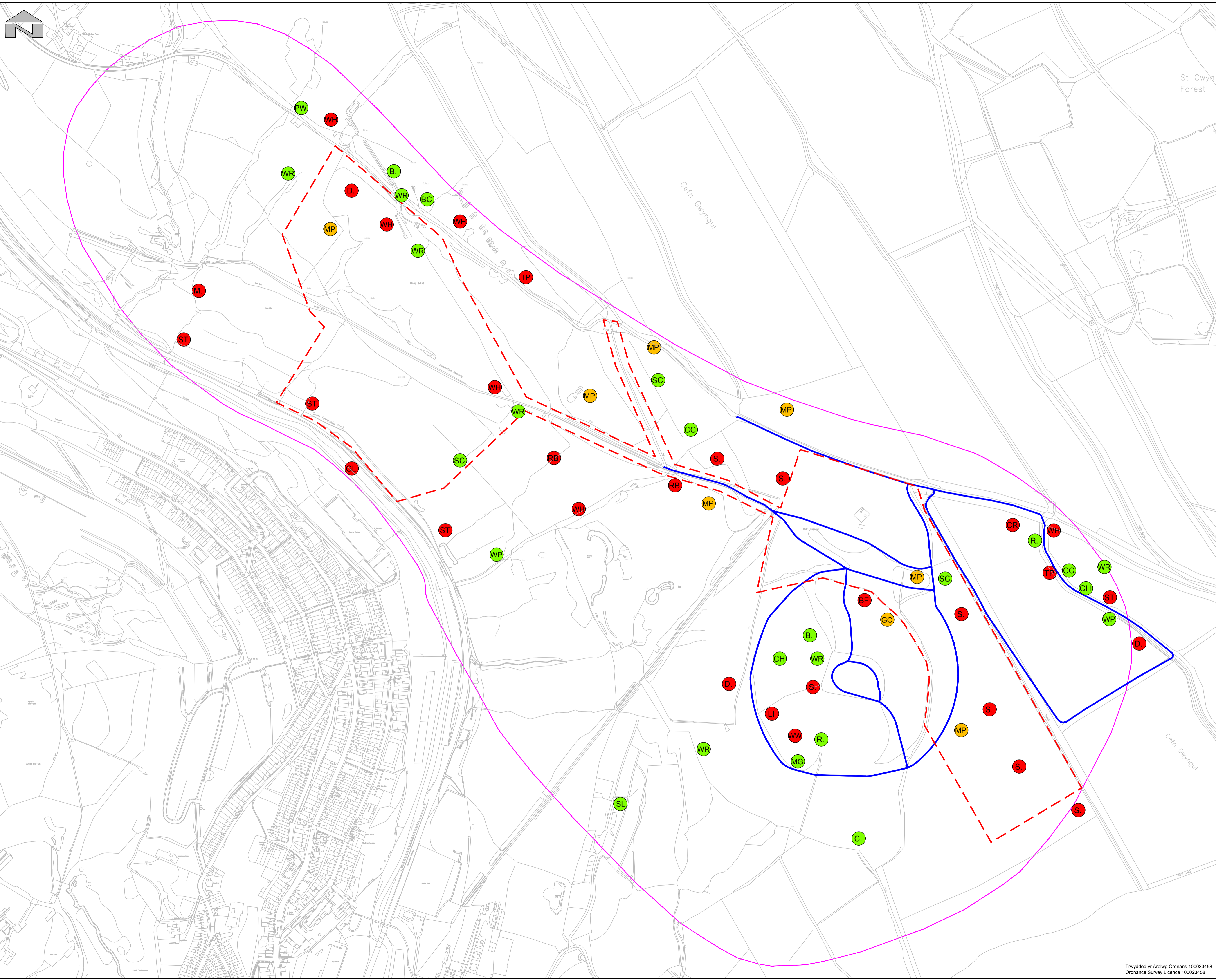
Schwegler or similar boxes are recommended for durability. Boxes suitable for this site can be found at <https://www.nhbs.com>

Note: *The recommendations made in this report should be considered alongside recommendations for faunal species and habitats in other reports in respect to these works.*

Drawings

GC3613-RED-74-XX-DR-L-0001-Breeding Bird Survey Results

GC3613-RED-74-XX-DR-L-0002-Designated Sites Map



Key:

Conservation status of species	Transect
High (SI SP, BOCC Red)	Transect Route
Medium (BOCC Amber)	Survey Extents
Low (BOCC Green)	Planning Boundary

BTO symbol Species

B.	Blackbird
BC	Blackcap
BF	Bullfinch
BZ	Buzzard
C.	Carion Crow
CC	Chaffinch
CH	Chaffinch
CR	Common Crossbill
D.	Duncock
GC	Goldcrest
GL	Grey Wagtail
LI	Linnet
M.	Mistle Thrush
MG	Maggie
MP	Meadow Pipit
PW	Pied Wagtail
R.	Robin
RB	Redstart
S.	Siskin
SC	Starling
ST	Song Thrush
TP	Tree Pipit
WH	Whitehead
WP	Wood Pigeon
WR	Wren
WW	Willow Warbler

Rev	Drawn	Checked	Approved	Description	Date
P01	NP	JB	GP	First Issue	17/12/2020

Purpose of Issue
S2 - Suitable for Information

Classification
Commercial in Confidence

Client
**Rhondda Cynon Taf
 County Borough Council**

Project
RCT Tylorstown Landslide - Phase 4

Drawing
Breeding Bird Survey

Scale @ A1	Drawn	Checked	Approved
1:3000	NP	JB	GP

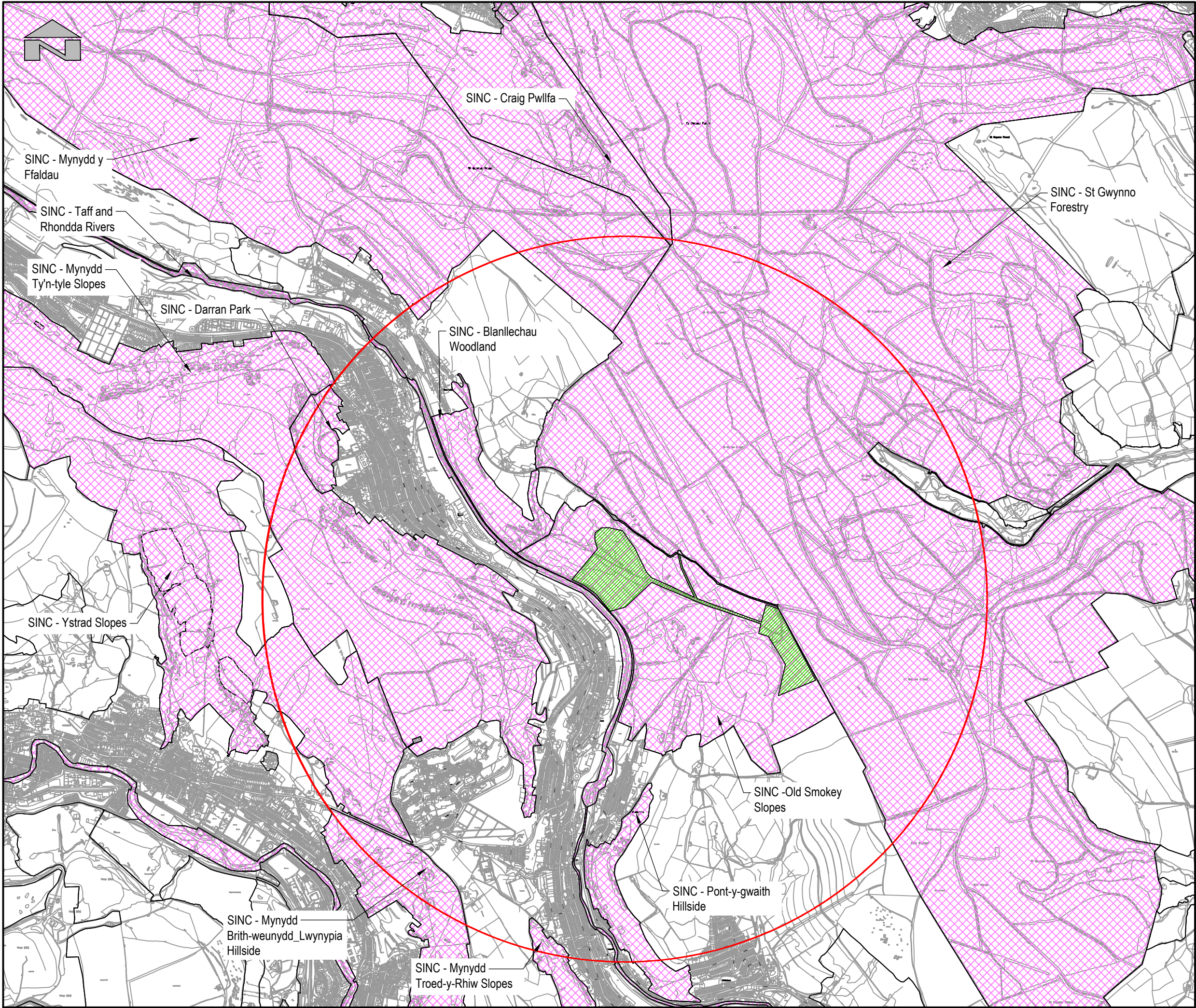
Project No.	Date
GC/003613	October 2020

Drawing Identifier	BS1192 Compliant
Project - Originator - Zone - Level - File Type - Role - Number	revision
GC3613-RED-74-XX-DR-L-0001	P01

REDSTART.

St David's House, Pascal Close, St Mellons, Cardiff, CF3 0LW
www.redstartwales.com

Trwydded yr Arolwg Ordnans 100023458
 Ordnance Survey Licence 100023458



Key:

- 2km Radius
- Site of Important Nature Conservation
- Site Location

Trwydded yr Arolwg Ordnans 100023458
 Ordnance Survey Licence 100023458

Rev	Dwn	Chkd	App'd	Description	Date
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Purpose of Issue
S2 - Suitable for Information

Classification
Commercial in Confidence

Client
**Rhondda Cynon Taf
 County Borough Council**

Project
Tylorstown Landslide

Drawing
Designated Sites Map

Scale @ A3	Drawn	Checked	Approved
1:20,000	EM	EC	EC

Project No.	Date
GC/003613	October 2020

Drawing Identifier	BS1192 Compliant
Project - Originator - Zone - Level - File Type - Role - Number	rev
GC3613-RED-74-XX-DR-L-0002	P01



St David's House, Pascal Close, St Mellons, Cardiff, CF3 0LW
www.redstartwales.com

Print Date: 10/11/2020 09:13:35

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Wildlife and Countryside Act (1981) (as amended).

Appendix A -Survey Data

Survey	Date	Start time	Finish time	Survey conditions
1	22/06/2020	06:37	10:42	Temp: 10-12°C Cloud:6 Wind: 4 SSW Precipitation: None Visibility: Good
2	01/07/2020	06:50	10:38	Temp:10-12 °C Cloud: 8 Wind: 4 W Precipitation: None Visibility: Good
3	10/07/2020	18:00	21:03	Temp:14 °C Cloud: 0 Wind: 2 Precipitation: None Visibility: Good

Key: Cloud: scale 0 - 8, 0 = clear skies, 4 = 50% cover, 8 = complete cloud cover

Wind: Beaufort scale 0 – 12 , 0 = calm, 2 = light breeze, 4 = moderate breeze, 6 = strong breeze, 7 = Moderate gale, 9 =Strong gale 12=Hurricane

Appendix B - Legislation and Conservation Designations

Birds Directive Annex 1

Annex 1 of the Birds Directive lists species and sub-species which are:

- in danger of extinction;
- vulnerable to specific changes in their habitat;
- considered rare because of small populations or restricted local distribution;
- requiring particular attention for reasons of the specific nature of habitat.

For these species Member States must conserve their most suitable territories in number and size as Special Protection Areas (SPAs). Species listed on Annex 1 of the Birds Directive include kingfisher and red kite.

Wildlife and Countryside Act 1981 (as amended)

Schedule 1

All naturally occurring British bird species are protected under the Wildlife and Countryside Act 1981 (as amended). The legislation protects all birds, their nests and eggs and it is an offence to:

- intentionally kill, injure and take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- intentionally take or destroy the egg of any wild bird.

Birds listed on Schedule 1 of the above legislation (e.g. kingfisher and red kite) are afforded further protection and it is an offence to:

- intentionally or recklessly disturb the bird while nest building or while at (or near) a nest with eggs or young; or disturb dependent young of such a bird.

Environment (Wales) Act 2016

Section 7 of the Environment (Wales) Act has replaced the Section 42 of the NERC Act 2006 in Wales. Section 7 lists the living organisms and types of habitat in Wales which are considered to be of key significance to sustain and improve biodiversity in relation to Wales.

The Act states that Welsh Ministers must take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section and encourage others to take such steps.

Red and Amber Lists

Red-listed bird species are those which:

- Are globally threatened;

- Have suffered a historical population decline in the UK during 1800–1995;
- Have suffered a severe (at least 50%) decline in the UK breeding population over the last 25 years, or longer-term period (the entire period used for assessments since the first review, starting in 1969);
- Have suffered a severe (at least 50%) contraction of the UK breeding range over the last 25 years, or the longer-term period;

Amber-listed bird species are those which:

- Have unfavourable conservation status in Europe (SPEC = Species of European Conservation Concern)
- Have suffered a historical population decline during 1800–1995, but recovering; population size has more than doubled over last 25 years
- Have suffered a moderate (25-49%) decline in the UK breeding population over the last 25 years, or the longer-term period
- Have suffered a moderate (25-49%) contraction of the UK breeding range over last 25 years, or the longer-term period
- Have suffered a moderate (25-49%) decline in the UK non-breeding population over last 25 years, or the longer-term period
- Are rare breeders; 1–300 breeding pairs in UK
- Are rare non-breeders; less than 900 individuals
- Are localised; at least 50% of the UK breeding or non-breeding population in 10 or fewer sites, but not applied to rare breeders or non-breeders
- Are internationally important; at least 20% of European breeding or non-breeding population in UK (NW European and East Atlantic Flyway populations used for non-breeding wildfowl and waders respectively).

Appendix C - Nature Conservation Value- Definition of Terms

The examples selected for each Nature Conservation Value level are for general guidance and other considerations may apply, for example species of low value in isolation but subject to widespread national decline may be afforded higher Nature Conservation Values in some cases. The Nature Conservation Value levels are adapted from CIEEM (2016) and have been outlined to be specific to birds.

Nature Conservation Value	Selection criteria (examples)
International	Species cited as part of a SPA and which regularly occurs in internationally or nationally important numbers (i.e. >1% of international population).
National	Species cited as part of a SSSI and which regularly occurs in nationally or regionally important numbers. A nationally important assemblage of breeding or overwintering species. A species present in nationally important numbers (i.e. >1% of UK population). Rare breeding species (<300 breeding pairs in UK).
Regional	Section 7 priority species not covered above and regularly occurring in regionally important numbers. (>1% of regional population). Species on BoCCW3 and /or BoCCUK4 Red list and regularly occurring in regionally important numbers.
County/Metropolitan	Section 7 priority species not covered above and regularly occurring in county important numbers (>1% of county population). Species on the BoCCw3 and /or BoCCUK4 and regularly occurring in county important numbers.
District	Section 7 species not covered above and are rare in the locality. Species present in just short of county important numbers. Sustainable populations of rare or scarce species in the locality.
Local	Other section 7 species not covered above and species on the Red and Amber BoCCW3 /BoCCUK4 lists regularly occurring in locally sustainable populations.
Site	All other BoCCW3 and /or BoCCUK4 Green listed common and widespread species. Low numbers of Amber or Red listed species.

Appendix D - Breeding Bird Species of High and Medium Conservation Concern-County Status

Common name	Scientific name	Status in East Glamorgan
Skylark	<i>Alauda arvensis</i>	Common resident breeder, passage migrant and winter visitor.
Meadow pipit	<i>Anthus pratensis</i>	Common resident breeder, winter visitor and passage migrant.
Tree pipit	<i>Anthus trivialis</i>	
Grey Wagtail	<i>Motacilla cinerea</i>	Common resident breeder and passage migrant.
Dunnock	<i>Prunella modularis</i>	Common resident breeder.
Song Thrush	<i>Turdus philomelos</i>	Common resident breeder.
Mistle Thrush	<i>Turdus viscivorus</i>	Common resident breeder.
Whitethroat	<i>Sylvia communis</i>	Common breeding summer visitor and passage migrant.
Willow Warbler	<i>Phylloscopus trochilus</i>	Common breeding summer visitor and passage migrant.
Goldcrest	<i>Regulus regulus</i>	Common resident breeder and passage migrant.
Linnet	<i>Carduelis cannabina</i>	Common resident breeder, passage migrant and winter visitor.
Common crossbill	<i>Loxia curvirostra</i>	Scarce resident breeder and passage migrant
Bullfinch	<i>Pyrrhula pyrrhula</i>	Common resident breeder.
Reed Bunting	<i>Emberiza schoeniclus</i>	Locally common resident breeder, passage migrant and winter visitor.

Appendix E- Desktop Study Data

Protected and priority bird species

Protected and Priority bird species within 1 km				
Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Barn owl	<i>Tyto alba</i>	Bern, CITES, WBA, WCA1.1, WCA9, LBAP[ANG, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, VOG, WRE], LI[VC43]	6	June 2015
Brambling	<i>Fringilla montifringilla</i>	WCA1.1, LBAP[CON]	2	November 2011
Bullfinch	<i>Pyrrhula pyrrhula</i>	S7, UKBAP, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, TRF, VOG), UKBR(RSPB)	2	January 2019
Common crossbill	<i>Loxia curvirostra</i>	Bern, WCA1.1, LBAP[CON, POW], LI[VC43]	6	2019
Cuckoo	<i>Cuculus canorus</i>	S7, UKBAP, WBR(RSPB), LBAP (CON, DEN, FLI, GWY, VOG), UKBR(RSPB), UKBAm(RSPB)	18	June 2018
Curlew	<i>Numenius arquata</i>	BDir2.2, S7, UKBR, WBR, LBAP[ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, VOG], LI[VC43]	1	March 2010
Dunnock	<i>Prunella modularis</i>	S7, UKBAP, Bern, LBAP (CON, POW, VOG), UKBAm(RSPB)	123	January 2019
Fieldfare	<i>Turdus pilaris</i>	BDir2.2, UKBR, WBA, WCA1.1, LBAP[CON, POW]	1	March 2011
Goshawk	<i>Accipiter gentilis</i>	CITES, WCA1.1, WCA9, LBAP[CLY, CON, POW, VOG]	5	March 2015
Grasshopper warbler	<i>Locustella naevia</i>	S7, UKBR, WBR, LBAP[BBNP, CON, DEN, FLI, GWY, POW, VOG]	4	2018
Herring gull	<i>Larus argentatus</i>	BDir2.2, S7, UKBR, WBR, LBAP[CON, GWY, POW, VOG]	8	January 2019
House sparrow	<i>Passer domesticus</i>	S7, UKBAP, Bern, LBAP (CLY, CON, FLI, GWY, VOG), WBAm(RSPB), UKBR(RSPB)	20	May 2020

Protected and Priority bird species within 1 km				
Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Barn owl	<i>Tyto alba</i>	Bern, CITES, WBA, WCA1.1, WCA9, LBAP[ANG, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, VOG, WRE], LI[VC43]	6	June 2015
Brambling	<i>Fringilla montifringilla</i>	WCA1.1, LBAP[CON]	2	November 2011
Bullfinch	<i>Pyrrhula pyrrhula</i>	S7, UKBAP, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, TRF, VOG), UKBR(RSPB)	2	January 2019
Kestrel	<i>Falco tinnunculus</i>	Bern, CITES, S7, UKBA, WBR, LBAP[ANG, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG], LI[VC43]	8	June 2020
Lesser redpoll	<i>Acanthis cabaret</i>	S7, UKBR, WBR, LBAP[CON, DEN, POW, VOG]	8	June 2018
Linnet	<i>Linaria cannabina</i>	Bern, S7, UKBR, WBR, LBAP[ANG, BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, VOG]	2	September 2019
Nightjar	<i>Caprimulgus europaeus</i>	BDir1, Bern, S7, UKBA, WBA, LBAP[BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, MON, PEM, POW, SNP, VOG], LI[VC43]	18	June 2018
Peregrine	<i>Falco peregrinus</i>	BDir1, Bern, CITES, WCA1.1, LBAP[ANG, CLY, CON, GWY, PEM, POW, TRF, VOG], LI[VC43]	3	April 2020
Red kite	<i>Milvus milvus</i>	BDir1, WCA1.1, WCA9, Bonn, CITES, RD1 (UK), LBAP (CON, CRM, GWY, POW), WBAm(RSPB), UKBAm(RSPB)	2	April 2020
Redwing	<i>Turdus iliacus</i>	BDir22, WCA1.1, LBAP (CON, POW), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	1	October 2018
Reed bunting	<i>Emberiza schoeniclus</i>	Bern, S7, UKBA, WBA, LBAP[BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG]	6	May 2019

Protected and Priority bird species within 1 km				
Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Barn owl	<i>Tyto alba</i>	Bern, CITES, WBA, WCA1.1, WCA9, LBAP[ANG, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, VOG, WRE], LI[VC43]	6	June 2015
Brambling	<i>Fringilla montifringilla</i>	WCA1.1, LBAP[CON]	2	November 2011
Bullfinch	<i>Pyrrhula pyrrhula</i>	S7, UKBAP, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, TRF, VOG), UKBR(RSPB)	2	January 2019
Skylark	<i>Alauda arvensis</i>	BDir22, S7, LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG), WBAm(RSPB), UKBR(RSPB)	13	February 2020
Song thrush	<i>Turdus philomelos</i>	BDir22, S7, UKBAP, Bern, LBAP (ANG, BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG, WRE), WBAm(RSPB), UKBR(RSPB)	19	January 2019
Starling	<i>Sturnus vulgaris</i>	BDir22, S7, UKBAP, Bern, WBR(RSPB), LBAP (BBNP, CON, FLI, GWY, VOG), UKBR(RSPB)	2	May 2020
Tree pipit	<i>Anthus trivialis</i>	Bern, S7, UKBR, WBA, LBAP[CON, DEN, FLI, GWY, POW, VOG]	5	June 2018
Wood warbler	<i>Phylloscopus sibilatrix</i>	S7, UKBR, WBR, LBAP[CON, GWY, SNP, VOG]	2	May 2016

Other species of conservation concern

Other bird Species of Conservation Concern within 1 km				
Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Common sandpiper	<i>Actitis hypoleucos</i>	UKBA, WBA	1	June 2020
Cormorant	<i>Phalacrocorax carbo</i>	Bonn, LBAP (CON, GWY, POW), WBAm(RSPB), UKBAm(RSPB)	2	2015
Dipper	<i>Cinclus cinclus</i>	Bern, UKBA, WBA, LBAP[BRG, CLY, CON, MTR, POW, RCT, TRA]	6	January 2019
Garden warbler	<i>Sylvia borin</i>	LBAP (BRG, CON, POW), WBAm(RSPB)	2	May 2020
Goldcrest	<i>Regulus regulus</i>	Bern, LBAP (CON, POW), WBAm(RSPB), UKBAm(RSPB)	11	September 2016
Green woodpecker	<i>Picus viridis</i>	Bern, LBAP (CLY, CON, DEN, FLI, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	5	2015
House martin	<i>Delichon urbicum</i>	Bern, LBAP (BRG, CON, POW, RCT, VOG), WBAm(RSPB), UKBAm(RSPB)	8	2016
Lesser black-backed gull	<i>Larus fuscus</i>	BDir22, Bonn, Bern, LBAP (CON, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	15	January 2019
Long-tailed tit	<i>Aegithalos caudatus</i>	WBAm(RSPB)	5	September 2020
Mallard	<i>Anas platyrhynchos</i>	BDir21, Bonn, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	18	June 2016
Meadow pipit	<i>Anthus pratensis</i>	Bern, UKBA, WBA, LBAP[CON]	13	September 2019
Mute swan	<i>Cygnus olor</i>	BDir2.2, UKBA, WBA, LBAP[CON, POW]	4	2015
Redstart	<i>Phoenicurus phoenicurus</i>	Bern, UKBA, WBA, LBAP[CON, GWY, POW, SNP]	4	July 2020

Short-eared owl	<i>Asio flammeus</i>	BDir1, Bern, CITES, UKBA, WBR, LBAP[CON, DEN, GWY, PEM, POW], LI[VC43]	3	January 2016
Snipe	<i>Gallinago gallinago</i>	BDir2.1, UKBA, WBA, LBAP[ANG, CON, DEN, FLI, GWY, POW], LI[VC43]	1	March 2016
Swallow	<i>Hirundo rustica</i>	Bern, LBAP (ANG, CON, GWY, POW, VOG), WBAm(RSPB), UKBAm(RSPB)	9	September 2019
Swift	<i>Apus apus</i>	LBAP (BRG, RCT, VOG), WBAm(RSPB), UKBAm(RSPB)	10	June 2016
Teal	<i>Anas crecca</i>	BDir2.1, CITES, UKBA, WBA, LBAP[ANG, CON, DEN, FLI, GWY], LI[VC43]	2	2015
Whitethroat	<i>Sylvia communis</i>	LBAP (CON, POW), WBAm(RSPB)	9	June 2019
Willow warbler	<i>Phylloscopus trochilus</i>	WBR(RSPB), LBAP (CON), UKBAm(RSPB)	19	April 2020
Woodcock	<i>Scolopax rusticola</i>	BDir2.1, UKBR, WBA, LBAP[CON, DEN, FLI, GWY, POW], LI[VC43]	2	September 2019

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Appendix 9.5

Wintering Bird Survey report

RCT TYLORSTOWN LANDSLIP REMEDIAL WORKS – PHASE 4

WINTERING BIRD SURVEY REPORT

February 2021





Project No: GC/003613

Doc Ref: GC3613-RED-0074-XX-RP-L-0011

Rev:P01

CLIENT: Rhondda Cynon Taf County Borough Council

ISSUE DATE: February 2021

**RCT Tylorstown Landslip Remedial Works – Phase 4
Wintering Bird Survey Report**

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Drawings

GC3613-RED-74-XX-DR-L-0002-Designated Sites Map

GC3613-RED-74-XX-DR-L-0003-Wintering Bird Survey Map

Appendices

Appendix A - Survey Data

Appendix B- Legislation and Conservation Designation

Appendix C- Nature Conservation Value-Definition of Terms

Appendix D-Wintering Species of High and Medium Conservation Concern-County Status

Appendix E- Desk Top Study Data

Non-Technical Summary

Site Location	North-east of the town of Tylorstown, Rhondda Cynon Taf. (approximate site central grid reference ST 01449 96043)
Proposed Development	<p>Phase 4 of landslide remedial works to include removal of coal spoil from the landslide area north-east of Tylorstown to a receptor site approximately 1 km south- southeast, adjacent to Old Smokey (an existing coal spoil tip site).</p> <p>Construction of haul road between the landslide and receptor site, utilising an existing former tram road and reprofiling of landslide area and receptor site.</p>
Purpose of survey/s	To identify ecological constraints to the development relating to wintering birds.
Dates of survey and names of surveyors	<ul style="list-style-type: none"> • 10/11/2020 Trevor Fletcher (Ecologist) and Tara Okon (Assistant Ecologist) • 07/12/2020 Trevor Fletcher (Ecologist) and Tara Okon (Assistant Ecologist)
Overview of Results	<ul style="list-style-type: none"> • No nationally or internationally protected statutory designated sites (i.e. Sites of Special Scientific Interest (SSSIs) or Special Areas of Conservation (SACs)) lie within 2 km of the proposed development site. • There are five non-statutory designated sites (e.g. Sites of Importance for Nature Conservation (SINCs)) within 1 km of the proposed development site with relevance to wintering bird species. • 38 species of bird were recorded during the surveys, 3 of which are Schedule 1 species and 10 are classified as Species of Principal Importance in Wales (SPI). • 10 species of high conservation concern and 13 species of medium conservation concern were recorded. • Five species of raptor were recorded. • 24 of the species recorded were of low conservation concern, being widespread and common in East Glamorgan. • No wildfowl or waders were recorded using the site to rest or feed. • Wintering thrushes were present in very low numbers, including migrant Schedule 1 species redwing and fieldfare. • The site is considered to be of no more than local level importance in terms of nature conservation value for wintering birds.
Mitigation	<ul style="list-style-type: none"> • Vegetation / topsoil clearance should ideally be carried out between September and February inclusive to avoid disturbance to breeding birds. If works are to be carried out outside this period, an

	<p>ecologist should be employed to survey for nest sites immediately prior to works commencing.</p> <ul style="list-style-type: none"> • Avoid siting plant/ machinery, compounds and access routes in habitat identified in this report as most suitable for bird species to forage and shelter in winter. Discuss appropriate locations with an ecologist with ornithological experience before commencement of works. • Pollution control measures should be in place to ensure the Rhondda Fach and any other watercourses are protected. Pollution control measures should be detailed within a Construction Environmental Management Plan (CEMP). • A tool-box talk is required prior to commencement of works to ensure appropriate action is taken if nests of year-round breeders such as woodpigeon are encountered.
<p>Compensation and enhancement</p>	<ul style="list-style-type: none"> • Provision of bird boxes across the site/in adjacent suitable habitat to benefit kestrel, starling and a range of common breeding species. • Planting areas of reprofiled donor and receptor sites to include appropriate native species to benefit wintering birds in terms of breeding, shelter and food provision.

1. Introduction

Redstart was commissioned by Rhondda Cynon Taf County Borough Council (RCTCBC) to carry out a breeding bird survey for the proposed Phase 4 of landslide remedial works near Tylorstown, Rhondda Cynon Taff.

The wintering bird survey was carried out to identify any ecological constraints related to wintering birds to the proposed works and this report includes details of the survey methodology, results, a discussion of the results and contains recommendations for further survey/ mitigation where appropriate.

1.1 Site Description

The proposed Phase 4 planning boundary and a 500 m ecological survey buffer zone is referred to as the 'site' in this report. The planning boundary is referred to as the footprint.

The landslide is located immediately north-east of the village of Tylorstown in the Rhondda Valley, Rhondda Cynon Taf and the proposed receptor site approximately 1 km east of the settlement, adjacent to the local landmark of Old Smokey spoil tip.

Most of the site comprised unimproved/semi-improved acid grassland, bracken slopes and marshy grassland. Semi-natural broadleaved woodland was present to the south western extent of the site area. An isolated farmstead was located to the south west of Old Smokey.

Figure 1 – Photograph of site adapted from Google Earth. (Google Earth, 2020). Approximate 500 m survey boundary in red.



1.2 Proposed Works

The proposed works for Phase 4 of the project consist of the removal of coal spoil from the landslide area located north of Tylorstown to a receptor site approximately 1 km south- southeast adjacent to Old Smokey (an existing coal spoil tip site). Access for vehicles will be via a haul road created along the route of a former dram road. Works will include reprofiling both the landslide area and receptor site.

The site is illustrated on Drawing GC3613-.RED-74-XX-DR-L-0003.

2. Methodology

The following resources were accessed for information regarding breeding bird records and their distribution in the study area;

- South East Wales Biodiversity Records Centre (SEWBRc, 2020);
- British Trust for Ornithology (BTO) Birdtrack;
- East Glamorgan Bird Atlas 2007-11. (Glamorgan Bird Club, 2014); and
- Eastern Glamorgan Bird Report No.59 (Glamorgan Bird Club, 2019).

Aerial photographs and Ordnance Survey (OS) maps were reviewed to identify buildings with potential for breeding sites.

2.1 Field Survey

A wintering bird survey was undertaken to identify the presence, distribution and activity of birds within and immediately adjacent to the site to evaluate the conservation importance of the site and to identify habitats of importance to wintering birds.

Survey methodology was broadly based on the British Trust for Ornithology (BTO) Winter Farmland Bird Survey (Gillings *et.al.* 2008) and generic wintering bird monitoring methods detailed in (Gilbert et al. 1998).

As there were no major waterbodies within the site boundary and desk study results did not show any high numbers of wildfowl, swans, waders, gulls or raptors having used the site within the past 10 years it was decided that conducting two survey visits over the winter period would provide sufficient survey accuracy.

Two appropriately spaced survey visits were undertaken on the transect route between 10th November 2020 and 7th December 2020 (Full details of surveys can be found in Appendix A).

The transect route was mapped within a 500 m radius of the line of the proposed haul road between the landslide area and the proposed receptor site. The route was devised to ensure a representative sample of habitats across the site were incorporated and the proposed planning boundary area was sufficiently surveyed.

The transect route is illustrated in Drawing GC3613-RED-74-XX-DR-L-0003.

During each visit the transect was walked at a slow, steady pace to ensure birds could be detected by sight or sound. Frequent stops were made to scan for calling birds.

The transect route was walked from different starting points during each visit and the route direction was reversed between surveys to reduce survey bias.

Surveys were carried out in appropriate weather conditions; (avoiding days with high winds, heavy rain or poor visibility), in order to prevent under recording as bird activity may have otherwise been suppressed.

Surveys were completed by personnel with appropriate experience of the likely species assemblage for the geographical location and habitat types.

All bird species and their locations were recorded on large scale maps using standard two-letter British Trust for Ornithology (BTO) codes and bird activity was also recorded using standard BTO codes.

Opportunistic observations made during other ecological surveys within the survey area were noted and incorporated in the analysis where they provided pertinent additional information on species presence during winter.

2.2 Data analysis

A map was produced showing the species distribution and activity, where relevant, for individual species recorded over the two surveys.

Drawing GC3613-RED-74-XX-DR-L-0003 shows locations of birds of:

- High conservation concern; and
- Medium conservation concern/ Local Biodiversity Action Plan (LBAP) species for Rhondda Cynon Taf (if not already recorded as a species of high conservation concern).

The results of the wintering bird surveys were collated to produce a complete list of all bird species present in the survey area. Peak counts for species were also recorded (i.e. the maximum number of a particular species noted during a single survey visit).

The conservation importance of the species recorded on site during the survey has been evaluated using two complimentary approaches; conservation status and nature conservation value.

Conservation status

The bird species recorded in the survey area were compared to published lists of species of conservation concern. These are birds listed in one or more of the following:

- Wildlife and Countryside Act 1981 (as amended) Schedule 1 (Statutorily protected species with additional protection against disturbance (S1));
- Environment (Wales) Act 2016 Section 7 (Species of 'Principal importance (SPI) for the purpose of maintaining and enhancing biodiversity in relation to Wales);
- UK Red, Amber and Green List BoCC4 (Birds of Conservation Concern); and
- Wales Red, Amber and Green List- BoCCW3 Birds of Conservation Concern in Wales.
- Rhondda Cynon Taf LBAP bird species list.

Subsequently, each species of bird identified during the survey was allocated a level of relative protection status/conservation concern based upon their statutory/non-statutory designation (outlined in Table 1). Further details of these designations for birds are detailed in Appendix B.

Table 1: Classification levels for birds of conservation concern.

Level of conservation concern/protection status	Legislation/ conservation status
High	S1/SPI/UK Red list/Wales Red list
Medium	UK Amber list/Wales Amber list/ LBAP RCT

For the purpose of this report species of low conservation concern have been omitted from the species distribution maps (Drawing GC3613-RED-74-XX-DR-L-0003). These species are of least conservation concern and have a relatively widespread and stable population that is highly unlikely to change as a result of the proposed works.

Analysis for species of low conservation concern is provided in terms of a peak count (maximum number of each species recorded during any of the two surveys). A list of all bird species for the survey area was compiled and peak counts for species were recorded as detailed in Table 3 (see Results Section 4).

Nature Conservation Value

The CIEEM guidance on Ecological Impact Assessment (CIEEM, 2018) assesses nature conservation value within a geographical context. In order to attain a particular value level a species population or assemblage of species should meet the criteria outlined in Appendix C.

The level of nature conservation value for a species was informed by the nature conservation status of each species and county level data taken from the East Glamorgan Bird Atlas (Glamorgan Bird Club, 2014) and most recently published East Glamorgan Bird Report (East Glamorgan Bird Club, 2019). Details for county level designations for species of high and medium conservation concern is shown in Appendix D.

Wintering species recorded during the survey were compared to these criteria and assigned to the appropriate nature conservation value level.

An assessment of conservation status in combination with nature conservation value of a species/ species assemblage, together with spatial analysis of wintering locations across the site enables evaluation of the likely impact of the development.

2.3 Survey Constraints

During the survey on 7th December 2020 access to the part of the original transect route along the proposed haul road was not possible. This was due to health and safety concerns in relation to ongoing construction activity along the route which involved construction vehicles as shown in Photograph 1. The section of transect not accessed during Survey 2 is shown on Drawing GC3613-RED-74-XX-DR-L-0003 as a dashed blue line.

Photograph 1: Proposed haul road between donor and receptor site, dumper truck carrying clean stone along track. Photograph taken looking south east from approximately ST 01535 96219.



No survey method for species where there is imperfect detection can assure a full species list. It is considered unlikely, given the survey method used and the similarity of results from the survey and desk study, that any species that would alter the evaluation for any impact assessment for the proposed works have been overlooked.

3. Previous Reports/ Desktop Study Results

3.1 Designated sites

3.1.1 Sites of Special Scientific Interest

No nationally or internationally protected statutory designated sites (i.e. Sites of Special Scientific Interest (SSSIs) or Special Areas of Conservation (SACs)) lie within 2 km of the proposed development site.

3.1.2 Sites of Importance for Nature Conservation

Five Sites of Importance for Nature Conservation (SINC) with relevance to birds lie within 1 km of the site. SINC are summarised in Table 2 with specific designation for birds highlighted in **bold**.

Table 2: Sites of Importance for Nature Conservation with relevance to birds in winter within 1 km of the site.

SINC summary and designation for birds	Approximate distance and direction from proposed development
<p>Old Smokey Slopes SINC – 113 ha area.</p> <p>An extensive area of mosaic ffridd habitat, based partly on natural ground and partly on coal spoil. Acid grassland is the predominant vegetation.</p> <p>The grassland has a distinctive bird assemblage, which include stonechat (<i>Saxicola rubicola</i>) and whinchat (<i>Saxicola rubetra</i>).</p>	<p>Encompasses site area including receptor site, haul road and landslide area.</p>
<p>Blaenllechau Woodland SINC – approximately 19 ha area</p> <p>Upland ancient oak (<i>Quercus</i> sp.) woodland, with some mature birch (<i>Betula</i> sp.), rowan (<i>Sorbus acuparia</i>) and ash (<i>Fraxinus excelsior</i>). The bilberry, acid grassland and moss ground flora has been heavily grazed, but is recovering with some regeneration of oak, rowan and birch.</p> <p>No specific designation for birds but likely to support common woodland species and grassland species such as meadow pipit, stonechat and skylark in winter.</p>	<p>Directly adjacent to north-west and encompasses the western boundary of the site area.</p>

SINC summary and designation for birds	Approximate distance and direction from proposed development
<p>St. Gwynno Forest SINC – <i>approximately 1,330 ha area.</i></p> <p>An extensive area of Forestry Commission plantation, which runs across the ridge of Coetgate, Aberaman down to the St Gwynno Forestry. The SINC is an expanse of mixed conifer plantation (with small broadleaved components), which occurs in varying stages of maturity. The main tree species are sitka spruce (<i>Picea sitchensis</i>), larch (<i>Larix decidua</i>), and lodgepole pine (<i>Pinus contorta</i>). Recent years has seen major clear fells.</p> <p>The SINC has wintering habitat suitable for goshawk (<i>Accipiter gentilis</i>), crossbill (<i>Loxia</i>), siskin (<i>Spinus spinus</i>) and redpoll (<i>Carduelis spp.</i>).</p>	<p>Directly adjacent to north east sector of receptor site and within boundary of survey area.</p>
<p>Taff and Rhondda Rivers SINC – <i>approximately 246 ha area</i></p> <p><i>Only the relevant Rhondda river section of the citation is described.</i></p> <p>The Rhondda River (Fach and Fawr) is a typical ‘spatey’ upland river, with pools and riffle sequences.</p> <p>The river supports dipper (<i>Cinclus cinclus</i>) grey wagtail (<i>Motacilla cinerea</i>), and kingfisher (<i>Alcedo atthis</i>) all year around. In the winter goosander (<i>Mergus merganser</i>) is a frequent visitor, and grey heron (<i>Ardea cinerea</i>) feed along the river throughout the year.</p>	<p>Adjacent to landslide area and within boundary of survey area.</p>
<p>Pont-y-gwaith Hillside SINC – <i>approximately 19 ha area.</i></p> <p>A large area of dry heath and acid grassland and scattered bracken on the hillside above Pont-y-gwaith.</p> <p>No specific designation for birds but likely to support upland wintering species.</p>	<p>700 m south-west of southern boundary of survey area.</p> <p>(940 m south-west of receptor site)</p>

The locations of the designated sites are illustrated on Drawing GC3613-RED-74-XX-DR-L-0002.

Habitats on site included dry heath, acid/ neutral flush, acid grassland, semi-natural broadleaved woodland and river (Redstart,2020). These habitats are classed as Priority Habitats under Section 7 of the Environment (Wales) Act 2016, as being of principal importance for maintaining and enhancing biodiversity in relation to Wales. All the priority habitats on site had the potential to support priority and protected breeding bird species.

3.2 Priority and Protected species

Priority/ Protected/ Red listed Species Appendix E lists bird species that have additional protection under the Wildlife and Countryside Act 2018 (as amended) and/ or are considered priority species under the Environment (Wales) Act 2016. Non-statutory designations are also listed where they are species of high or medium conservation concern. The list shows records from within a 2 km radius of the site between August and March within the last 10 years and excludes species known not to overwinter in the UK. A summary of the records is detailed below:

3.2.1 *Species of high conservation concern (Priority/ Protected/ Red listed Species)*

A total 19 species of high conservation concern were returned for the last 10 years within 2 km of site between August and March inclusive. Records included eight Schedule 1 species: barn owl (*Tyto alba*), brambling (*Fringilla montifringilla*), common crossbill (*Loxia curvirostra*), goshawk (*Accipiter gentilis*) peregrine (*Falco peregrinus*), red kite (*Milvus milvus*), fieldfare (*Turdus pilaris*) and redwing (*Turdus iliacus*).

Species listed as priority under Section 7 of the Environment (Wales) Act 2016 included bullfinch (*Pyrrhula pyrrhula*), curlew (*Numenius torquatus*), dunnoek (*Prunella modularis*), house sparrow (*Passer domesticus*), herring gull (*Larus argentatus*) kestrel (*Falco tinnunculus*), lesser redpoll (*Acanthis cabaret*), linnet (*Linaria cannabina*), reed bunting (*Emberiza schoeniculus*), Skylark (*Alauda arvensis*), song thrush (*Turdus philomelos*) and starling (*Sternus vulgaris*).

The nearest Section 7 species was skylark, recorded on the line of the haul road within the proposed planning boundary in 2016.

The nearest record for wintering Schedule 1 species consisted of fieldfare (*Turdus pilaris*), located approximately 1200 m west of the central grid reference for the site.

3.2.2 *Other species of conservation concern*

There were 10 amber listed species of medium conservation concern returned from the data search.

Dipper (*Cinclus cinclus*), also listed as a Local Biodiversity Action Plan (LBAP) species for Rhondda Cynon Taff, was recorded 34 m from the south west margin of the landslip area.

4. Field Survey Results

A total of 38 species were recorded during the wintering bird survey.

A full list of bird species recorded during the wintering bird survey is presented in Table 3 along with each species relative level of conservation concern, statutory and non-statutory designation and assigned conservation value level.

Table 3 also provides a peak count for all species.

Species that are not identified as being on the Red or Amber lists in Table 3 or are not an SPI are all Green listed species of low conservation concern.

Some wintering birds of low conservation concern are listed as LBAP species in Rhondda Cynon Taf and include buzzard (*Buteo buteo*) and stonechat (*Saxicola rubicola*), these have been classified as of local importance for nature conservation value in Table 3.

Table 3: Summary of data for all bird species recorded during the wintering bird survey

Common name	Scientific name	WACA Schedule 1	SPI Wales	UK Red List	UK Amber List	Wales Red list	Wales Amber list	LBAP RCT	Conservation importance of wintering species	Nature conservation value of wintering species	Peak count
Grey heron	<i>Ardea cinerea</i>						*	*	Medium	Local	1
Sparrowhawk	<i>Accipiter nisus</i>								Low	Site	1
Red kite	<i>Milvus milvus</i>	*					*		High	Local	1
Common buzzard	<i>Buteo buteo</i>							*	Medium	Local	2
Black-headed gull	<i>Chroicocephalus ridibundus</i>		*			*			High	Local	1
Rock dove/Feral pigeon	<i>Columba livia</i>								Low	Site	2
Woodpigeon	<i>Columba palumbus</i>								Low	Site	17
Tawny owl	<i>Strix aluco</i>				*				Medium	Site	1+ (Indirect signs)
Green woodpecker	<i>Picus viridis</i>						*		Medium	Site	2
Kestrel	<i>Falco tinnunculus</i>		*		*	*			High	Local	2
Jay	<i>Garrulus glandarius</i>								Low	Site	5
Magpie	<i>Pica pica</i>								Low	Site	7

Jackdaw	<i>Coloeus monedula</i>								Low	Site	8
Carrion crow	<i>Corvus corone</i>								Low	Site	7
Raven	<i>Corvus corax</i>								Low	Site	3
Coal tit	<i>Periparus ater</i>								Low	Site	2
Blue tit	<i>Cyanistes caeruleus</i>								Low	Site	1
Great tit	<i>Parus major</i>								Low	Site	2
Long-tailed tit	<i>Aegithalos caudatus</i>					*			Medium	Site	3
Goldcrest	<i>Regulus regulus</i>					*			Medium	Site	1
Wren	<i>Troglodytes troglodytes</i>								Low	Site	6
Nuthatch	<i>Sitta europaea</i>								Low	Site	1
Starling	<i>Sturnus vulgaris</i>		*	*		*			High	Local	5
Blackbird	<i>Turdus merula</i>								Low	Site	4
Fieldfare	<i>Turdus pilaris</i>	*		*					High	Site	10
Redwing	<i>Turdus iliacus</i>	*		*					High	Site	5
Mistle thrush	<i>Turdus viscivorus</i>			*			*		High	Local	2
Robin	<i>Erithacus rubecula</i>								Low	Site	3
Stonechat	<i>Saxicola rubicola</i>							*	Medium	Local	1
Dunnock	<i>Prunella modularis</i>		*		*				High	Local	1
Meadow pipit	<i>Anthus pratensis</i>				*		*		Medium	Local	5
Chaffinch	<i>Fringilla coelebs</i>								Low	Site	3
Bullfinch	<i>Pyrrhula pyrrhula</i>		*		*	*			High	Local	2
Linnet	<i>Linaria cannabina</i>		*			*			High	Local	2
Lesser redpoll	<i>Acanthis cabaret</i>		*				*		High	Local	2



Goldfinch	<i>Carduelis carduelis</i>								Low	Site	15
Siskin	<i>Spinus spinus</i>								Low	Site	1
Reed bunting	<i>Emberiza schoeniclus</i>		*		*		*		High	Local	2

4.1.1 *Species of high conservation concern*

Three Schedule 1 species (S1) were recorded during the survey: red kite, fieldfare and redwing.

10 of the species recorded are Species of Principal Importance in Wales (SPI).

10 species recorded during the survey were red listed (BOCCUK4 and/or BOCCW3).

The most notable count of species of high conservation concern was a small flock of 10 fieldfare that flew high over the site during the December survey.

4.1.2 *Species of medium conservation concern/LBAP species*

There were 13 species of medium conservation concern recorded during the survey (i.e. Amber listed BOCCUK4 and/or BOCCW3) these included species such as kestrel, dunnock, bullfinch, lesser redpoll and reed bunting that are also listed as section 7 priority species for Wales.

4.1.3 *Species of low conservation concern*

There were 18 species of low conservation concern recorded during the survey, the majority being either common woodland species or corvids. There were no large flocks of any species of low conservation concern recorded during the survey.

4.1.4 *Raptors*

Five species of raptor were recorded during the surveys including Schedule 1 red kite, recorded on one occasion hunting over grassland east of the proposed receptor site.

Male and female kestrel were recorded together during both surveys. It is likely that the male and female birds seen together represented paired birds as the species is known to pair up late in the year to check the landscape for potential breeding sites (Village 1990).

Buzzard, an LBAP species for RCT, was recorded during the first survey with a maximum of two birds seen together. They were mainly recorded soaring, presumably searching for food resources e.g. carrion.

Sparrowhawk was recorded on one occasion, flying over the site at height.

Evidence for the presence of tawny owl was found in the form of regurgitated pellets located along a fence line immediately adjacent to the eastern extent of the proposed receptor site at ST02216 95671. Pellets were also found approximately 200 m north of the proposed haul road on a roadside verge at ST 01536 96228.

4.1.5 *Winter thrushes*

Fieldfare and redwing common winter visitors to the UK, were recorded in very low numbers with a maximum of 10 fieldfare noted flying over the site.

Common thrushes such as mistle thrush and blackbird were also recorded in low numbers, feeding on farmland to the north-west of the landslide area and also to the south of Old Smokey. Photograph 2 shows the farmland habitat located to the north-west of the landslide zone.

Photograph 2: Farmland to the north west of the landslide site. Farmland areas held the highest diversity of bird species within the survey area. Photograph taken looking north-west from approximately ST 01219 96427.



4.1.6 *Wildfowl (Swans, geese and ducks)*

There were no wildfowl recorded during the surveys.

4.1.7 *Waders*

No wading bird species were recorded flying over the site or utilising the site to rest or shelter despite suitable habitat being present on site, particularly to the east of Old Smokey.

4.1.8 *Gulls*

No gull species were recorded utilising the survey area to rest or feed. A single black-headed gull (*Chroicocephalus ridibundus*) was recorded flying over the site during Survey 2.

5. Discussion

5.1 Non statutory sites

The Old Smokey Slopes SINC will be directly impacted by the proposed works. Habitat suitable for wintering birds to shelter and feed will be lost from the landslide area and limited loss of suitable sheltering habitat will result from the creation of the haul road. Suitable habitat for wintering birds will also be lost within the proposed receptor site.

Photograph 3 shows grassland habitat suitable for species such as meadow pipit to shelter and feed during the winter.

Photograph 3: Grassland habitat with suitability for species such as meadow pipit to rest and forage within the planning boundary of the receptor site. Photograph taken looking west from approximately ST 02142 95784



The St. Gwynno Forest SINC lies on the proposed east boundary of the receptor site, it is unlikely to be impacted with regards to suitable habitat for wintering birds if the proposed receptor site remains within the current planning boundary. Wintering bird species using the SINC for shelter, feeding opportunities and roosting sites are highly likely to disperse away from the receptor site (if works are carried out in winter) and utilise extensive suitable areas of forestry in the wider landscape.

The Blaenllechau Woodland SINC lies approximately 250 m to the west of the landslide area and will not be impacted in terms of habitat loss for wintering birds if the works remain within the proposed planning boundary. Wintering birds utilising woodland habitat within the SINC are highly likely to temporarily disperse into adjacent suitable habitat during the proposed works.

The Taff and Rhondda Rivers SINC, which forms the south boundary of the landslide area, could be directly impacted by pollution as a result of works to remove material from landslide area.

Pollution caused by silt entering the watercourse and/or fuel spill is likely to impact on wintering bird species such as kingfisher, dipper and grey wagtail.

All other SINC's within 1 km of site are highly unlikely to be impacted by the works due to their distance from the site.

5.2 Birds

The wintering bird assemblage recorded on site is considered to be typical of the habitats present within the site and its geographical and landscape context.

The wintering bird assemblage comprised species that are generally common and widespread throughout East Glamorgan, this includes species of high and medium conservation concern.

The counts of each species were low across the site and species richness was highest on farmland to the west of the landslide area.

Although five species of raptor were recorded on site it is highly unlikely that any of the species recorded are reliant on the site either for food or shelter as there is abundant suitable habitat in the wider landscape.

The absence of any large waterbody or areas of open pasture on site is likely to account for the lack of wildfowl, waders or gulls using the site during winter.

The lack of hedgerow with a diverse range of fruiting species is the likely reason for the low count of resident thrushes and winter migrants such as fieldfare and redwing. These species are reliant on berries as a food resource during winter. Redwing and fieldfare are highly mobile in winter and will move considerable distances in search of food resources; moving on when resources are depleted.

The overall site is considered to be of no more than **local** nature conservation value for wintering birds (See Appendix C) as;

- None of the 38 species recorded during the survey were present in county important numbers.
- All section 7 priority species for Wales and Red and Amber species listed on the BoCCW3/ BoCCUK4, recorded during the survey, regularly occur in locally sustainable populations.
-

6. Impact assessment

The assessment of likely impact on wintering bird species arising from the proposed works is based on:

- An understanding of individual species ecological requirements;
- Number and location of bird species across the site;
- Extent of suitable wintering habitat outside the footprint of the development, in the wider landscape;
- Conservation status based upon legislation (S1/SPI) and current non-statutory designations (red/ amber/ green listed BoCC4 and BoCCW3);
- Likely location and extent of works and associated siting of plant and access routes pre- and during construction; and
- Overall design of the development, including timing of works and landscaping.

6.1.1 Potential impacts

Potential impacts on wintering bird species as a result of the proposed works include, but are not confined to: direct mortality; habitat loss (foraging, shelter and nesting); degradation and alteration of habitats; increased disturbance (lighting, noise), and; air and water pollution.

The effects of these potential impacts include but are not limited to reduced species abundance and reduced species richness and for resident species, loss of breeding sites available for subsequent breeding seasons which may in turn impact on winter populations.

The species recorded on site in winter that are arguably the most vulnerable to impacts are those of high and medium conservation concern as defined in Table 1.

Impacts on these species without mitigation are discussed and evaluated in section 6.1.2

The level of impact described follows CIEEM guidelines (CIEEM,2018).

6.1.2 Impacts without mitigation

Habitat clearance

Initial removal of habitat (vegetation and ground clearance) will be required as part of the proposed works. If clearance activity is carried out outside the breeding season (i.e. works are carried out September to February inclusive) short term displacement of small numbers of wintering bird species using the site, including species of high conservation concern such as reed bunting, starling and kestrel, is likely to occur. Impact on the assemblage of birds wintering on the site is likely to be minor adverse over a short duration.

Habitat loss and regeneration

Habitat suitable for wintering birds will be lost as a result of removal of material from the landslip area and deposition of the material on existing habitat in the receptor site. Construction of the

haul road between the landslide area and the receptor site will also remove suitable habitat for feeding and shelter.

Impacts on wintering birds in subsequent winters is likely to be minor adverse and relate to the loss of feeding and shelter habitat. Natural regeneration of spoil material is known to be slow owing to friable shale eroding easily and potentially acidic conditions inhibiting the growth of many plant species (Olds, 2019). Habitats are likely to be less suitable for the assemblage of species recorded on site for a considerable number of years. As feeding and shelter opportunities are sub-optimal within the proposed planning boundary, and more suitable habitat for most species in terms of food and shelter is available locally in farmland with hedgerows, the adverse impact of habitat loss is likely to be minor in the short term and negligible in the long term for most species at a local level.

Disturbance from construction work

Noise levels will increase during the construction phase and there is the possibility of air pollution. Disturbance is likely to lead to avoidance by wintering bird species of the areas where spoil is being moved from, haul road and the receptor site.

There is abundant suitable habitat in the wider local landscape for wintering birds to disperse into during construction activities. Impact on wintering birds is likely to be minor in the short term and negligible in the long term as habitat impacted by the works regenerates.

River pollution and disturbance

The proposed removal of spoil from the landslide and relocation to the receptor site around Old Smokey to the east has the potential to cause pollution of the Rhondda Fach, adversely impacting water quality. Degradation of water quality can affect availability of food prey items for species such as dipper and grey wagtail that are reliant on rivers for food.

Pollution run-off has the potential to have moderate adverse impact on dipper, kingfisher and grey wagtail in the short to medium term. Long term impacts are likely to be minor.

The potential short-term and long-term impacts and likely magnitude of impact discussed are based upon no mitigation measures being applied.

If the recommendations for mitigation, compensation and enhancement detailed in Section 7 are followed the magnitude of the adverse impacts on wintering birds, both short and long term, will be reduced and the proposed works will also be compliant with relevant wildlife legislation.

7. Recommendations

7.1 Mitigation

7.1.1 *Timing of works*

Construction activities should be carried out in such a way as to ensure that no birds, eggs or active nests are damaged or destroyed. The following recommendations are made in order of preference;

Option 1—All site clearance activities are undertaken outside of the breeding bird season

All site clearance (vegetation removal, topsoil stripping etc) and construction activities should be undertaken between September and February inclusive to avoid the main bird breeding season i.e. March to August inclusive.

No mitigation measures will be required if this option is adopted. There is likely to be temporary displacement of wintering birds into sufficient suitable habitat in the wider landscape for the duration of the works. Post- construction regeneration and planting will ensure habitat loss is temporary.

Option 2- Partial site clearance activities undertaken during the bird breeding season

If compliance with Option 1 is not fully possible then the majority of vegetation clearance should be undertaken outside the bird breeding season i.e. September to February inclusive. Clearance of vegetation should be maintained in this period and it is important to remove cut material from site to ensure the area remains of low suitability for nesting birds; species such as blackbird and dunnock select brush piles as nesting sites.

During the bird breeding season (March to August inclusive) other construction activities such as topsoil stripping should only be undertaken once a suitably experienced ecologist has checked the area for nesting birds, this should be carried out no more than 48 hours prior to commencement of works. If no nesting birds are identified works can proceed but if nesting is confirmed a species-specific no works zone of undisturbed habitat should be established (to be determined by the ecologist but no less than 5 m) until the nest is no longer active.

Option 3 - Site clearance during the bird breeding season

A pre-construction bird survey will be required if any vegetation clearance or topsoil stripping is to be undertaken during the bird breeding season.

Prior to any construction activities (vegetation clearance, topsoil removal etc.) each area of suitable habitat should be searched by a suitably experienced ecologist within 48 hours of commencement of works in order to determine if nests are present.

If Schedule 1 bird species are found to be nesting or constructing nests within 30 m of the scheme at any time during the development a risk assessment would be required to determine the likelihood of birds being disturbed by the construction activities and also to determine the appropriate extent of the exclusion zone. Any exclusion zone would need to be maintained until the end of the breeding season.

Siting of plant, compounds and access routes

An ecologist with ornithological experience should be consulted prior to any construction of access routes, siting of plant, machinery or compounds to minimise loss or disturbance to suitable wintering habitat.

7.1.2 *Pollution control*

Pollution control measures in accordance with industry best practice must be implemented to prevent pollution of the Rhondda Fach or other watercourses, thus avoiding direct impact on species such as grey wagtail that are known to use the site in winter. Pollution control measures should be detailed within a Construction Environmental Management Plan (CEMP) with reference to current best practice guidelines regarding working in or near water (NetRegs,2018)

7.1.3 *Tool-box talk*

All site operatives should receive a toolbox talk delivered by a suitably experienced ecologist prior to the commencement of work on site. The talk should cover the possible location of the nests of year- round breeding species such as woodpigeon and actions to be taken should a nest be unexpectedly discovered.

7.2 Compensation and Enhancement

7.2.1 *Habitat creation*

When reprofiling and replanting of the landslide area and receptor site is carried out there is an opportunity to enhance the habitat for a range of species. Planting should be carried out to provide additional areas of dense scrub and immature woodland which will provide habitat and food/ shelter opportunities for a range of wintering species.

Plant species suitable for birds should be native and already present in local habitats (Herbert *et. al.*, 1999) and include hawthorn (*Crataegus monogyna*) and rowan (*Sorbus aucuparia*). These species will also benefit overwintering migrant species such as redwing and fieldfare.

Reprofiling and replanting works that will benefit birds will need to be discussed with an ecologist as part of the overall habitat and species plan for Phase 4 works.

7.2.2 *Bird boxes*

As kestrel, a declining species in East Glamorgan, was recorded on site the provision of artificial nesting sites for this species will be particularly beneficial. Boxes will also provide safe sites for winter roosting and should be located facing away from the south and either on mature isolated trees, extensions to fence posts or on forestry edge trees with a clear line of sight from the box. (Canham,1992).

Starling boxes should also be erected as this rapidly declining species was recorded using the site to feed and the species is likely to be present in the breeding season. Boxes should be sited in mature trees (in the absence of buildings on site) with entrance holes facing away from the prevailing wind.

At least 10 closed and open fronted boxes for a range of common breeding bird species that take readily to boxes such as blue tit, great tit and wren, should be erected in suitable woodland habitat across the site or in adjacent woodland areas. These boxes will provide roosting sites in winter.

At least 2 kestrel and 2 starling boxes should be installed. Design and detailed siting locations should be discussed with an appropriately experienced ecologist with ornithological experience.

Schwegler or similar boxes are recommended for durability. Boxes suitable for this site can be found at <https://www.nhbs.com>

Note: *The recommendations made in this report should be considered alongside recommendations for faunal species and habitats in other reports in respect of these works.*

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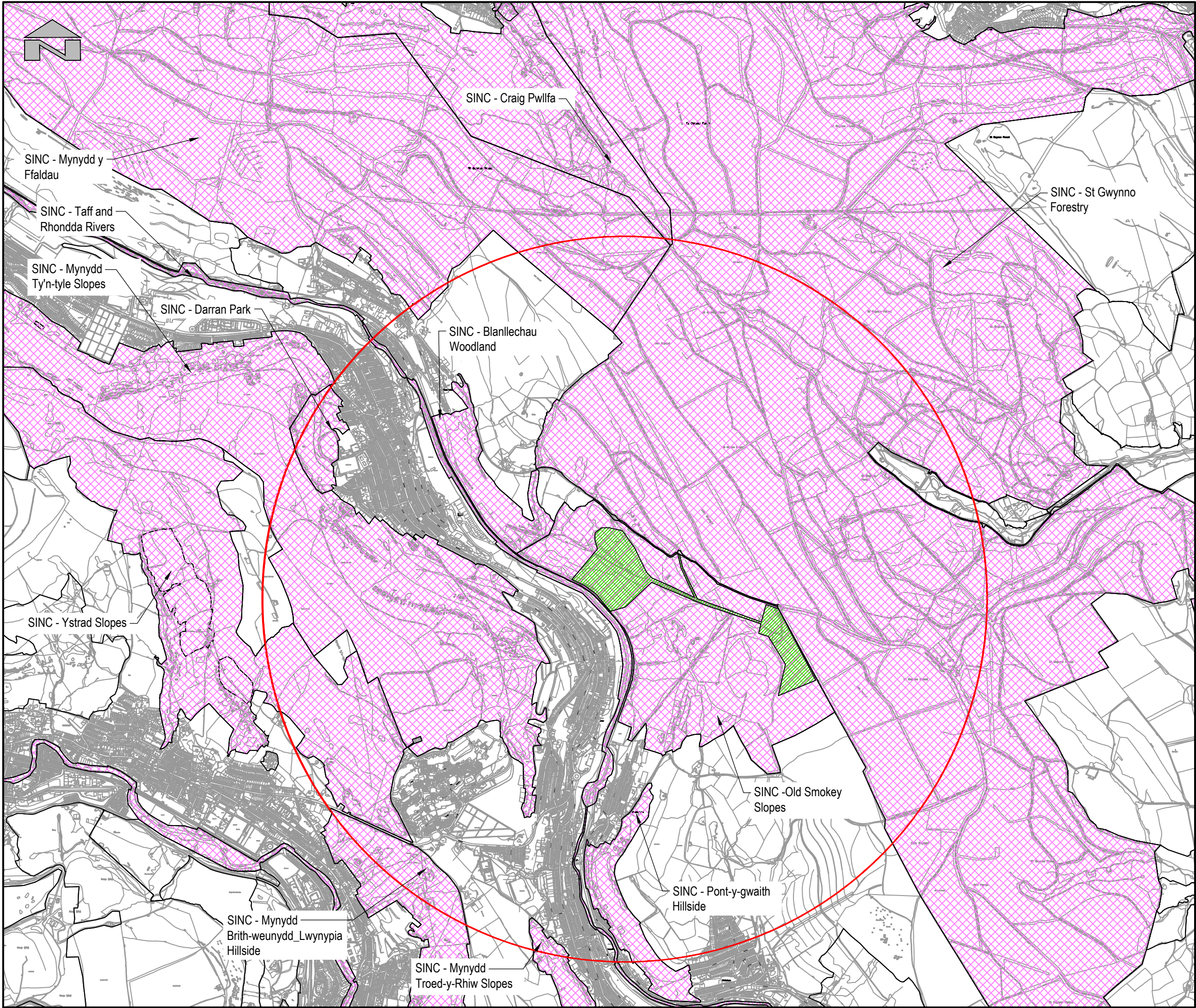
Wildlife and Countryside Act (1981) (as amended).



Drawings

GC3613-RED-74-XX-DR-L-0002-Designated Sites Map

GC3613-RED-74-XX-DR-L-0003-Wintering Bird Survey Map



Key:

- 2km Radius
- Site of Important Nature Conservation
- Site Location

Trwydded yr Arolwg Ordnans 100023458
 Ordnance Survey Licence 100023458

Rev	Dwn	Chk'd	App'd	Description	Date
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Purpose of Issue
S2 - Suitable for Information

Classification
Commercial in Confidence

Client
**Rhondda Cynon Taf
 County Borough Council**

Project
Tylorstown Landslide

Drawing
Designated Sites Map

Scale @ A3	Drawn	Checked	Approved
1:20,000	EM	EC	EC

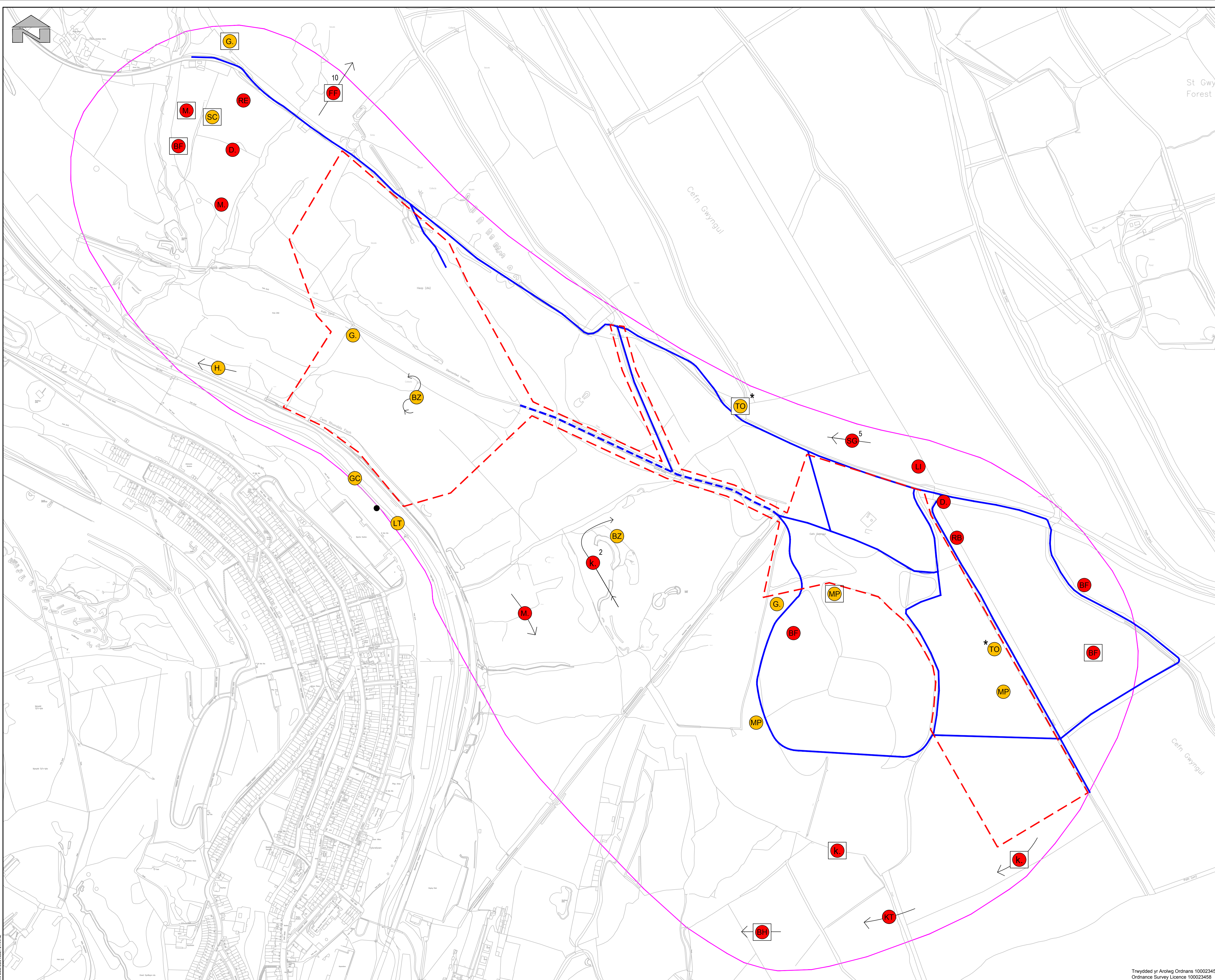
Project No.	Date
GC/003613	October 2020

Drawing Identifier	BS192 Compliant
Project - Originator - Zone - Level - File Type - Role - Number	rev
GC3613-RED-74-XX-DR-L-0002	P01



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www.redstartwales.com

Print Date: 10/11/2020 09:13:35



Key:

Conservation status of species	
●	High (S1,S7,SPI, BOCC Red)
●	Medium (BOCC Amber, LBAP RCT)
—	Transect Route
- - -	Section of Route not Accessed on Survey 2
- - -	Planning Boundary
—	Survey Boundary
●	Observation Point
○	Survey 1
□	Survey 2
○	Flying Over
○	Soaring
→	Flight Direction and Maximum Number of Birds
⊙	Indirect Signs (Pellets)
BTO symbol	Species
BF	Bullfinch
BH	Black-headed Gull
BZ	Buzzard
D.	Dunnock
FF	Fieldfare
G.	Green Woodpecker
GC	Goldcrest
H.	Grey Heron
k.	Kestrel
KT	Red Kite
LT	Long-tailed Tit
M.	Mistle Thrush
MP	Meadow Pipit
RB	Reed Bunting
RE	Redwing
SG	Starling
TO*	Tawny Owl (indirect evidence - pellets)

P01	NP	Rev	Drawn	Checked	Approved	Description	Date
Purpose of Issue							
S2 - Suitable for Information							
Classification							
Commercial in Confidence							
Client							
Rhondda Cynon Taf County Borough Council							
Project							
RCT Tylorstown Landslide - Phase 4							
Drawing							
Wintering Bird Survey							
Scale @ A1							
1:3000	Drawn	Checked	Approved				
	NP	JB	GP				
Project No.							
GC/003613							Date
						December 2020	
Drawing Identifier							
Project - Originator - Zone - Level - File Type - Role - Number							BS1192 Compliant
GC3613-RED-74-XX-DR-L-0003							Revision
							P01



Print Date: 05/12/2021 14:42

Twydded yr Arolwg Ordnans 100023458
Ordnance Survey Licence 100023458

Appendix A -Survey Data

Survey	Date	Start time	Finish time	Survey conditions
1	10/11/2020	08:00	11:42	Temp: 10-11°C Cloud:7 Wind: 2 Precipitation: Occasional light showers, mainly dry Visibility: Good
2	07/12/2020	09:50	13:30	Temp: 3-4 °C Cloud: 8 Wind: 2 Precipitation: None Visibility: Good

Key: Cloud: scale 0 - 8, 0 = clear skies, 4 = 50% cover, 8 = complete cloud cover

Wind: Beaufort scale 0 – 12 , 0 = calm, 2 = light breeze, 4 = moderate breeze, 6 = strong breeze, 7 = Moderate gale, 9 =Strong gale 12=Hurricane

Appendix B - Legislation and Conservation Designations

Birds Directive (Directive 2009/147/EC)

Annex 1 of the Birds Directive lists species and sub-species which are:

- in danger of extinction;
- vulnerable to specific changes in their habitat;
- considered rare because of small populations or restricted local distribution;
- requiring particular attention for reasons of the specific nature of habitat.

For these species Member States must conserve their most suitable territories in number and size as Special Protection Areas (SPAs). Species listed on Annex 1 of the Birds Directive include kingfisher and red kite.

Wildlife and Countryside Act 1981 (as amended)

Schedule 1

All naturally occurring British bird species are protected under the Wildlife and Countryside Act 1981 (as amended). The legislation protects all birds, their nests and eggs and it is an offence to:

- intentionally kill, injure and take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- intentionally take or destroy the egg of any wild bird.

Birds listed on Schedule 1 of the above legislation (e.g. kingfisher and red kite) are afforded further protection and it is an offence to:

- intentionally or recklessly disturb the bird while nest building or while at (or near) a nest with eggs or young; or disturb dependent young of such a bird.

Environment (Wales) Act 2016

Section 7 of the Environment (Wales) Act has replaced the Section 42 of the NERC Act 2006 in Wales. Section 7 lists the living organisms and types of habitat in Wales which are considered to be of key significance to sustain and improve biodiversity in relation to Wales.

The Act states that Welsh Ministers must take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section and encourage others to take such steps.

Red and Amber Lists

Red-listed bird species are those which:

- Are globally threatened;

- Have suffered a historical population decline in the UK during 1800–1995;
- Have suffered a severe (at least 50%) decline in the UK breeding population over the last 25 years, or longer-term period (the entire period used for assessments since the first review, starting in 1969);
- Have suffered a severe (at least 50%) contraction of the UK breeding range over the last 25 years, or the longer-term period;

Amber-listed bird species are those which:

- Have unfavourable conservation status in Europe (SPEC = Species of European Conservation Concern)
- Have suffered a historical population decline during 1800–1995, but recovering; population size has more than doubled over last 25 years
- Have suffered a moderate (25-49%) decline in the UK breeding population over the last 25 years, or the longer-term period
- Have suffered a moderate (25-49%) contraction of the UK breeding range over last 25 years, or the longer-term period
- Have suffered a moderate (25-49%) decline in the UK non-breeding population over last 25 years, or the longer-term period
- Are rare breeders; 1–300 breeding pairs in UK
- Are rare non-breeders; less than 900 individuals
- Are localised; at least 50% of the UK breeding or non-breeding population in 10 or fewer sites, but not applied to rare breeders or non-breeders
- Are internationally important; at least 20% of European breeding or non-breeding population in UK (NW European and East Atlantic Flyway populations used for non-breeding wildfowl and waders respectively).

Appendix C - Nature Conservation Value- Definition of Terms

The examples selected for each Nature Conservation Value level are for general guidance and other considerations may apply, for example species of low value in isolation but subject to widespread national decline may be afforded higher Nature Conservation Values in some cases. The Nature Conservation Value levels are adapted from CIEEM (2016) and have been outlined to be specific to birds.

Nature Conservation Value	Selection criteria (examples)
International	Species cited as part of a SPA and which regularly occurs in internationally or nationally important numbers (i.e. >1% of international population).
National	Species cited as part of a SSSI and which regularly occurs in nationally or regionally important numbers. A nationally important assemblage of breeding or overwintering species. A species present in nationally important numbers (i.e. >1% of UK population). Rare breeding species (<300 breeding pairs in UK).
Regional	Section 7 priority species not covered above and regularly occurring in regionally important numbers. (>1% of regional population). Species on BoCCW3 and /or BoCCUK4 Red list and regularly occurring in regionally important numbers.
County/Metropolitan	Section 7 priority species not covered above and regularly occurring in county important numbers (>1% of county population). Species on the BoCCw3 and /or BoCCUK4 and regularly occurring in county important numbers.
District	Section 7 species not covered above and are rare in the locality. Species present in just short of county important numbers. Sustainable populations of rare or scarce species in the locality.
Local	Other section 7 species not covered above and species on the Red and Amber BoCCW3 /BoCCUK4 lists regularly occurring in locally sustainable populations.
Site	All other BoCCW3 and /or BoCCUK4 Green listed common and widespread species. Low numbers of Amber or Red listed species.

Appendix D - Wintering Species of High and Medium Conservation Concern-County Status

Common name	Scientific name	Status in East Glamorgan
High Conservation Concern		
Red kite	<i>Milvus milvus</i>	Locally common resident in the north of the county.
Black-headed gull	<i>Chroicocephalus ridibundus</i>	Common non-breeding resident, passage migrant and winter visitor.
Kestrel	<i>Falco tinnunculus</i>	Common resident. Declining.
Starling	<i>Sturnus vulgaris</i>	Common but declining resident and winter visitor.
Fieldfare		Common winter visitor and passage migrant.
Redwing	<i>Turdus iliacus</i>	Common winter visitor and passage migrant.
Mistle Thrush	<i>Turdus viscivorus</i>	Common resident.
Duncock	<i>Prunella modularis</i>	Common resident.
Bullfinch	<i>Pyrrhula pyrrhula</i>	Common resident.
Linnet	<i>Linaria cannabina</i>	Common resident, winter visitor and passage migrant.
Lesser redpoll	<i>Acanthis cabaret</i>	Locally common, passage migrant and winter visitor.
Reed Bunting	<i>Emberiza schoeniclus</i>	Locally common resident, passage migrant and winter visitor.
Medium Conservation concern/LBAP		
Grey heron	<i>Ardea cineria</i>	Common resident.
Buzzard	<i>Buteo buteo</i>	Common resident.
Tawny owl	<i>Strix aluco</i>	Common resident.
Green Woodpecker	<i>Picus viridis</i>	Common resident
Long-tailed Tit	<i>Aegithalos caudatus</i>	Common resident.
Goldcrest	<i>Regulus regulus</i>	Common resident and passage migrant.
Stonechat	<i>Saxicola rubicola</i>	Locally common resident, winter visitor and passage migrant.
Meadow pipit	<i>Anthus pratensis</i>	Common resident, winter visitor and passage migrant.

Appendix E- Desktop Study Data

Protected and priority bird species recorded in the past 10 years within 1 km between August and March inclusive

Note: + symbol used where data did not clearly define time of year for records and therefore indicates a minimum number of records for the species.

Protected and Priority bird species within 1 km				
Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Barn owl	<i>Tyto alba</i>	Bern, CITES, WBA, WCA1.1, WCA9, LBAP[ANG, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRA, VOG, WRE], LI[VC43]	1+	2015
Brambling	<i>Fringilla montifringilla</i>	WCA1.1, LBAP[CON]	2	November 2011
Bullfinch	<i>Pyrrhula pyrrhula</i>	S7, UKBAP, WBR(RSPB), LBAP (BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, TRF, VOG), UKBR(RSPB)	2	January 2019
Common crossbill	<i>Loxia curvirostra</i>	Bern, WCA1.1, LBAP[CON, POW], LI[VC43]	1+	2019
Curlew	<i>Numenius arquata</i>	BDir2.2, S7, UKBR, WBR, LBAP[ANG, BBNP, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, VOG], LI[VC43]	1	March 2010
Dunnock	<i>Prunella modularis</i>	S7, UKBAP, Bern, LBAP (CON, POW, VOG), UKBAm(RSPB)	100+	January 2019
Fieldfare	<i>Turdus pilaris</i>	BDir2.2, UKBR, WBA, WCA1.1, LBAP[CON, POW]	1	March 2011
Goshawk	<i>Accipiter gentilis</i>	CITES, WCA1.1, WCA9, LBAP[CLY, CON, POW, VOG]	3	March 2015
Herring gull	<i>Larus argentatus</i>	BDir2.2, S7, UKBR, WBR, LBAP[CON, GWY, POW, VOG]	2+	January 2019
House sparrow	<i>Passer domesticus</i>	S7, UKBAP, Bern, LBAP (CLY, CON, FLI, GWY, VOG), WBAm(RSPB), UKBR(RSPB)	1+	January 2019
Kestrel	<i>Falco tinnunculus</i>	Bern, CITES, S7, UKBA, WBR, LBAP[ANG, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG], LI[VC43]	2+	January 2019

Lesser redpoll	<i>Acanthis cabaret</i>	S7, UKBR, WBR, LBAP[CON, DEN, POW, VOG]	1+	2015
Linnet	<i>Linaria cannabina</i>	Bern, S7, UKBR, WBR, LBAP[ANG, BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, VOG]	2	September 2019
Peregrine	<i>Falco peregrinus</i>	BDir1, Bern, CITES, WCA1.1, LBAP[ANG, CLY, CON, GWY, PEM, POW, TRF, VOG], LI[VC43]	3	April 2020
Red kite	<i>Milvus milvus</i>	BDir1, WCA1.1, WCA9, Bonn, CITES, RD1 (UK), LBAP (CON, CRM, GWY, POW), WBAm(RSPB), UKBAm(RSPB)	2	2010
Redwing	<i>Turdus iliacus</i>	BDir22, WCA1.1, LBAP (CON, POW), WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)	1	October 2018
Reed bunting	<i>Emberiza schoeniclus</i>	Bern, S7, UKBA, WBA, LBAP[BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, VOG]	1+	January 2019
Skylark	<i>Alauda arvensis</i>	BDir22, S7, LBAP (ANG, BBNP, CER, CLY, CON, CRM, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG), WBAm(RSPB), UKBR(RSPB)	4+	September 2019
Song thrush	<i>Turdus philomelos</i>	BDir22, S7, UKBAP, Bern, LBAP (ANG, BBNP, CER, CLY, CON, DEN, FLI, GWY, PEM, POW, SNP, TRF, VOG, WRE), WBAm(RSPB), UKBR(RSPB)	3+	January 2019
Starling	<i>Sturnus vulgaris</i>	BDir22, S7, UKBAP, Bern, WBR(RSPB), LBAP (BBNP, CON, FLI, GWY, VOG), UKBR(RSPB)	2	December 2015

Other species of conservation concern recorded in the past 10 years between August and March inclusive

Other bird Species of Conservation Concern within 1 km

Common Name	Scientific Name	Legislation / Conservation Status	Number of Records	Most Recent Record
Grey heron	<i>Ardea cineria</i>	LBAP (RCT)	1+	2015

Cormorant	<i>Phalacrocorax carbo</i>	Bonn, LBAP (CON, GWY, POW), WBAm(RSPB), UKBAm(RSPB)	1+	2019
Dipper	<i>Cinclus cinclus</i>	Bern, UKBA, WBA, LBAP[BRG, CLY, CON, MTR, POW, RCT, TRA]	5	January 2019
Goldcrest	<i>Regulus regulus</i>	Bern, LBAP (CON, POW), WBAm(RSPB), UKBAm(RSPB)	1+	September 2016
Green woodpecker	<i>Picus viridis</i>	Bern, LBAP (CLY, CON, DEN, FLI, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	1+	2015
Lesser black-backed gull	<i>Larus fuscus</i>	BDir22, Bonn, Bern, LBAP (CON, GWY, PEM, POW, SNP), WBAm(RSPB), UKBAm(RSPB)	1+	January 2019
Long-tailed tit	<i>Aegithalos caudatus</i>	WBAm(RSPB)	3	September 2020
Mallard	<i>Anas platyrhynchos</i>	BDir21, Bonn, LBAP (CON, GWY), WBAm(RSPB), UKBAm(RSPB)	1+	2015
Meadow pipit	<i>Anthus pratensis</i>	Bern, UKBA, WBA, LBAP[CON]	3+	September 2019
Mute swan	<i>Cygnus olor</i>	BDir2.2, UKBA, WBA, LBAP[CON, POW]	1+	2015
Short-eared owl	<i>Asio flammeus</i>	BDir1, Bern, CITES, UKBA, WBR, LBAP[CON, DEN, GWY, PEM, POW], LI[VC43]	2	January 2016
Snipe	<i>Gallinago gallinago</i>	BDir2.1, UKBA, WBA, LBAP[ANG, CON, DEN, FLI, GWY, POW], LI[VC43]	1	March 2016
Teal	<i>Anas crecca</i>	BDir2.1, CITES, UKBA, WBA, LBAP[ANG, CON, DEN, FLI, GWY], LI[VC43]	2	2015
Woodcock	<i>Scolopax rusticola</i>	BDir2.1, UKBR, WBA, LBAP[CON, DEN, FLI, GWY, POW], LI[VC43]	1	September 2019

REDSTART

St David's House
Pascal Close
St Mellons
Cardiff
CF3 0LW

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Appendix 9.6

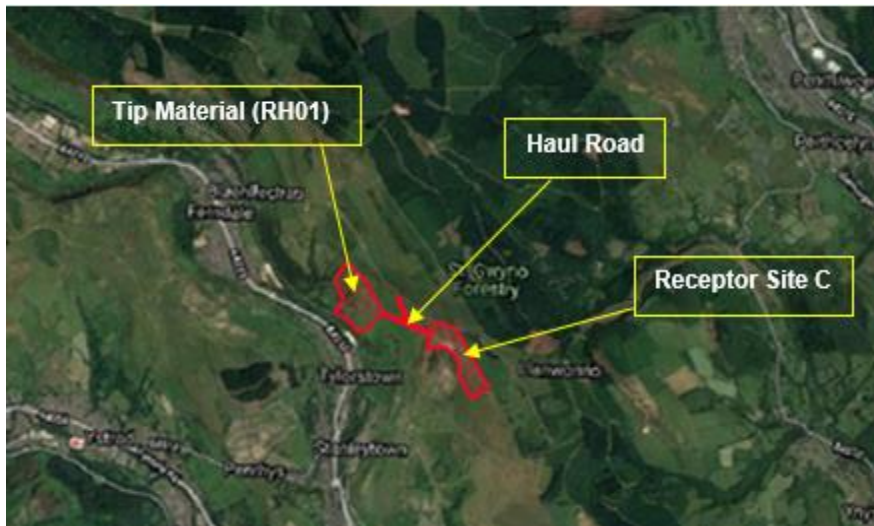
Ecological Method Statement

RCT Tylorstown Landslide Works Phase 4

Ecological Method Statement for Remedial Works

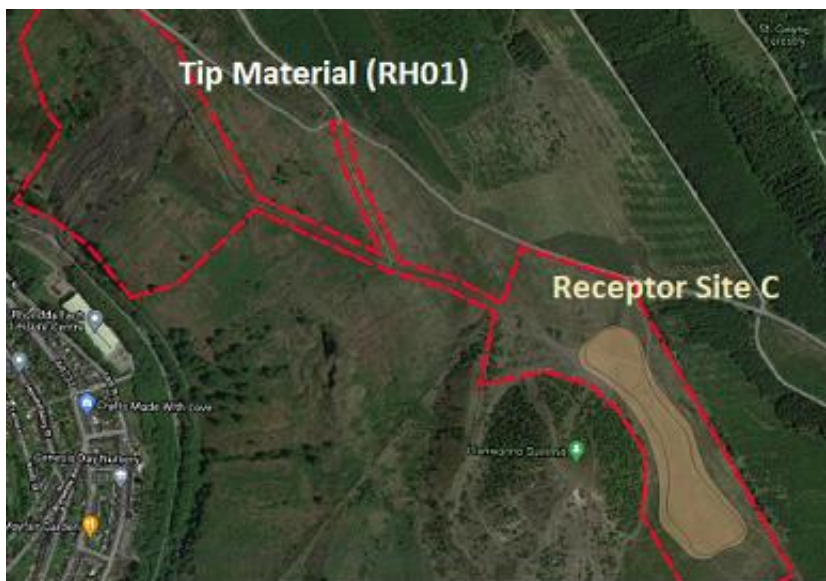
Proposed start date: 24 th April 2022
Planned Completion: 14 th October 2022
Expected duration: 170 days
Location: Tylorstown Tips, Ferndale, Rhondda Cynon Taff
Prepared by: Olga Krylova Checked by: Janine Burnham Approved by: Geraint Pitman Date:
<p>Background to the project:</p> <p>On Sunday 16th February, Storm Dennis caused the Llanwonno Upper Tip to fail above the town of Tylorstown. Approximately 28,000m³ of slipped material filled the valley bottom from the toe of the slope outwards in an extremely low angled and widely distributed debris envelope, blocking the Afon Rhondda Fach's channel and diverting its course to the western side of the valley bottom. The slipped material has also covered essential water mains and a disused tram line which is used as a footpath. Emergency works (referred to as Phases 2 and 3 of the Tylorstown Tips scheme) have been completed to remove the slipped material from the river and valley bottom and transport it to nearby receptor sites.</p> <p>The next stage of the Scheme (Phase 4) consists of making the remaining slip material safe, as well as offering ecological, landscape and community enhancements for the area.</p> <p>Scope of works:</p> <p>The proposed works for Phase 4 are comprising of the following:</p> <ul style="list-style-type: none"> • Removal of circa 150,000 m³ of tip material still present on the hillside and landscaping the area following removal; • Transport of the material along a disused tramway to the adjacent Phase 4 receptor site (Receptor Site C (RS-C)); • Widening of the existing tramway to allow access for trucks and plant between the Tylorstown Tip (RH01) and the Phase 4 receptor site (RS-C); and • Landscaping the Phase 4 receptor site (RS-C). <p>The remedial works will take approximately 170 days (including site clearance) and will take place from spring to mid-Autumn months (End of April – Mid-October 2022). The presence of ecological constraints on the site necessitates that all works must be supervised by a suitably experienced Ecological Clerk of Works (ECoW).</p> <p>Figure 1 shows a plan of the site and locations of the remaining slip material (RH01), the haul road and RS-C.</p>

Figure 1: Aerial map of site adapted from Google Earth, 2021. Red boundary indicates site area.



The shape and form of the receptor landform was designed taking ecological constraints, particularly the location of Priority habitat, into account (Drawing GC3613-RED-61-RSC-DR-C-0005 – Phase 4. Constraint Prioritisation Plan). Figure 2 shows the footprint of Redline Boundary, including Receptor Site C.

Figure 2: A plan of the site adapted from Google Earth, 2021 showing the geo-shape of Receptor Site C.



Ecological Method Statement:

This method statement will be followed by contractors carrying out all aspects of the remedial works to ensure that the risk of significant negative impacts on habitats and protected species is minimised and that works are compliant with current wildlife legislation.

The timings in respect of this Method Statement are based on the proposed start and end dates identified above.

The works contained within this Method Statement will follow on from the reptile and amphibian clearance works identified within the Reptile and Amphibian Site Clearance Method Statement.

This Ecological Method Statement should be read in conjunction with: Drawing GC3613-RED-61-RSC-DR-C-0005: Phase 4 - Constraint Prioritisation Plan; Drawing GC/003613-RED-74-XX-DR-L-0002- Designated Sites Map; the Reptile and Amphibian Site Clearance Method Statement and the Mitigation Strategy Plan.

The Contractor shall supply a Construction Environmental Management Plan (CEMP) to be approved by Client/Client's agent prior to any development taking place.

An ecologically appropriate restoration plan for the receptor site will be designed to fulfil the duty of the Local Authority to provide a net positive ecological outcome. This will include re-instatement and enhancement of habitats suitable for species identified within this method statement.

This Method Statement has been prepared in consultation with the Rhondda Cynon Taf (RCT) County Ecologist and is subject to review, as part of the planning process.

Site Overview

The Proposed Scheme is located to the east of Tylorstown, within the steep sided Rhondda Fach valley, in the County Borough of Rhondda Cynon Taf, South Wales. The valley sides are covered mainly by fridd habitat, with a mosaic of dry heath, acid grassland, scrub and small parcels of broadleaved semi-natural woodland. Marshy grassland, acid grassland, dry heath and coniferous plantations cover a plateau at a higher elevation. The site is located within an area of historic collieries, where natural and deposited colliery material landforms are present.

A desk-based review of existing information and the results of early ecological surveys have concluded that the site is of high ecological value. The main constraint to works is the presence Priority Habitats within the Old Smokey Site of Importance for Nature Conservation (SINC) in which the site is located. The ecological constraints are collated in Table 1.

Table 1: Summary of the constraints identified within the proposed works site.

Constraints	Locations	Nature Conservation Status/Level	Proposed works impact
Old Smokey SINC	On site	County	Direct impact through permanent habitat loss and inadvertent construction vehicle "trespass"; indirect impacts through habitat degradation, hydrological changes, potential pollution from construction; disturbance.
Priority Habitats: Upland oak woodland, River Rhondda Fach, Inland rock- open mosaic habitats on previously developed land,	On site	Regional	Direct impact through permanent habitat loss and inadvertent construction vehicle "trespass"; indirect impacts through habitat degradation, hydrological

Inland rock outcrop and scree habitats, Lowland acid grassland, Dwarf shrub heath, Purple moor-grass and rush pastures; and Upland flushes, fens and swamps			changes, potential pollution from construction; disturbance.
Ancient Woodland	Adjacent to the north-west and west of the landslide.	Regional	Potential direct impact on the trees and root protection zone within/adjacent to the donor material.
Other county level habitats: ffridd; gorse scrub, colliery tip.	On site	County	Direct impact through permanent habitat loss and inadvertent construction vehicle "trespass"; indirect impacts through habitat degradation, hydrological changes, potential pollution from construction; disturbance.
Presence of protected species (including, reptiles, breeding birds and foraging bats)	On site	County	Direct (injury, death) and indirect (e.g. disturbance, habitat loss)
Presence of species of local importance	Possibly within the site	Local	Direct (injury, death) and indirect (e.g. disturbance, habitat loss)
Presence of invasive plants (Himalayan balsam)	On the haul road and adjacent to the west and east of the haul road.	N/A	Unlawful spreading
Ecological issues which have not yet been fully identified/confirmed and arboricultural constraints/considerations.	On site	County	Possibly indirect (e.g. disturbance, habitat loss)

Working Methods

Regulatory Consents and Permissions: SINC/TPO/Tree Felling Permit/Protected Species Licences

SINC

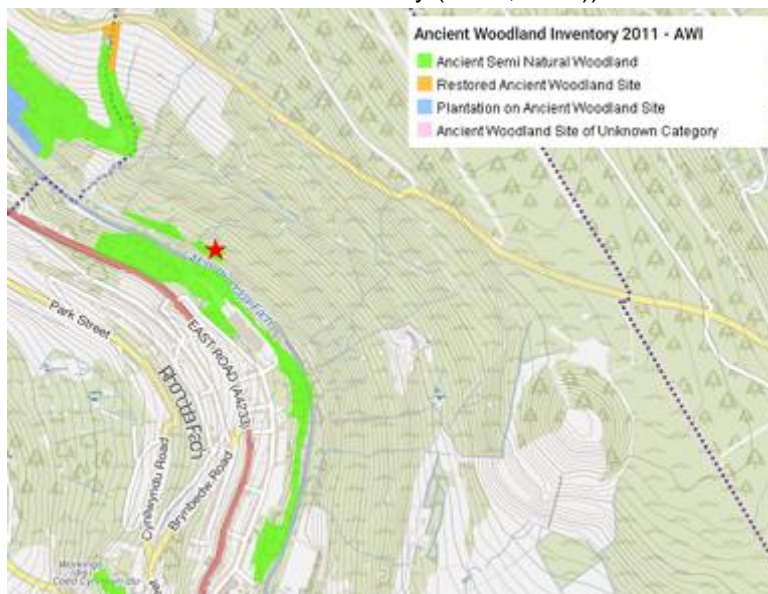
No legal consent is required to permit works within the SINC, however, the Local Authority ecologist was consulted during production of this ecological method statement and comments/requirements (including mitigation measures for works within the SINC) have been included.

The SINC and Heritage Sites boundary / areas (ruins of engine house and dismantled tramway) are shown on drawing GC/003613-RED-74-XX-DR-L-0002- Designated Sites Map and GC3613-RED-61-RSC-DR-C-0005 – Phase 4 - Constraint Prioritisation Plan respectively.

Ancient Woodland Inventory (AWI)

An area of Ancient Woodland (AW) is located within the western section of the landslide (Figure 3); therefore, it has already been directly affected to a degree. Further indirect impacts could occur from pollution and habitat degradation caused by works. It is not clear if any tree felling within this area of AW is required during the proposed works. Natural Resources Wales (NRW) will be consulted should any tree felling operations be required within the AW area.

Figure 3: Ancient woodland areas located within proximity to the development site area (Map adapted from the Lle Ancient Woodland Inventory (NRW, 2011)).



Tree Felling Permit

A tree felling permit from NRW will be required to fell more than 5 cubic metres of timber within any calendar quarter. Lopping and topping can be carried out without a felling licence. A felling licence applies to any tree which has a diameter of more than 8cm when measured at a height of 1.3m above ground level. NRW have a minimum turn around period of 8 weeks for felling licences. If granted, a licence is likely to have conditions (for example re-stocking) attached.

Tree clearance will be minimised and is likely to be less than 5 cubic metres.

Protected Species Licences

Surveys to date have not identified the need for any protected species licences applications. If however,

any protected species are encountered on site, NRW protected species licence/s may be required for work to proceed.

Protected/ Notable Species Mitigation Measures

The Ecological Method Statement details relative to the work activities on site in relation to Old Smokey Slopes SINC, Priority Habitats, Ancient Woodland, trees and protected/notables species on site are collated in Table 2 using a traffic light system indicating the level of the risk of each constraint to the development (Figure 4).

Figure 4: Traffic light label system adapted to show the level of risk to the proposed works.

High	Very likely that works will affect the ecological feature and have significant impact if the required mitigation measures/ working practices are not followed.
Medium	Likely that the works will have an impact on the ecological feature however the mitigation measures/ working practices will minimise the impact.
Low	Unlikely that works will affect the ecological feature and have significant impact if the precautionary measures / working practices will be in place and followed by the contractor.
General Works	General working practises and instructions

Table 2: Ecological Interest Features - Mitigation Requirements

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
Site-Wide General Working Practices		
		<ol style="list-style-type: none"> 1. An ecological certification procedure will be implemented as an ecological control measure, requiring the ECoW to agree that certain stages of works have been completed in accordance with the Ecological Method Statement and the Construction Environmental Management Plan (CEMP) prepared by the Contractor. 'Hold points' will be identified (i.e. stages within a process/or processes where further actions are prohibited until the mitigation or other measures are in place) to be signed off by the ECoW prior to the next stage of works commencing. 2. An Ecological Clerk of Works (ECoW) will be appointed to oversee the implementation of this method statement and provide ecological supervision. 3. HOLD POINT: No works within the Receptor Site C will take place until the reptile clearance operation has been completed and signed off by the ECoW. 4. The ECoW will provide their contact details to the appointed contractor prior to works commencing on site. 5. The appointed contractor will provide details for a main point of contact to the ECoW prior to works commencing on site. 6. HOLD POINT: No works will be undertaken within, or adjacent to, any areas of habitats identified as having high and medium biodiversity value, referred to as RED and AMBER habitats respectively

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<p>(Drawing GC3613-RED-61-RSC-DR-C-0005) until the required mitigation measures are in place. These mitigation measures are outlined in Pre-construction section below.</p> <ol style="list-style-type: none"> 7. A phased construction programme will be implemented to protect and minimise the direct impact of the works on the RED and AMBER habitats within the receptor site. A phased construction method will also reduce the area for topsoil/turf storage required as storage can be achieved on a rotational basis. 8. Topsoil/ turf storage areas will be fenced off throughout the duration of works and the locations will be recorded. Topsoil/ turf will be reinstated according to phased construction programme. The appointed contractor will undertake a site visit with the ECoW prior to starting works to review on-site conditions and ecological considerations. 9. All staff will receive an ecological briefing prior to commencing work on site. This will be delivered by the ECoW. The briefing will cover ecological constraints (including species identification where appropriate), working methods to be followed and the action to be taken in the event of discovering an unexpected constraint. 10. The use and specification of plant and machinery will be at the discretion of the subcontractor, however, from an ecological perspective it is recommended that the smallest, lightest machinery is used at all times to minimise damage/impact on habitats and the ground/soil. 11. To avoid creating hazards (e.g. fire hazard), arisings from vegetation clearance/tree felling will not be chipped on site. Arisings will be left within suitable areas woodland areas as habitat creation or used to construct underground reptile and amphibian hibernaculum. Locations for habitat piles and hibernaculum will be identified by an ECoW.

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<p>12. The ECoW will retain records of any species observed/encountered/relocated during the works.</p> <p>13. The contractor will take appropriate measures to prevent pollution of, and run-off into, watercourses and drains and surrounding vegetation.</p> <p>14. Any tree work and/or measures for protection will comply with <i>BS 3998:2010 - Tree Work. Recommendations</i> and <i>BS 5837:2012 - Trees in relation to design, demolition and construction – Recommendations</i>.</p> <p>15. Measures shall be in place to avoid, or minimise the loss and/or damage to Ancient Woodland (AW) and broadleaved trees, as specified in Mitigation Strategy Plan, such as AW boundaries adjacent to the donor site RH01 will be clearly demarcated and protective fencing will be erected. A Root Protection Zone (RPZ) will be clearly demarcated around any trees identified by an arboriculturalist as being at risk from clearance and excavation works. Broadleaf tree removal will be kept to a minimum.</p> <p>16. Pollution prevention measures will be implemented through a Construction Environmental Management Plans (CEMP) following best practise such as Guidance for Pollution Prevention (GPPs) outlined in NetReg (https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/) for the duration of the proposed works.</p> <p style="padding-left: 40px;">a. No refuelling of plant and machinery will be permitted adjacent to any watercourses.</p> <p style="padding-left: 40px;">b. All fuel and chemicals will be stored away from any watercourse.</p>

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<ul style="list-style-type: none"> c. Bio-oils will be used in plant to ensure the risk of pollution is minimised. d. Silt prevention measures will be installed to prevent debris and sediment entering watercourses. e. Additional silt fencing will be utilised where and when necessary and the contractor should monitor weather to ensure conditions are suitable to continue work. <p>17. HOLD POINT: An appropriate Invasive Plant Species Method Statement (to form part of the CEMP) will be provided by the contractor and adhered to throughout pre-construction and construction stages to avoid spread of controlled invasive plant species.</p> <p>18. HOLD POINT: All relevant documents such as the CEMP, and Method Statements will be finalised and approved prior to the Pre-construction Stage.</p>
Pre-construction Stage		
Site Compounds, Access and Storage	<p>HOLD POINT: The locations and arrangement of site compounds, access routes and topsoil/turf storage sites are to be agreed with the ECoW prior to construction. Areas of bare ground habitats of lower ecological value (referred to as GREEN areas (GC3613-RED-61-RSC-DR-C-0005) should be utilised for these purposes as far as possible.</p> <p>A phased construction programme will be followed for the site preparation and material deposition on RS-C. Dedicated routes for construction vehicles to travel over will be identified. This will:</p>	

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<ul style="list-style-type: none"> • reduce physical disturbance/compaction of the ground; • minimise the chance of vehicles becoming stuck in soft ground; • minimise damage to the SINC, Priority and other valuable habitats; • assist movement of machinery across uneven/soft ground; • prevent contamination with invasive plants Himalayan balsam; and • reduce/eliminate the requirement for habitat re-instatement <p>Construction vehicles will remain on the designated access and haul routes at all times to minimise damage to surrounding high ecological value habitats.</p> <p>HOLD POINT: If at any time the dedicated routes cannot be followed and additional temporary access routes are required, the route will be agreed with the ECoW and tyre matting/ rafts will be employed to protect high quality ecological habitats.</p> <p>Additionally, any damaged habitats will be re-instated, as detailed in this document (Topsoil Strip section in Construction Phase).</p> <p>'RED' and 'AMBER' habitats areas must be avoided completely before translocation/topsoil stripping.</p>
Haulage Routes		<p>The existing access track that follows the route of the disused tramway, and bare ground on the plateau to the north of the Old Smokey (marked as "GREEN" habitat on GC3613-RED-61-RSC-DR-C-0005) will be used for construction traffic.</p>
Site preparation for Construction		<p>Site preparation for construction will include the installation of protective (e.g. Heras) and reptile fencing, vegetation clearance, reptile and amphibian clearance and earth-moving works such as topsoil/turf stripping and bunding for storage. RED and AMBER habitat removal will be kept to a minimum.</p>

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<p>Fencing plan/map and erection</p> <p>HOLD POINT: Prior to habitat removal or filling operations, protective fencing such as Heras fencing will be installed following a fencing plan agreed with the Contractor and identified within the CEMP to ensure works do not encroach on habitats outside of the redline boundary, or designated access routes.</p> <p>HOLD POINT: Reptile fencing will be erected and maintained, as identified within Reptile and Amphibian Method Statement (Redstart, 2021). The Protective Fencing Plan should ensure that the Reptile Fencing is protected from tampering and vandalism from the general public.</p> <p>HOLD POINT: No works are to be undertaken within or adjacent to any habitats identified as having high biodiversity value (RED/AMBER areas), until the specified protection measures are in place.</p> <p>Vegetation Clearance</p> <ul style="list-style-type: none"> • HOLD POINT: No vegetation clearance will be undertaken until the ECoW carries out an inspection for badger, nesting birds and bat potential of any trees or vegetation requiring removal and any necessary assessments made or licenses/consents obtained (See Sections: Bats, Great Crested Newt, Badger, Breeding birds, Reptiles and Amphibians). • 2 stage cut where required in accordance with the Reptile and Amphibian Method Statement. • HOLD POINT: 24 hours to have elapsed and ECoW to undertake walkover search for reptiles within the habitats prior to 2nd stage cut where the 2nd stage cut is required. • Protection of nesting birds, including ground nesting birds (e.g. skylark) is required on site if vegetation clearance is scheduled from March to August (inclusive).

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<ul style="list-style-type: none"> Check for nesting birds within the site at a maximum of 48 hours prior the construction will be required for vegetation clearance during the breeding bird season (March to August inclusive). <p>Earth-moving Works</p> <p>HOLD POINT: No heavy machinery will access the site before the reptile and amphibian site clearance is completed.</p> <p>A phased programme of site clearance and construction will be implemented, which will include stripping donor turves/ topsoil from within RS-C and within the redline boundary, to ensure that machinery does not track over habitats that are to be protected.</p> <p>A combination of topsoil strip and turf translocation, for later re-deposition is proposed to mitigate the removal of SINC habitats.</p> <p>HOLD POINT: Receptor sites for the stripped turves will be prepared in Spring or early Autumn following completion of earthworks and according to this Method Statement under ECoW supervision.</p> <p>Topsoil stripping will be required in AMBER areas. The topsoil stripping, soil storage and re-instatement will follow the methods described in this document.</p>
Habitat Removal – SINC and Priority Habitats	RED - High Value Habitats (Dry-heath, mosaic of dry heath and acid grassland and acid/neutral flush with soft-rush)	<p>Turf removal/storage and translocation ('RED' areas on Drawing GC3613-RED-61-RSC-DR-C-0005)</p> <ul style="list-style-type: none"> HOLD POINT: All aspects of the turf removal (lifting, storage, transport and reinstatement) will be undertaken under the direct supervision of the ECoW.

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
	habitats)	<ul style="list-style-type: none"> • Turf removal will be undertaken using low load-bearing tracked vehicles. This will minimise any potential damage to sensitive areas. • It is anticipated that the area of the bare soil to the north of 'Old Smokey' will be used for turf storage. • No significant cutting of the dry heath habitat will be required in areas of the turf donor site, as the vegetation is naturally short. • Vegetation clearance/ strimming – with a first cut to a height of 150mm of the acid flush (soft-rush and purple moor grass dominated habitat) is required. • Individual turves of a standard size (e.g. 2.4m x 1.2m) will be removed. The ECoW will specify details such as the width and length of the area to be turfed and suitable storage areas • Turf depth will be dictated by root structure and soil characteristics. It is expected that the topsoil will be bound with roots and will follow the topsoil/subsoil interface (between 200 and 300mm). The ECoW will provide advice at the time of the works. • The cut turf will be lifted and placed within the designated storage area identified by ECoW. Turves will be stored in a single layer (i.e. not stacked). The medium ecological value habitats identified by the ECoW (potentially within 'AMBER' areas illustrated on Drawing GC3613-RED-61-RSC-DR-C-0005) will be utilised for temporary storage of turves. • HOLD POINT: Areas for storage of turves are to be confirmed. Following consultation with the RCT County ecologist, areas of dense bracken were identified as suitable storage areas for topsoil, as the habitat has limited ecological value.

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<ul style="list-style-type: none"> • Any identified topsoil storage within 'AMBER' areas will require vegetation clearance (two stage cut and topsoil stripping), as described in this method statement. • No vegetation clearance and topsoil stripping will be required on bare ground, marked as 'GREEN' illustrated on Drawing GC3613-RED-61-RSC-DR-C-0005 for turves/ topsoil storage. • Any soil excess from the cut turves will be stored in bunds of no greater than 1 metre in height or width. • Turves must not be covered (otherwise plants will suffer from light deprivation). • Turves must not be stored on geo-textile matting. • HOLD POINT: Turf storage areas will be protected by fencing and appropriate signage to ensure they are not tracked over. Coloured markers will be used to denote moved turf and proposed relocation site (using timber dye which will not fade). • Subject to weather conditions, watering or windbreaks may be required to reduce transpiration. This will be assessed by the ECoW and agreed with the contractor. • The period of turf removal and storage will be kept as short as possible to minimise harm to the turf. • The ECoW will record the coordinates and orientation of turves using GPS and annotate on an Ordnance Survey map (or similar) at an appropriate scale for each area of turf stripped.

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<p>The ECoW will provide a habitat description for turves to ensure future reinstatement of turves to the appropriate location.</p> <ul style="list-style-type: none"> The turves will require watering as advised by the ECoW.
<p>Habitat Removal</p>	<p>AMBER – Medium Value Habitats (Unimproved and semi-improved acid grassland, marshy grassland, dense bracken and mosaic of the scattered bracken semi-improved acid grassland habitat, scrub and areas near woodland)</p>	<p>Topsoil strip, storage and reinstatement (AMBER areas Drawing GC3613-RED-61-RSC-DR-C-0005)</p> <p>Prior to topsoil stripping, vegetation will be cut down close to ground level if deemed necessary by the ECoW following methods detailed within this document and considering other ecological aspects, such as breeding birds, reptiles and amphibians (see the Mitigation Strategy Plan).</p> <p>Where locations for topsoil stripping are on steep terrain (at the donor site RH01), it will be necessary to create safe and conditions for machinery to operate safely.</p> <p>Detailed methods of excavation will be provided by the contractor, but must be in line with the specifications in this document:</p> <ul style="list-style-type: none"> HOLD POINT: Areas for storing topsoil spoil are to be confirmed. Following consultation with the RCT County ecologist, areas of dense bracken were identified as suitable storage areas for topsoil, as the habitat has limited ecological value. HOLD POINT: The ECoW will identify and agree additional storage areas during works where required.

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<p>Any topsoil storage area identified within 'AMBER' habitats may require vegetation clearance (e.g. if vegetation has regrown following being cut for the reptile clearance, this will be directed by the ECoW) and topsoil stripping, as described in this method statement.</p> <ul style="list-style-type: none"> • The topsoil will be stripped, stored and mapped according to habitat under the supervision of the ECoW. • Storage areas will be clearly signed and demarcated and protected from compaction by plant and machinery and mixing between different layers or different soil types. • Topsoil will be formed into low bunds no greater than 1 metre in height or width. • The duration of storage for topsoil will be as short as possible and storage bunds will be reviewed on a regular basis by the ECoW. Any additional measures to protect the condition of the materials (such as keeping them moist) will be implemented.
Biosecurity Measures		<p>The appointed contractor will include an appropriate Invasive Species Method Statement as part of the CEMP.</p> <ul style="list-style-type: none"> • The ECoW and all site personnel will remain vigilant to the presence of invasive plant species on site. • The ECoW will provide advice on identification where required. • The ECoW will check working areas prior to operations starting.

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<ul style="list-style-type: none"> Any areas found to contain invasive plant species will be clearly demarcated and the site manager will be informed of their presence. <p>The Client will implement a post-construction monitoring programme to enable treatment of any invasive species that establish within the receptor sites following the deposition of the spoil material.</p>
Construction Phase		
General	<p>HOLD POINT: Protective and reptile fence will be maintained throughout the duration of works. Any breaches of the fencing shall be repaired immediately. Contractor to check fencing daily and report conditions to ECoW. The breached area will be checked reptiles and amphibians (including GCN) presence, if any present will be recorded and relocated off site. If GCN is found, all works must be ceased and NRW contacted. Development European Protected Species (EPS) licence may be required for the work to continue (See Sections: Great crested newt (GCN) and Reptiles and Amphibians (excluding GCN)).</p> <p>Tip material will be transported to Receptor Site C using the designated haul route only. Once the material is deposited, the landform of RS-C will be shaped and profiled creating micro-topography within the landform, such as shallow approximately 300mm ripples within the plateaux and steps within the slopes of the landform (see Mitigation Strategy Plan for full details).</p> <p>ECoW to be present during topsoil and turf installation.</p> <p>Turf and topsoil reinstatement on the RS-C will be undertaken following the deposition of material, installation of the drainage system and profiling of the RS- C landform.</p> <p>Turves will be laid on to higher and flatter ground and steps of the RS-C and donor site RH01; topsoil will be reinstated within depressions and ripples within the micro-topography of the RS-C; within swales and attenuation areas of the drainage and donor site RH01 for natural regeneration.</p>	

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
<p>Habitat Replacement - Turf Reinstatement</p>	<p>RED Areas – High value (Dry-heath, mosaic of dry heath and acid grassland and acid/neutral flush with soft-rush habitats)</p>	<p>Turf reinstatement shall be undertaken as detailed below:</p> <ul style="list-style-type: none"> • This translocation method should be carried out by using the smallest machinery possible. • Turves shall be laid when the weather conditions are suitable (avoid translocation during prolonged rain, very dry and frosty weather). • Prior to turf translocation, the receiving surface shall be prepared by harrowing and to relieve compaction. Large stones/rocks shall be removed from the surface. • HOLD POINT: The tilth produced shall be approved by the ECoW prior to turf installation • The turves shall be laid on the prepared turf bed firmed into position similar to brick laying sequence – “stretcher bond”, according to the habitat and orientation (these details noted by the ECoW during the turf stripping). • The whole and less damaged turves should be used at the turving edges and margins. • Any gaps between the turves shall be filled with soil, stored separately from the turves. • The consolidation of the turves will be achieved by walking systematically over the turves. • The newly laid area shall be protected by rabbit proof fencing. Rabbit proof wire fence (approximate dimensions of over 1.0m in high with 30 mm hexagonal mesh 19 swg gauge) to be turned out (away from the habitat, dug into the ground to a depth of 300mm and backfilled with excavated material and topsoil. The netting shall be properly strained and stapled to outside posts and stakes with the netting at least 750mm above the ground.

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<ul style="list-style-type: none"> • Immediately after laying the turves shall be watered. The contractor shall be responsible for the adequate water supply and irrigation in the area throughout the construction and after-care period. • No fertiliser shall be used due to valuable habitat presence.
Habitat Replacement - Topsoil spreading	<p>AMBER Areas – Medium Value</p> <p>(Unimproved and semi-improved acid grassland, marshy grassland, dense bracken and mosaic of the scattered bracken semi-improved acid grassland habitat, scrub and areas near woodland)</p>	<p>The topsoil will be re-laid onto the RS-C in discrete habitat areas and left untreated to allow natural regeneration.</p> <p>The topsoil spreading must be carried out in a planned systematic way to ensure that the topsoil and turves are not damaged/ compacted or tracked over.</p> <p>Topsoil shall be loose tipped and spread to a depth of 100mm</p> <p>No topsoil operations will be allowed during adverse weather conditions such as:</p> <ul style="list-style-type: none"> • Prolonged heavy rain. • Pools of water within the RS-C • Frozen and/ or snow-covered ground
Aftercare		
General	<p>A five-year Aftercare Plan will be in place to monitor and ensure the establishment of the reinstated habitats as detailed in Mitigation Strategy Plan.</p> <p>Weeding, watering and invasive species control will be included in the Aftercare Plan:</p> <ul style="list-style-type: none"> • The contractor will be responsible for supplying adequate irrigation until heath plant species assemblage establishment. 	

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<ul style="list-style-type: none"> • Weed control of pernicious weeds (e.g. broadleaved dock (<i>Rumex obtusifolius</i>), creeping or field thistle (<i>Cirsium arvense</i>)) will be carried out by cutting and removal arisings from the site to prevent them to set seeds. • Bracken and scrub control will be in place if required. This will be done by strimming /cutting and arisings will be removed of site. • Extensive areas of grassland monoculture (particular Yorkshire fog (<i>Holcus lanatus</i>) or red fescue (<i>Festura rubra</i>) will be cut, and arisings will be removed from site. If the grass lawns became established and grass coverage is too dense, slight disturbance and density brakeage will be required to give a chance to heath plant species to get through the dense grass coverage. This could be done by ranking of the grass monoculture. • No soil ameliorant fertilisers and herbicides should be used within the site. • Biosecurity measures shall be followed by the contractor in the Invasive Species Method Statement (e.g. Himalayan balsam was identified on site). <p>It would be beneficial to fence the area until the heath establishment and to create a post with informative board with the site history and plans for the future to inform the public and wider audience.</p>
Protected and Notable Species		
Otter	<p>Indirect impact from pollution.</p> <p>Otter and their holts are protected under Conservation of Habitats and Species</p>	<p>Works within the main watercourse of Rhondda Fach are not anticipated, however indirect impact through pollution entering the drainage system of the tips and consequently the river should be avoided and standard best practice and pollution control measures will be implemented in accordance with relevant guidance (See Section Site-Wide General Working Practises).</p> <p>These measures will be detailed in the contractor's Construction Environmental Management Plan (CEMP).</p> <p>Silt prevention measures will be installed to prevent debris and sediment entering the watercourse and impacting the fish population.</p>

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
	<p>(Amendment) (EU Exit) Regulations 2019 and the Wildlife and Countryside Act 1981 (as amended).</p>	<p>No works will be carried out within 30m of the two otter resting holts identified on the river.</p> <p>Where possible the creation of any obstructions to established otter paths/access to open water will be avoided.</p> <p>Any exposed pipe systems near the river/ riverbanks will be capped when contractors are off site and exit ramps will be provided from any exposed trenches or holes (to prevent otters entering and becoming trapped).</p> <p>Working at night during the hours of darkness and within 1 hour after sunrise and 1 hour before sunset will be avoided to minimise disturbance of otters.</p> <p>If any additional lighting is required, for health and safety or security reasons, the location, specification and layout will be discussed with the ECoW.</p>
<p>Great crested newt (GCN)</p>	<p>Injury /death of a GCN and damage/destruction of GCN resting places and foraging terrestrial habitat.</p> <p>The GCN is a European protected species and is protected under the</p>	<p>It is unlikely that GCN are present on the site, however a precautionary approach should be taken when clearing scrub and grassland vegetation, as specified in Pre-construction Phase. Site preparation for Construction section in this document, and Reptile and Amphibian Site Clearance Method Statement and Mitigation Strategy Plan documents.</p> <p>Reptile fencing should be erected around the site and maintained daily throughout the works to exclude any accidental entrance to site, as specified in Reptile and Amphibian Method Statement. Any breached area will be checked reptiles and amphibians (including GCN) presence, if any present will be recorded and relocated off site.</p>

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
	<p>Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and protected under the Wildlife and Countryside Act 1981 (as amended) and it is illegal to deliberately capture, injure, kill, or disturb a GCN, take or destroy their eggs or damage or destroy a GCN breeding site or resting place.</p>	<p>Vegetation clearance will be carried out using a two-stage process as described in the Reptile and Amphibian Method Statement to maximise the chances of any GCN present leaving the area and moving to the suitable habitat that is being retained nearby.</p> <p>During any earthmoving works the topsoil will be carefully and systematically excavated and the ECoW will search for GCN as the work progresses.</p> <p>In the unlikely event that a GCN is found on site all works will cease and an appropriate licence will be sought from NRW. Works will only re-commence when the licence and associated method statement is in place.</p>
Bats	<p>Potential to disturb bats and their roosts which are protected under Conservation of</p>	<p>A number of mature trees were identified within and adjacent to the redline boundary, mainly within the western section of the slip and donor site. These are at TN 34 and TN35, (GC3613-RED-61-XX-DR-L-0016 - 0018 Tylorstown Landslip Phase 4. Phase 1 Habitat - plan 3 pages) to the north and west of the donor site respectively and within ancient woodland (AWI) adjacent to north and northwest of the redline boundary.</p>

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
	Habitats and Species (Amendment) (EU Exit) Regulations 2019 and the Wildlife and Countryside Act 1981 (as amended).	<p>It is not proposed to remove any mature broadleaved trees, however, if the proposal is changed, further investigation will be required (See Preconstruction Phase. Site preparation for Construction Section):</p> <ul style="list-style-type: none"> • No tree works to be undertaken until ECoW consulted and any necessary assessments made or licenses/consents obtained. • Additional inspection (Ground Level Tree Assessment- GLTA) to identify any trees with bat roost potential features. • Where trees are identified as having low potential to support roosting bats, they will be section-felled under ecological supervision. The felled material will be left on site for a minimum of 24 hours to allow any animals present to move away. • If, during the works, any trees are identified as having moderate or high potential for roosting bats, the trees will not be felled or limbed. The appropriate level of surveys will be carried out following published best practice guidelines. The results of these surveys will be used to inform an assessment of the impacts on the bat species identified, any mitigation/compensation measures and any requirement for a licence. <p>No work will be carried out at night ensuring that foraging bats are not disturbed, and that their flight lines are not severed by artificial lighting.</p> <p>If any additional lighting is required, for health and safety or security reasons, the location, specification and layout will be discussed with the ECoW.</p> <p>Should a bat or bat roost be identified, then works in the area will cease and a licensed bat ecologist consulted. An appropriate license will then be sought from NRW.</p>

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
Badger	Disturbance, injury or death of badgers and/or disturbance or destruction of a sett. Badgers and their setts are protected in the UK under the Protection of Badgers Act 1992.	<p>A pre - construction check 100 m either side of works sites and compounds immediately prior to construction to find whether any badger setts have been established (See Preconstruction Phase. Site preparation for Construction section).</p> <p>The ECoW will remain vigilant for evidence of badger activity and the presence of badger setts in the vicinity of the works.</p> <p>If an active badger sett is identified no works can be carried out within 30m of the sett.</p> <p>If works are required within 30m of the sett an appropriate licence will be sought from NRW and works in that area can only commence if and when the licence is granted.</p> <p>Food must be disposed of properly to avoid attracting badgers onto the site.</p> <p>Trenches or holes will be covered overnight and when site workers are not on site or exit ramps will be provided.</p>
Breeding birds	Intentional damage or destruction of the nest of any wild bird while it is in use or being built and/or destruction	All site operatives will receive a toolbox talk delivered by the ECoW prior to the commencement of work on site. The talk will cover the possible location of bird nests and actions to be taken should a nest be unexpectedly discovered.

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
	<p>of eggs of any wild bird.</p> <p>is an offence under the Wildlife and Countryside Act 1981 (as amended)</p>	<p>Works will be carried out in such a way as to ensure that no birds, eggs or active nests are damaged or destroyed (See Preconstruction Phase. Site preparation for Construction section in this document).</p> <p>The following recommendations are made in order of preference. The chosen option will be outlined in CEMP.</p> <p>Option 1—All site clearance activities are undertaken outside of the breeding bird season</p> <p>All site preparation (vegetation removal, topsoil stripping etc) and construction activities will be undertaken between September and February inclusive to avoid the main bird breeding season i.e. March to August inclusive. This is the most effective way of avoiding impacts and meeting legal requirements.</p> <p>Option 2- Partial site clearance activities undertaken during the bird breeding season</p> <p>The vegetation clearance (tree, brush removal) will be undertaken outside the bird breeding season i.e. September to February inclusive.</p> <p>Removing all cut material from site and maintaining the cleared area of any brush and scrub make it unsuitable for the breeding birds.</p> <p>Ground nesting birds</p> <p>During the bird breeding season (March to August inclusive) the ECoW will check the area for nesting birds 48 hours prior to any construction activities and earth-moving works (turf/ topsoil stripping).</p> <p>If no nesting birds are identified within the area, works can proceed but if nesting is confirmed a species-specific 'no works zone' of undisturbed habitat will be established (to be determined by the ECoW but no less than 5 m) until the nest is no longer active.</p>


Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<p>Active nests will be checked on a regular basis and clearance within the exclusion zone will only be permitted when the ECoW is satisfied that the nest is inactive.</p> <p><i>Option 3 - Site clearance during the bird breeding season</i></p> <p>An ECoW will check the area for nesting birds 48 hours prior to any activities on site (vegetation clearance, turf/topsoil removal etc.).</p> <p>The works can only proceed if no nesting birds are identified within the area of the proposed works.</p> <p>If a nest is found a species-specific 'no works zone' of undisturbed habitat will be established (to be determined by the ECoW but no less than 5 m) until the nest is no longer active.</p> <p>Active nests will be checked on a regular basis and clearance within the exclusion zone will only be permitted when the ECoW is satisfied that the nest is inactive.</p> <p>WCA Schedule 1 Bird Species</p> <p>If Schedule 1 bird species are found to be nesting or constructing nests within 30 m of the scheme at any time during the development a risk assessment would be required to determine the likelihood of birds being disturbed by the construction activities and also to determine the appropriate extent of the exclusion zone. Any exclusion zone would need to be maintained until the end of the breeding season.</p> <p>Common crossbill (WCA Schedule 1 bird species) possibly breed in the forestry plantation 100 m east of the receptor site and this species often commences breeding early in the calendar year.</p> <p><i>Siting of plant, compounds and access routes</i></p>

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<p>Some species recorded as breeding close to the proposed receptor site (e.g.) meadow pipit and skylark have specific breeding habitat requirements and are likely to return to the same areas to breed in subsequent seasons. Optimal habitat for these species will be retained where possible. An ECoW with ornithological experience should be consulted prior to any construction of access routes, siting of plant, machinery or compounds to minimise loss or disturbance to suitable breeding habitat for the above species.</p>
<p>Reptiles and amphibians other than GCN)</p>	<p>Loss of habitats suitable to support reptiles and amphibians.</p> <p>Killing or injuring common reptiles is an offence under the Wildlife and Countryside Act 1981 (as amended).</p>	<p>See GCN Section. More detailed information is specified in the separate Reptile and Amphibian Site Clearance Method Statement.</p> <p>The programme will ensure that once cleared, the receptor areas do not recolonise with vegetation to become reptile 'suitable' and appropriate on-going management will be employed until the remediation works commence.</p>
<p>Fish</p>	<p>Injury and/or death of fish indirectly through pollution of the river channel, disturbance of feeding sites and spawning grounds. Some fish species in Welsh rivers are protected by the</p>	<p>Works within the main watercourse of Rhondda Fach are not anticipated, however indirect impact through pollution entering the watercourse from the drainage system on the tips will be avoided and standard best practice and pollution control measures will be implemented in accordance with relevant guidance (e.g. CIRIA, 2001 and Environment Agency (2018) Guidelines for Pollution Prevention (GPP), particularly GPP 5). These measures will be detailed in the contractors Construction Environmental Management Plan (CEMP).</p> <p>Silt prevention measures will be installed to prevent debris and sediment entering the watercourse and impacting the fish population (see Section Site-Wide General Working Practises).</p>

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
	<p>Wildlife and Countryside Act 1981 (as amended) and / or Schedule 4 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.</p> <p>Brown trout (<i>Salmo trutta</i>) are present in the Rhondda Fach and a priority species afforded protection under the Environment (Wales) Act 2016.</p>	
<p>Priority invertebrate species e.g. large grayling butterfly, mottled grasshopper, dark green fritillary, small pearl-bordered fritillary and high brown fritillary butterflies</p>	<p>Loss of habitats (such as heath, acid grassland and violet rich banks) that support, or have potential to support, breeding populations of priority invertebrate</p>	<p>Turf and topsoil will be stripped and stored on site to be used to re-instate the habitat following clearance and deposition of spoil material on the site. This will be undertaken in accordance with timings and methodology indicated for the relevant habitats in this document and Mitigation Strategy.</p>

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
	species protected under Section 7 of the Environment (Wales) Act.	
Well-established anthills	Loss of habitat and direct mortality. County feature for SINC designation	Avoidance is required where possible, if the avoidance is not feasible translocation together with the appropriate habitat is required.
Small mammals (other than dormice)	Potential for hedgehogs and other small mammals to be killed or injured by machinery and for burrowing mammals (e.g. rabbit) to be accidentally crushed or asphyxiated during any excavation works causing an offence under the Wild Mammals (Protection) Act 1996.	<p>The ECoW will search areas of vegetation for hedgehogs and other small mammals prior to clearance commencing.</p> <p>Rabbit burrows will be temporarily fenced off and the entrances soft stopped with grass overnight. The ECoW will check the following morning, prior to destruction, to ascertain whether the burrow is in use.</p> <p>If the burrow is in use, it will be dug out with hand tools or a mini digger under ecological supervision to ensure no animals are harmed.</p> <p>Where excavation of land is required the topsoil will be carefully and systematically excavated and the ECoW will search for small mammals as the work progresses.</p> <p>Any small mammals found on site, will be translocated from the construction zone into adjacent suitable habitat.</p> <p>Any potential refugia (i.e. piles of stone or rubble, log piles, the stone wall on site will be dismantled by hand</p>

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<p>under ECoW supervision, as a part of Reptiles and Amphibians Clearance Method Statement.</p> <p>Following clearance of the site, reptile mats will be placed around the site periphery and checked regularly to ensure any small mammals remaining on the site are captured and moved to suitable, adjacent habitat (See Reptiles and Amphibians Clearance Method Statement).</p>
Bluebell (<i>Hyacinthoides non-scripta</i>)	Disturbance and loss of bluebells. Digging up bluebell plants or bulbs is an offence under the Wildlife and Countryside Act (1981).	Topsoil containing seedbank will be stripped, stored and reinstated within an appropriate habitat on the work completion.
Ivy-leaved bell flower	Nationally Scarce, listed on Local Biodiversity Action Plan	Notable/protected species (e.g. ivy-leaved bellflower TN25, GC3613-RED-61-XX-DR-L-0016 - 0018 Tylorstown Landslip Phase 4. Phase 1 Habitat - plan 3 pages) will be translocated into suitable receptor habitats on the site (Figure 5) together with acid/neutral flush, as specified in Mitigation Strategy Plan.

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
		<p>Figure 5: Translocation of the Acid/neutral flush and Ivy-leaved bell flower at TN 5 and TN 25 in to the near-by appropriate habitat</p>  <p>The map shows a drainage network with a 'new drainage design' highlighted in blue. Several translocation points are marked with circles and labeled: TN24, TN5, TN25, TN26, TN8, TN12, and TN1. Two black arrows point from TN5 and TN25 towards a green-hatched area, indicating the translocation of species to a nearby habitat. A purple-shaded area is also visible on the right side of the map.</p>
<p>Lower Plants</p>	<p>Two notable species were recorded at the site: the: nationally scarce <i>Scapania lingulata</i> (a small liverwort), possibly</p>	<p>To retain the areas of open habitats as far as practical, if it is not practicable to protect the track which has <i>Scapania lingulate</i>, new open habitats will be created where possible to benefit <i>Scapania lingulate</i>: some areas of spoil will be allowed to rest as heaps, or one steep-sided heap rather than as a flat expanse of soil. Without periodic disturbance the bare-ground habitat will be lost. Retention or creation of open habitats at the site is the best way of conserving such species. The locations will be indicated by the ECoW during restoration.</p>

Ecological Interest Feature	Colour Coded Level of Risk to Ecological Interest (See Figure 5)	Mitigation/Working Practices Required measures
	<p>the first record for the species in Glamorgan.</p> <p><i>Lecidea promixta</i> is a Nationally Scarce lichen.</p>	<p><i>Lecidea promixta</i> needs recently exposed surfaces and disturbed ground as well.</p> <p>Ground pollution events will be prevented by measures outlined in the CEMP. No fertiliser or herbicide shall be used during the Aftercare restoration period and the use of any chemical substances will be prohibited in the long-term management Plan.</p>

Drawings:

GC/003613-RED-74-XX-DR-L-0002- Designated Sites Map

GC3613-RED-61-RSC-DR-C-0005 – Phase 4 - Constraint Prioritisation Plan

GC3613-RED-61-XX-DR-L-0016 - 0018 Tylorstown Landslip Phase 4. Phase 1 Habitat - plan 3 pages

Associated documents:

Redstart, 2020, RCT Tylorstown Landslide Phase. Phase 1 Habitat Survey Report. December 2020.

Redstart, 2020, Tylorstown Tips Remedial Works Phase 2 and 3 Otter and Badger Survey Technical Note

Redstart, 2020, GC3613-RED-74-XX-RP-L-009 Tylorstown Breeding Bird Report.

Redstart, 2020, GC3613-RED-74-XX-RP-L-008 - RCT Tylorstown Phase 4 Badger Report

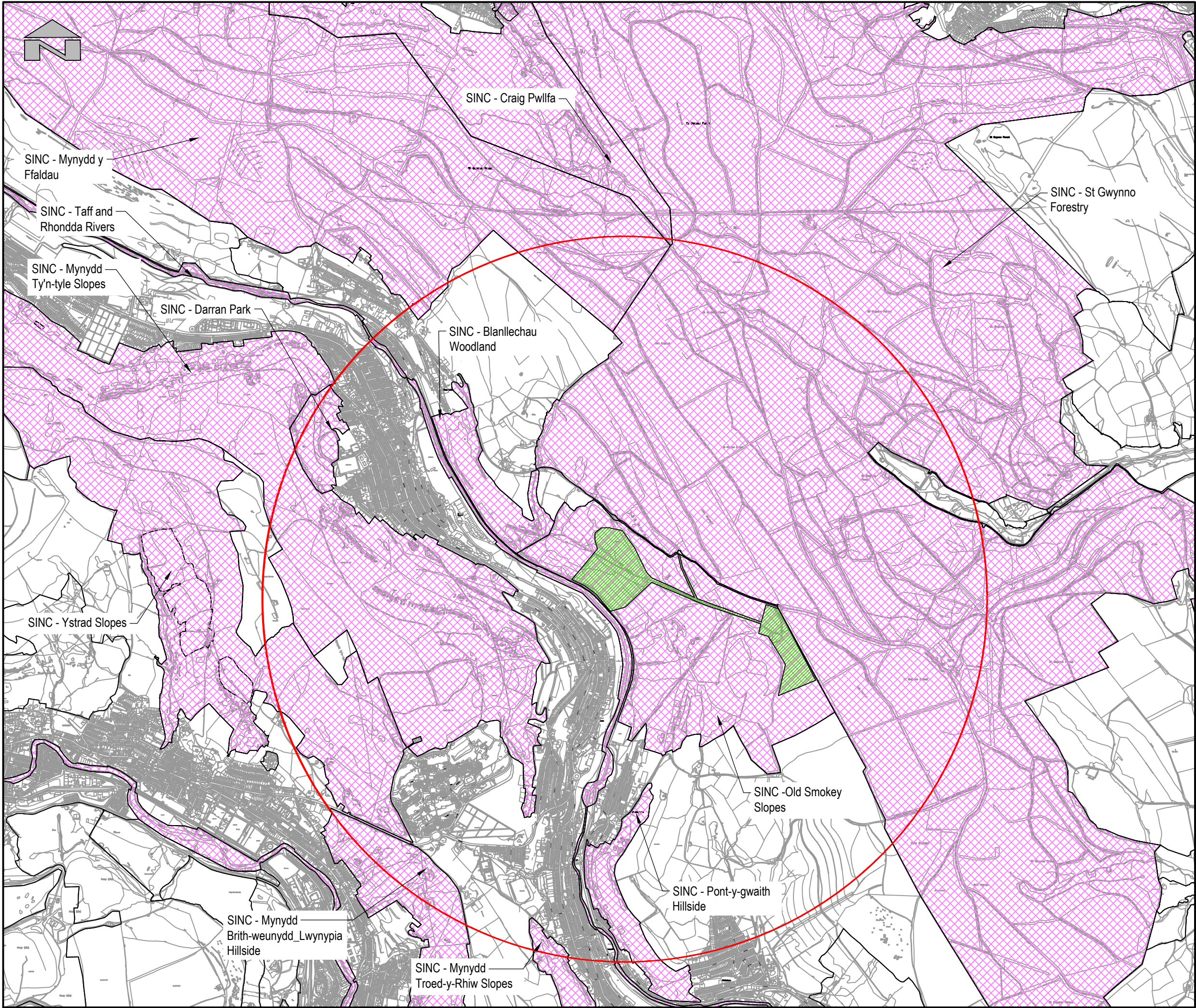
Redstart, 2020, GC3613-RED-0074-XX-RP-L-0006 P003 -Tylorstown GCN eDNA Technical Note

Redstart, 2020, GC3613-RED-0074-XX-RP-L-0007-Lower Plant Survey Report

Redstart, 2021, GC3613-RED-74-XX-RP-L-0011Tylorstown Wintering Bird Report.

Redstart, 2021 GC3613-RED-74-XX-RP-L-0015 Tylorstown Landslip Phase 4. Reptile and Amphibian Method Statement.

Redstart, 2021 GC3613-RED-74-XX-RP-L-0016 Tylorstown Landslip Phase 4. Mitigation Strategy Plan



Key:

- 2km Radius
- Site of Important Nature Conservation
- Site Location

Trwydded yr Arolwg Ordnans 100023458
 Ordnance Survey Licence 100023458

Rev	Dwn	Chkd	App'd	Description	Date
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Purpose of Issue
S2 - Suitable for Information

Classification
Commercial in Confidence

Client
**Rhondda Cynon Taf
 County Borough Council**

Project
Tylorstown Landslide

Drawing
Designated Sites Map

Scale @ A3	Drawn	Checked	Approved
1:20,000	EM	EC	EC

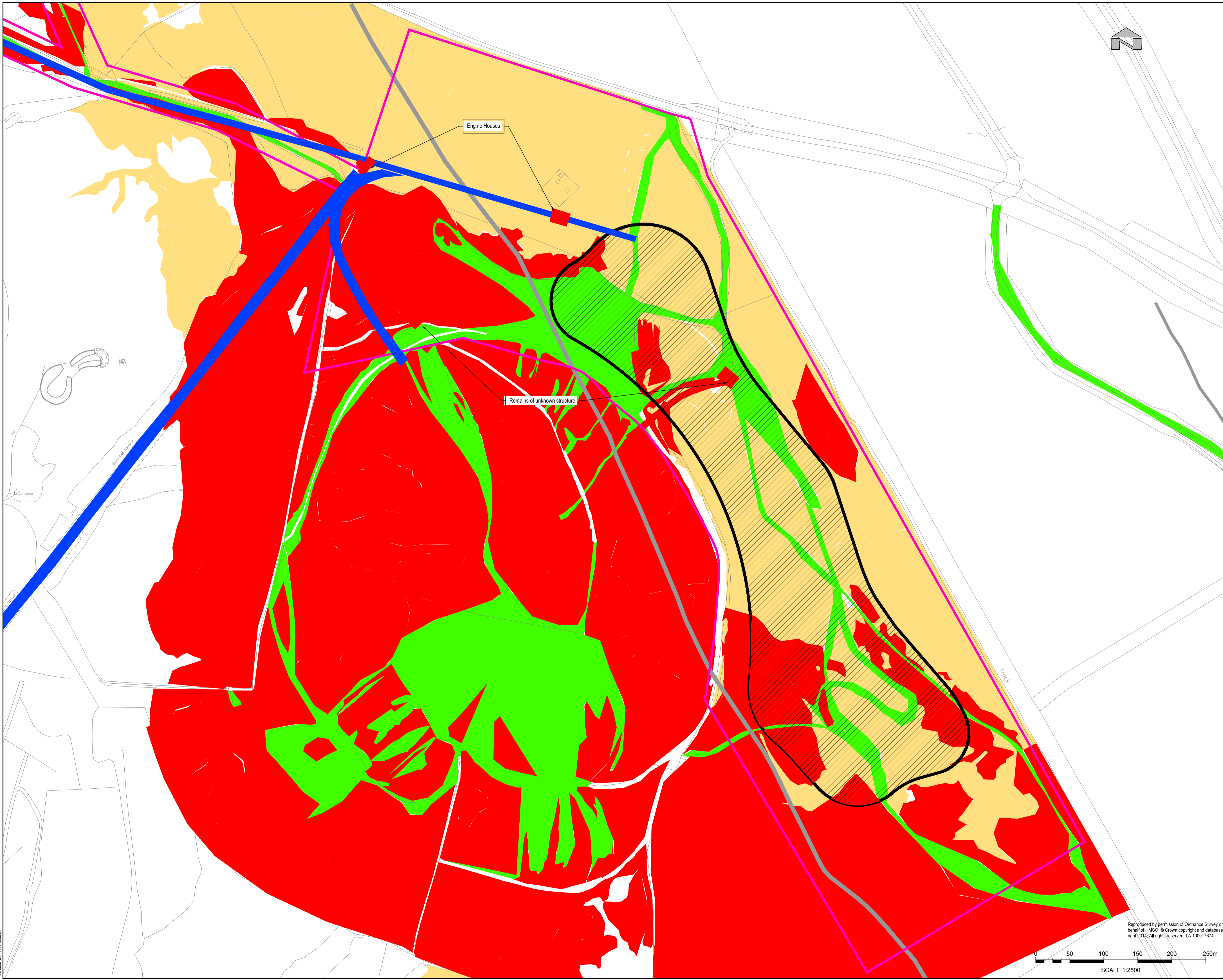
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GC/003613	October 2020

Drawing Identifier	BS1192 Compliant
Project - Originator - Zone - Level - File Type - Role - Number	rev
GC3613-RED-74-XX-DR-L-0002	P01



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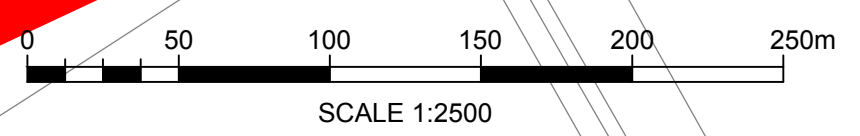
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- Key:
- Phase 4 Planning Boundary
 - Proposed Receptor Site C - agreed mitigation within receptor site
 - Area 1 Priority Habitats (the most biodiverse)- to avoid
 - Area 2 Priority Habitats - to avoid as far as possible
 - Area 3 - Bare ground - to utilise for works as far possible
 - Heritage Features - Avoid impacts as much as reasonably possible. However, if impacted, can be mitigated through pre-commencement surveys and recording.
 - Public Rights Of Way

Rev	Drawn	Checked	Approved	Description	Date
Purpose of Issue					
S0 - Work in Progress					
Classification					
Confidential					
Client					
Rhondda Cynon Taf County Borough Council					
Project					
Tylostown Landslide					
Drawing					
Phase 4 Constraint Prioritisation Plan					
Scale @ A1					
1:1000		Drawn		Checked	
		MH			
Project No.					
GC/3613				Date	
				January 2021	
Drawing Identifier					
Project - Originator - Zone - Level - File Type - Role - Number					BS1192 Compliant
GC3613-RED-61-RSC-DR-C-0005					revision
					P01.1

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REDSTART

18/01/2021

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- KEY:**
- Red Line Boundary
 - Receptor Site C
- A - Woodland and scrub**
- Woodland Broad-leaved Semi-natural (A1.1.1)
 - Woodland Coniferous Plantation (A1.2.2)
 - Scrub Dense/continuous (A2.1)
 - Scattered trees Broad-leaved (A3.1)
 - Scattered trees Coniferous (J3.2)
- B - Grassland and marsh**
- Acid grassland Unimproved (B1.1)
 - Acid grassland Semi-improved (B1.2)
 - Marsh/marshy grassland (B5)
- C - Tall herb and fern**
- Bracken Continuous (C1.1)
 - Bracken Scattered (C1.2)
- D1 - Heathland**
- Dry heath (D1)
 - Dry heath/acid grassland mosaic (D5)
- E - Mire**
- Bog Sphagnum bog Raised bog (E1.6.2)
 - Flush and spring Acid/neutral flush (E2.1)
- G - Open water**
- Standing Water (G1)
 - Rhondda Fach River
- J - Miscellaneous**
- Buildings / Hardstanding (J3.6 / J5)
 - Bare ground (J4)
 - Wall (J2.5)
 - Ditch/Drain
 - Slip
 - Target Note

Rev	Drawn	Chkd	App'd	Description	Date
01	SH	OK	RT	Created	07/04/2020

Purpose of Issue
S2 - Issued for Information

Classification
Commercial in Confidence

Client
**Rhondda Cynon Taf
County Borough Council**

Project
Tylorstown Landslip Phase 4

Drawing
Phase 1 Habitat - plan 1 of 3

EIA Drawing Ref
V2-S09-0001

Scale @ A3	Drawn	Checked	Approved
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Project No	Date
CS100303	07/04/2021

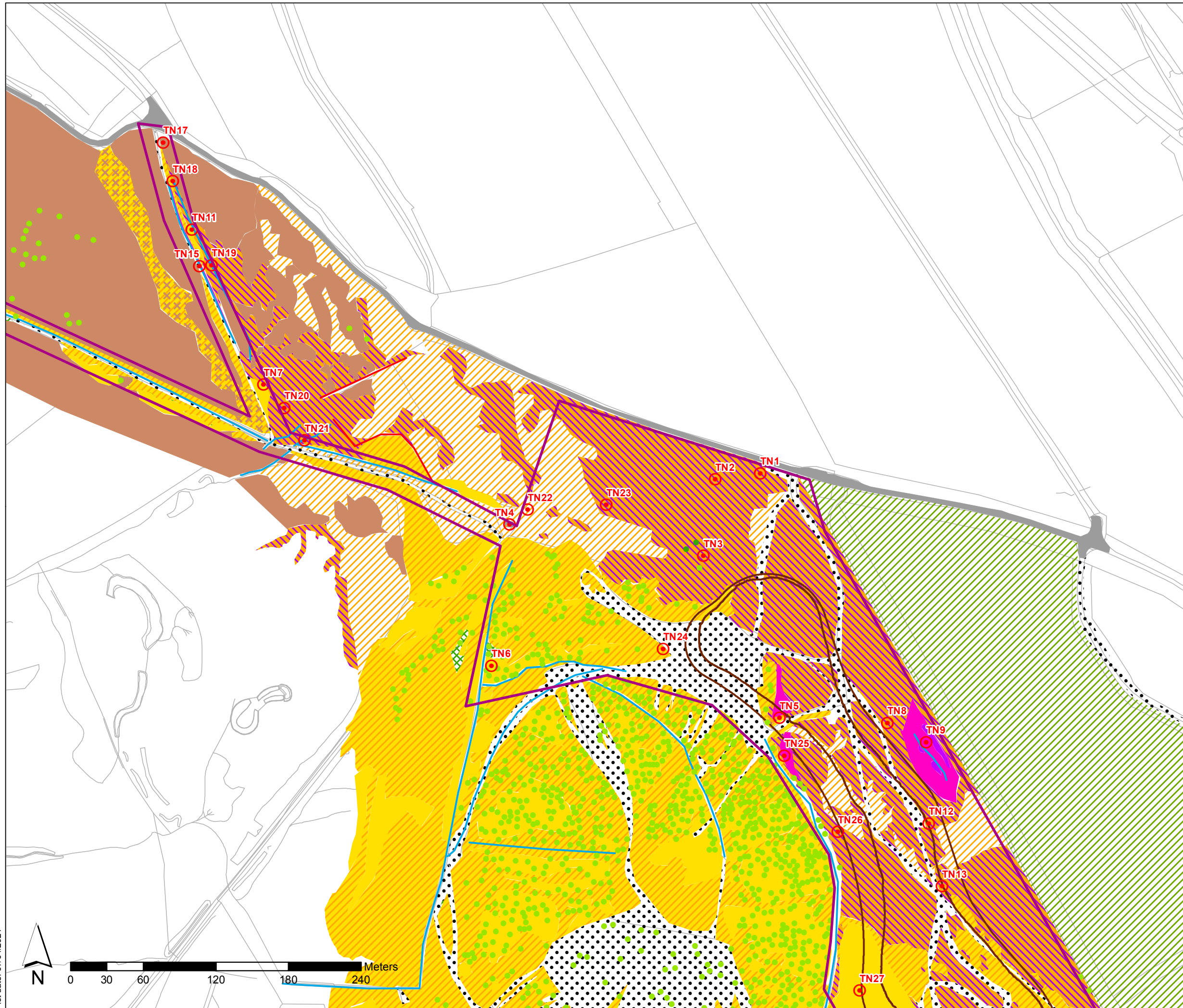
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Plot date: 07/04/2021



- KEY:**
- Red Line Boundary
 - Receptor Site C
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 - Bare ground (J4)
 - Wall (J2.5)
 - Ditch/Drain
 - Slip
 - ⊙ Target Note

Rev	Drawn	Chkd	App'd	Description	Date
01	SH	NH	RT	Created	07/04/2020

Purpose of Issue
S2 - Issued for Information

Classification
Commercial in Confidence

Client
**Rhondda Cynon Taf
 County Borough Council**

Project
Tylorstown Landslip Phase 4

Drawing
Phase 1 Habitat - plan 2 of 3

EIA Drawing Ref
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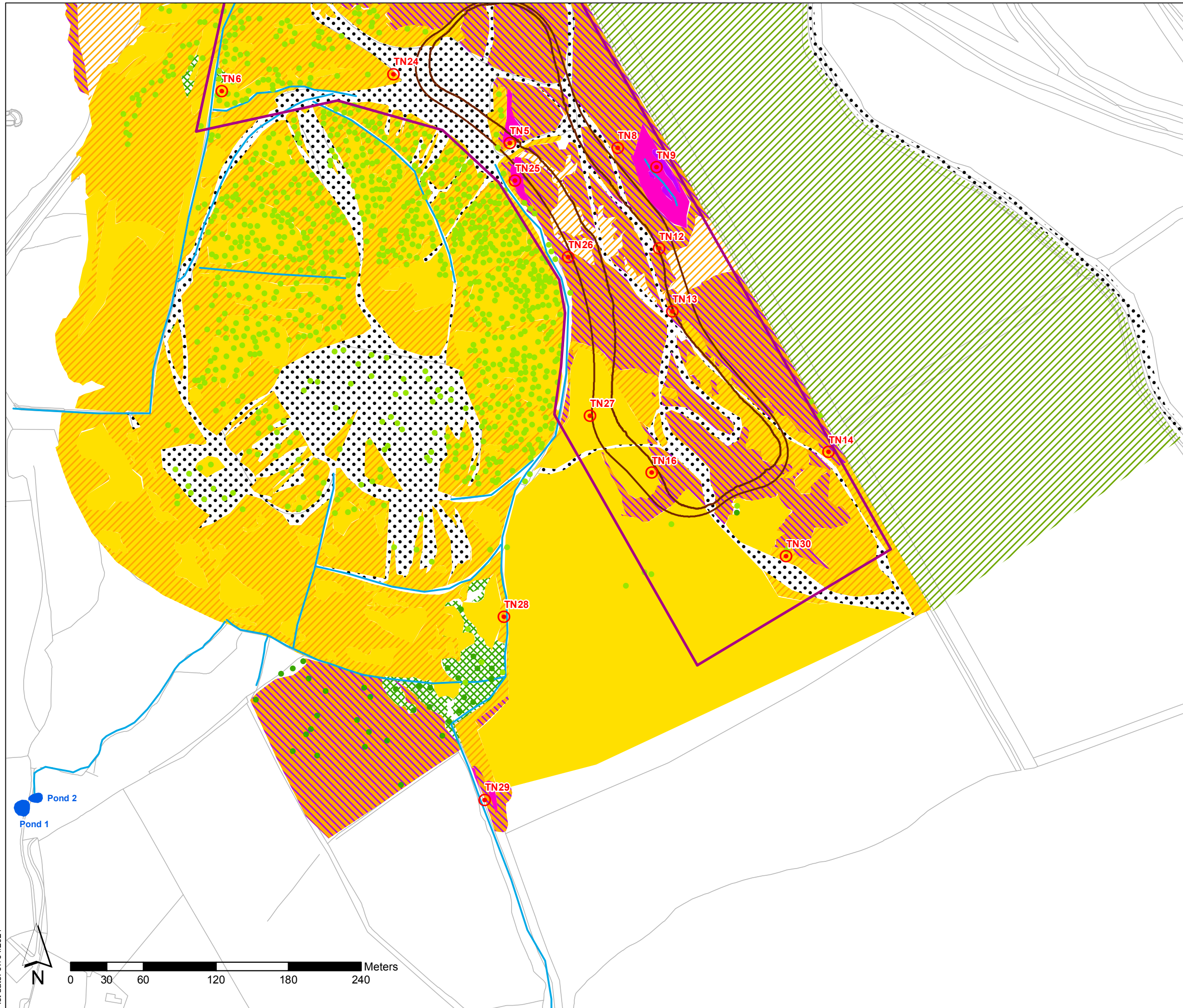
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CS100303	07/04/2021

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Plot date: 07/04/2021



- KEY:**
- Red Line Boundary
 - Receptor Site C
 - A - Woodland and scrub**
 - Woodland Broad-leaved Semi-natural (A1.1.1)
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Rev	Drawn	Chkd	App'd	Description	Date
01	SH	NH	RT	Created	07/04/2020

Purpose of Issue
S2 - Issued for Information

Classification
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Client
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Project
Tylorstown Landslip Phase 4

Drawing
Phase 1 Habitat - plan 3 of 3

EIA Drawing Ref
V2-S09-0003

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Project No	Date
CS100303	07/04/2021

Drawing Identifier
 Project - Originator - Zone - Level - FileType - Role - Number Revision
GC3613-RED-61-XX-DR-L-0018 P01.1



Plot date: 07/04/2021



Appendix 9.7

Biodiversity Mitigation Strategy

RCT Tylorstown Landslip Remedial Works – Phase 4

BIODIVERSITY MITIGATION STRATEGY

August 2021



CLIENT: Rhondda Cynon Taf County Borough Council
ISSUE DATE: August 2021

**RCT Tylorstown Landslip Remedial Works - Phase 4
 Biodiversity Mitigation Strategy**

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CHECKER	Janine Burnham	Principal Ecologist	16/08/2021
APPROVER	Geraint Pitman	Associate Director	18/12/2021

**ISSUE
RECORD**

REV	DATE	DESCRIPTION/COMMENTS	AUTHOR/ PREPARED	APPROVED FOR ISSUE BY:
P01	18/08/2021	Report Issued	O. Krylova	G.Pitman

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Whilst care has been taken in the construction of this report, the conclusions and recommendations which it contains are based upon information provided by third parties ("Third Party Information"). Redstart has for the purposes of this report relied upon and assumed that the Third Party Information is accurate and complete and has not independently verified such information for the purposes of this report. Redstart makes no representation, warranty or undertaking (express or implied) in the context of the Third Party Information and no responsibility is taken or accepted by Redstart for the adequacy, completeness or accuracy of the report in the context of the Third Party Information on which it is based.

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Drawings

GC3613-RED-74-XX-DR-L-0002_S2 P01 - Tylorstown Landslip Phase 4. Designated Sites

GC3613-RED-61-XX-DR-L-0016 - 0018 Tylorstown Landslip Phase 4. Phase 1 Habitat

GC3613-RED-61-SK-DR-C-0005 – Tylorstown Landslip Phase 4. Constraint Prioritisation Plan

1. Introduction

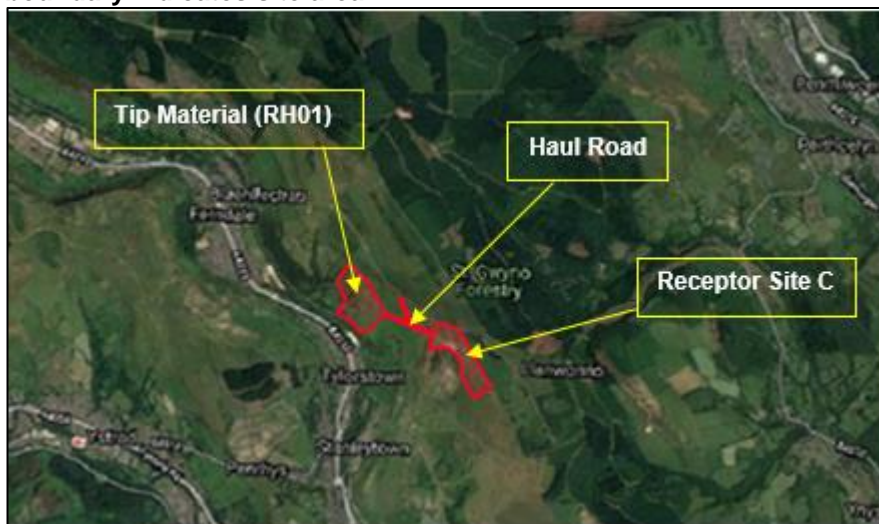
Redstart was commissioned by Rhondda Cynon Taf County Borough Council (RCTCBC) to produce a Mitigation Strategy Plan for the impacts upon the Old Smokey Site of Importance for Nature Conservation (SINC), protected species and habitats potentially caused by the proposed remediation works of the removal of the Tylorstown Tip material (RH01) to an alternative safer receptor site behind Llanwonno Tip ('Old Smokey'), referred as the Phase 4 (the Proposed Scheme) of the Tylorstown Tip Project.

A number of surveys were carried out to identify any ecological constraints related to the proposed development and this report outlines details of the proposed mitigations strategy to decrease the impacts on the non-statutory designated site Old Smokey SINC and its designated features, Ancient Woodland, Priority Habitats and protected and notable species, where appropriate to inform the planning process.

1.1 Site Description

The Proposed Scheme is located to the east of Tylorstown, within the steep sided Rhondda Fach valley, in the County Borough of Rhondda Cynon Taf, South Wales (Figure 1). The valley sides are covered mainly by fridd habitat, containing a mosaic of small parcels of semi-natural broadleaved woodland, scrub, dry heath and acid grassland on the steep slopes, and marshy grassland with areas of conifer plantations at higher elevations. The site is located within historic collieries, where natural features and deposited colliery material landforms are present.

Figure 1: Photograph of site adapted from Google Earth (Google Earth, 2019). Red boundary indicates site area



Background of the Project

On Sunday 16th February, Storm Dennis caused the Llanwonno Upper Tip to fail above the town of Tylorstown. Approximately 28,000 m³ of slipped material filled the valley bottom blocking the River Rhondda Fach's channel and diverting its course to the western side of the valley bottom. Emergency works (referred to as Phases 2 and 3 of the Tylorstown Tips scheme) have been required to remove the slipped material from the river and valley bottom and transport it to nearby receptor sites.

The next stage of the Proposed Scheme Phase 4 consists of making the remaining slip material safe, as well as creating ecological, landscape and community enhancements for the area.

1.2 Proposed Works

The permanent footprint of the scheme will be approximately 4.4ha (based on the current preferred option. (Figure 1)).

The proposed works for Phase 4 are comprising of the following:

- Removal of circa 160,000 m³ of tip material still present on the hillside and landscaping the area following removal;
- Transport of the material along a disused tramway to the adjacent Phase 4 receptor site (Receptor Site C (RS-C));
- Widening of the existing tramway to allow access for trucks and plant between the Tylorstown Tip (RH01) and the Phase 4 receptor site (RS-C); and
- Landscaping the Phase 4 receptor site (RS-C).

The remedial works will take approximately 170 days (including site clearance) and will take place from spring to mid-Autumn months (End of April – Mid-October 2022).

1.3 Roles and Responsibilities

All parties involved in the delivery of the Proposed Scheme (including the Local Authority, contractors and designers) have an obligation to manage the works to ensure that current wildlife legislation is not contravened; that current good practice guidelines are followed, and that biodiversity is considered at all stages throughout the duration of the project. This will be achieved through carrying out the works in accordance with the timings and methodologies detailed in this Biodiversity Mitigation Strategy Plan, the associated Ecological Method Statement, Reptiles and Amphibians Clearance Method Statement and the: Biodiversity and Construction Environment Management Plan (CEMP)

Ecological support during the Proposed Scheme will be provided by an appointed Ecological Clerk of Works (ECoW), who will oversee and quality-control the implementation of the ecological mitigation measures undertaken by the Contractor or sub-contractors during the Pre-construction and Construction stage of the Proposed Scheme.

The process will be controlled by the incorporating the certification procedure - Environmental Monitoring and Implementation (EM&I) Certificate into CEMP. The EM&I Certificate will be signed off by ECoW ensure that the Ecological Method Statement is implemented within CEMP.

The ECoW will also have the following duties: to conduct toolbox talks or other ecological briefings; to advise, liaise with the Principal Contractor; to keep the records of any protected / notable species encounter on site, site activities of the supervision, to undertake any monitoring or species surveys as appropriate.

The ECoW will be suitably qualified for the undertaken role and have relevant certifications.

1.4 Ecological Constraints

A desk-based review of existing information and the results of early ecological surveys have concluded that the site is of high ecological value. The main constraint to works is the presence of Priority Habitats under Section 7 of the Environment (Wales) Act 2016 within the Old Smokey Slopes Site of Importance for Nature Conservation (SINC), in which the site is located. The ecological constraints are collated in the Table 1.

Table 1: Summary of the constraints identified within the proposed works on site.

Constraints	Locations	Nature Conservation Status/Level	Proposed works impact
Old Smokey SINC	On site	County	Direct impact through permanent habitat loss and inadvertent construction vehicles “trespass”; indirect impacts through habitat degradation, hydrological changes, potential pollution from construction; disturbance.
Priority Habitats: Upland oak woodland, River Rhondda Fach, Inland rock- open mosaic habitats on previously developed land, Inland rock outcrop and scree habitats, Lowland/Upland acid grassland, Upland dwarf shrub heath, Purple moor-grass and rush pastures; and Upland flushes, fens and swamps	On site	Regional	Direct impact through permanent habitat loss and inadvertent construction vehicles “trespass”; indirect impacts through habitat degradation, hydrological changes, potential pollution from construction; disturbance.
Ancient Woodland	Adjacent to the northwest and	Regional	Direct Impact on the trees and root protection zone.

Constraints	Locations	Nature Conservation Status/Level	Proposed works impact
	west of the landslide.		
Other county level habitats: ffridd; gorse scrub, colliery tip.	On site	County	Direct impact through permanent habitat loss and inadvertent construction vehicles “trespass”; indirect impacts through habitat degradation, hydrological changes, potential pollution from construction; disturbance.
Presence of protected species (including reptiles, breeding birds and foraging bats,)	On site	County	Direct (injury, death) and indirect (e.g. disturbance, habitat loss)
Presence of species of local importance (including palmate newt and hedgehog)	Possibly within the site	County	Direct (injury, death) and indirect (e.g. disturbance, habitat loss)
Presence of invasive plants (Himalayan balsam)	On the haul road and adjacent to the west and east of the haul road.	N/A	Unlawful spreading
Ecological issues which have not yet been fully identified/confirmed (arboricultural constraints/considerations).	On site	County	Possibly indirect (e.g. disturbance, habitat loss)

1.4.1 Designated Sites

Statutory Designated Sites

No nationally or internationally protected statutory designated sites (i.e. Sites of Special Scientific Interest (SSSIs) or Special Areas of Conservation (SACs)) lie within 2 km of the proposed development site. No statutory designated sites for bat species were identified within 5km of the Scheme.

Non-statutory Designated Sites

There are 10 non-statutory designated sites (e.g. Sites of Importance for Nature Conservation (SINCs)) within 2 km of the Proposed Scheme. (Drawing GC3613-RED-74-XX-DR-L-0002_S2). The four most relevant and closest to the proposed Scheme are detailed below:

- Old Smokey Slopes SINC - Encompasses the area of the Proposed Scheme.
- St. Gwynno Forest SINC - Adjacent to the east of the RS-C of the Proposed Scheme area.
- Blaenllechau Woodland SINC – Approximately 115m to the north-west of the closest point of the redline boundary of the Proposed Scheme.
- Taff and Rhondda Rivers SINC - Adjacent to the west of the landslide area of the RH01.

Evaluation of the biodiversity resources identified within the SINC are summarised in Table 2.

Table 2

Biodiversity Resource	Value	Justification
Old Smokey Slopes SINC	Medium (County)	<p>The SINC comprises an extensive area of mosaic ffridd habitat which supports diverse acid grassland and dry heath habitats based partly on natural ground and partly on coal spoil.</p> <p>Colliery spoil sites support high levels of diversity by providing a combination of varied topography, aspect, substrate composition, hydrology and pH, which results in complex habitat mosaics in close proximity.</p> <p>County level SINC quality habitats assessed by RCT with importance Priority Habitats were also identified in relation to Wales (Section 7, Environmental (Wales) Act 2016).</p>
St. Gwynno Forest SINC	Medium (County)	<p>The SINC comprises a diverse range of habitats including dry heath and acid grassland, marshy grassland and small areas of relic ancient woodland (Coed Aberaman) with an extensive area of Forestry Commission plantation that is known to support rare bird species (crossbill, redpoll, goshawk, great grey shrike and breeding nightjar).</p>
Taff and Rhondda Rivers SINC	Medium (Regional)	<p>The banks of the Rhondda (and Rhondda Fach) are flanked with wet woodland and other associated river habitat supporting a diverse assemblage of flora and fauna, including ancient woodland. The clean waters support fish (brown trout and potentially salmon) and invertebrates, and there is a high diversity of bird species associated with the habitats.</p> <p>County level SINC quality habitats assessed by RCT.</p>

Biodiversity Resource	Value	Justification
		Regional level importance Priority Habitats were also identified in relation to Wales (Section 7, Environmental (Wales) Act 2016).
Blaenllechau Woodland SINC	Medium (Regional)	Upland ancient oak woodland, wet woodland dry heath (heather and bilberry) and bracken/acid grassland and purple moor-grass support very large grayling butterfly and mottled grasshopper colonies; violet rich banks likely to support breeding dark green fritillary and high brown colonies, which occurs in the vicinity.

Priority Habitats

Eight Priority habitats were identified during the Phase 1 Habitat survey (Redstart,2020a) (Drawing GC3613-RED-61-XX-DR-L-0016 - 0018) within the redline boundary, including upland dwarf shrub heath, lowland/upland acid grassland, purple moor-grass and rush pastures and upland flushes, fens and swamps. upland oak woodland, rivers, inland rock- open mosaic habitats on previously developed land, inland rock outcrop and scree habitats.

The codes for Priority habitats, Phase 1 habitat survey habitat descriptions and their location in relation to the Proposed Scheme are shown in the Table 3. All target notes should be read with reference to Drawing GC3613-RED-61-XX-DR-L-0016 - 0018.

Table 3: Correlation between codes for Priority Habitats and Phase 1 Habitat survey. The habitats value and locations.

Priority Habitats code	Phase 1 Habitat Related code	Value	Justification	Location
Upland dwarf shrub heath	D1.1 Acid dry dwarf shrub heath (Dry heath for short here in the report) and D5 Dry heath/ acid grassland mosaic	Medium (Regional)	These habitats are S.7 Priority Habitats under the Environment (Wales) Act 2016. They are valuable habitats within the Old Smokey Slopes SINC due to the diversity of higher plants, bryophytes and invertebrates it can support The habitats are also listed on the RCT LBAP.	Within the redline boundary.
Lowland/upland acid grassland	B1.1	Medium (Regional)	These habitats are S.7 Priority Habitats under the Environment (Wales) Act 2016. They are valuable	Within the redline boundary.

	Unimproved acid grassland		habitats within the Old Smokey Slopes SINC due to the diversity of higher plants, bryophytes and invertebrates it can support. The habitats are also listed on the RCT LBAP.	
Purple moor-grass and rush pastures	B5 Marshy grassland	Medium (Regional)	These habitats are S.7 Priority Habitats under the Environment (Wales) Act 2016. They are valuable habitats within the Old Smokey Slopes SINC due to the diversity of higher plants, bryophytes and invertebrates it can support The habitats are also listed on the RCT LBAP.	Within the redline boundary.
Upland flushes, fens and swamps	E2.1 Acid/ neutral flush (with E1.2 raised bog, as area of bog is small)	Medium (Regional)	These habitats are S.7 Priority Habitats under the Environment (Wales) Act 2016. They are valuable habitats within the Old Smokey Slopes SINC due to the diversity of higher plants, bryophytes and invertebrates it can support The habitats are also listed on the RCT LBAP.	Southern end of the site
Upland oak woodland	A1.1.1 Broadleaved semi-natural woodland	Medium (Regional)	Ancient Woodland Inventory and S.7 Habitats under the Environment (Wales) Act 2016 and also listed on the RCT LBAP.	Western end within the redline boundary and adjacent to the west. (TN34 and TN35).
Rivers	G2 Open running water of River	Medium (Regional)	Support European protected species, such as otter, fish (brown trout and potentially salmon) and invertebrates, and there is a high diversity	Approximately 20m to the north-western boundary

	Rhondda Fach		<p>of bird species associated with the habitats.</p> <p>County level SINC quality habitats assessed by RCT.</p> <p>Regional level importance Priority Habitats were also identified in relation to Wales (Section 7, Environmental (Wales) Act 2016).</p>	
Inland rock-open mosaic habitats on previously developed land	I12.2 Artificial Rock Exposure – Spoil	Medium (Regional)	<p>These habitats are S.7 Priority Habitats under the Environment (Wales) Act 2016. They are valuable habitats within the Old Smokey Slopes SINC due to the diversity of higher plants, bryophytes and invertebrates it can support</p> <p>The habitats are also listed on the RCT LBAP.</p>	Northern end of the site, Old Smokey adjacent to the east of the southern part of the site.
Inland rock outcrop and scree habitats	I1.1.1 Natural Inland Cliff – Acid/neutral	Medium (Regional)	<p>These habitats are S.7 Priority Habitats under the Environment (Wales) Act 2016. They are valuable habitats within the Old Smokey Slopes SINC due to the diversity of higher plants, bryophytes and invertebrates it can support</p> <p>The habitats are also listed on the RCT LBAP.</p>	Western boundary near the River Rhondda Fach.

Upland Dwarf shrub heath mosaic with Acid Grassland and Upland flush, as Priority Habitats within the SINC – UK Context.

The most valuable habitat on site is upland dwarf shrub heath (dry heath and mosaic of dry heath and acid grassland), and upland flush (acid/neutral flush). Both these habitats are part of the more general category of upland heathland. Upland flush (acid/ neutral flush) covers small areas dominated by soft-rush and sphagnum species, supporting a population of nationally and regionally ‘near threatened’ ivy-leaved bellflower (*Wahlenbergia hederacea*).

Heathland has become very limited and fragmented throughout its European range outside of the UK, with many countries losing 60-90% of the heathland area during the 20th century for various reasons such as direct loss through developments, habitat degradation due to heavy grazing, burning and subsequent conversion to grassland, and afforestation (John Box *et al*, 2011).

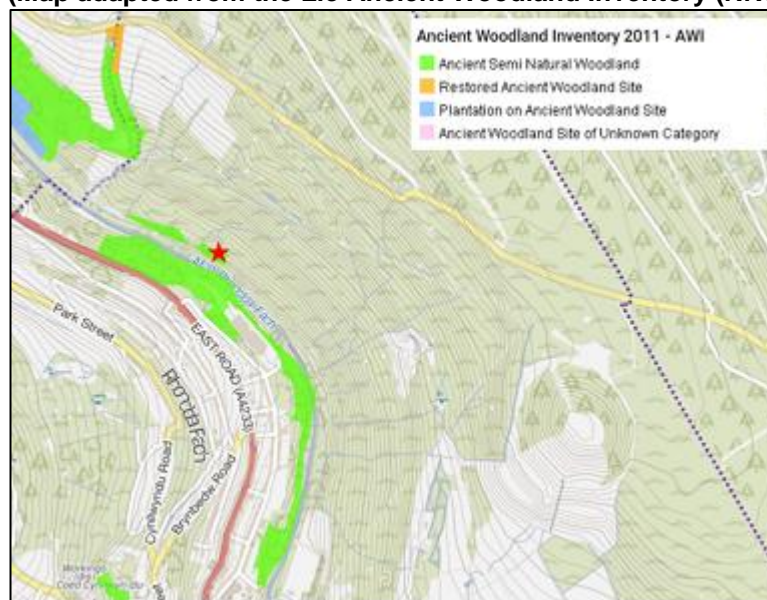
The upland heathland habitat present on the site, and generally in Wales, is located between 300 - 700m above the sea level is an important link between south-west and north of England and Scotland, as dry heath habitat is not common in central England (CCGC and CCW, 2003).

Additionally, Wales is a stronghold for three types of the upland dry heath habitat, including the type of the dry heath habitat present on site and it is the main source of this habitat in the UK (CCGC and CCW, 2003). The dry heath habitat on site has two origins – artificial (occupying disused colliery spoil tips) and natural. Both are ecologically valuable habitats.

Ancient Woodland Inventory (AWI)

One parcel of Ancient Woodland (AW) is located within the boundaries of the Proposed Scheme, to the northwest of the landslide (Figure 2), and it has already been directly impacted upon by the landslide.

Figure 2: Ancient woodland areas located within proximity to the development site area (Map adapted from the Lle Ancient Woodland Inventory (NRW, 2011)).



1.4.2 Protected, Priority and Other Species of Fauna and Flora on site

A limited desktop study, Phase 1 Habitat survey (Redstart, 2020a) and previous study and works for Phase 2 and 3 of the scheme (Redstart, 2020b; 2020c) identified the potential for a number of protected and notable species to be present on site, for which baseline ecological surveys were carried out. The species, a summary of the survey results and a valuation of the sensitivity of each species (sensitivity as ecological feature in terms of EIA assessment) are provided in Table 4.

The references to the target notes (TN) within the table should be read in conjunction with the Tylorstown Landslip Phase 4 - Phase 1 Habitat Plan (GC3613-RED-61-XX-DR-L-0016 - 0018).

The fragmentation, degradation and loss of habitat resulting from the Proposed Scheme are likely to result in impacts on a range of European and UK protected, and notable species of fauna and flora see Table 4.

Table 4: Baseline survey results and value (sensitivity) of the protected and notable species on site.

Biological Resource	Baseline surveys results	Value	Justification
Great Crested Newt (GCN) (<i>Triturus cristatus</i>)	<p>No records were identified during the desk study within the 2 km search area.</p> <p>The two ponds located at Cefn Llechau Uchaf Farm, over 500 m to the south of the redline boundary were identified.</p> <p>The Habitat Suitability Index (HSI) results indicated that both Pond 1 and 2 had 'average' habitat suitability to support GCN (Redstart, 2020d).</p> <p>The DNA analysis report received by Fera stated that eDNA for great crested newt was detected in the sample taken from Pond 1 but not detected in the sample taken from Pond 2 (Redstart, 2020d).</p>	Medium (County)	Marshy grassland habitat on site is suitable terrestrial habitat for great crested newt, however, the pond is located over 500m the likelihood of the species being present on site is low.
Bats	<p>No statutory designated sites for bats were identified within 5km of the Proposed scheme.</p> <p>A total of 101 records for eight bat species and a further five categories for records identified only to genus level were returned from data searches within 5 km. The closest record was for an unknown bat species (<i>Chiroptera</i> sp.) roost within a house located approximately 150 m south-west of the western extent of the development area (Redstart, 2020a).</p> <p>A number of mature trees were identified within and adjacent to the redline boundary, mainly within the western section of the slip and donor site. These are at TN 34 and TN35 (Redstart, 2020a) to the north and west of the RH01 donor site respectively and within ancient woodland (AW) adjacent to southwest of the redline boundary.</p>	Medium (County)	The number of roosting opportunities for bats is very limited within the redline boundary. The site is located mainly within the open area of uplands. Low number of commuting and foraging bats may be present on site.
Otter (<i>Lutra lutra</i>)	No records were returned for otter from SEWBRcC data searches.	Medium (County)	The site was well utilized by otter particularly during low rainfall when Rhondda

Biological Resource	Baseline surveys results	Value	Justification
	<p>The River Rhondda Fach flowing to the west is cited as supporting breeding otter populations.</p> <p>Otter activity was recorded in the Rhondda Fach during ecological assessment and supervision of works for Phases 2 and 3 (Redstart, 2020b). Evidence included the presence of resting holts and spraints within the landslide at Rhondda Fach stretch.</p>		<p>Fach was at low water levels.</p>
<p>Badger (<i>Meles meles</i>)</p>	<p>Desk study results showed badger were present a minimum of 1.5 km east of Old Smokey in 2019 (Redstart, 2020a; 2020e).</p> <p>No evidence of the presence of badger was identified during the survey (Redstart, 2020e). The broadleaved woodland adjacent to the north-west and farmland to the southwest are suitable to support badger and sett creation. The habitats on site offer semi-optimal (secondary) foraging habitat.</p>	<p>Low (County)</p>	<p>No evidence for Badger was identified within the area, however, badger is a very mobile species and can dig a sett over a night.</p>
<p>Breeding Birds</p>	<p>A total of 114 records of birds of 26 species within 2 km of site were identified during the desk study for the last 10 years. Records included eight Schedule 1 species (Redstart, 2020a; 2020f).</p> <p>83 records of amber listed species of medium conservation concern, relating to 15 species.</p> <p>57 records of amber listed species of medium conservation concern, relating to 18 species.</p> <p>A total of 54 species of bird were recorded during the surveys and 13 of these were confirmed as breeding, ten as probably breeding and four as possibly breeding.</p> <p>Breeding territories for 11 species of high conservation concern and 2 species of medium conservation concern were recorded in the survey area.</p> <p>Fifteen species were assessed as non-breeding or flying over the survey area. Species in this category include species</p>	<p>Low (Local > 5km)</p>	<p>The diversity of bird species was relatively low and mainly widespread, common species, no species or numbers of birds of significant regional or county importance were recorded on site. Suitable habitat for the species recorded on site in abundant in the locality.</p>

Biological Resource	Baseline surveys results	Value	Justification
	<p>of principal importance in Wales (SPI); herring gull and kestrel.</p> <p>17 breeding birds of local conservation concern are listed as LBAP species in Rhondda Cynon Taff and include buzzard (<i>Buteo buteo</i>), stonechat (<i>Saxicola rubicola</i>) and Eurasian skylark (<i>Alauda arvensis</i>)</p>		
Reptiles	<p>The desk study identified seven records for two species of reptiles (common lizard (<i>Zootoca vivipara</i>) and slow worm (<i>Anguis fragilis</i>)).</p> <p>The heath habitats are likely to support slow-worm, grass snake and common lizard.</p> <p>Two reptile species (slow-worm and common lizard) were recorded during the recent remedial works (phase 2 and 3) at the lower slopes of the colliery spoil site (Redstart, 2020c).</p> <p>There is anecdotal evidence of the grass-snake (<i>Natrix natrix helvetica</i>) presence on site.</p>	Medium/Low (County)	Habitats, such as grasslands, dry heath, scrub, bracken building ruins and drystone wall identified on site during the Phase 1 habitat survey are likely to support reptiles (common lizard and/or slow-worm) and marshy grassland, acid flush and drains are likely to support a grass-snake population.
Amphibians	<p>A total of 13 records of three species of amphibians (common frog (<i>Rana temporaria</i>), common toad (<i>Bufo bufo</i>) and palmate newt (<i>Lissotriton helveticus</i>)) were identified during the desk study.</p> <p>Two amphibian species (common frog and common toad) were recorded during the recent remedial works (Phases 2 and 3) at the lower slopes of the colliery spoil site (Redstart, 2020c).</p> <p>There is anecdotal evidence of common frog presence on site.</p>	Low (County)	Amphibians are likely present in marshy grassland and ditches on site.
Fish	<p>No records were returned for priority and protected fish species however, the Rhondda Fach (SINC) is cited as supporting brown trout (<i>Salmo trutta</i>) with potential for salmon (<i>Salmo salar</i>)</p> <p>Brown trout were observed in the river during the ecological surveys and work supervision for Phases 2 and 3 of the remedial works (Redstart, 2020b; 2020c).</p>	Medium (Regional/County)	Brown trout species are present in the Rhondda Fach, which is considered part of salmon and sea trout catchment.

Biological Resource	Baseline surveys results	Value	Justification
Small mammals (other than dormice)	A total of eight records for West European hedgehog (<i>Erinaceus europaeus</i>), priority/protected mammal were identified during the desk study (Redstart, 2020a).	Low (County)	Potential for hedgehogs to be present on site (incidental record of footprints was identified on the bare ground); voles/mice are abundant on site.
Priority invertebrate species e.g. large grayling butterfly, mottled grasshopper, dark green fritillary, small pearl-bordered fritillary and high brown fritillary butterflies	Desk study identified a total of 21 records for six priority/protected invertebrate species (small heath butterfly (<i>Coenonympha pamphilus</i>), grayling (<i>Hipparchia semele</i>) and small pearl-bordered fritillary (<i>Boloria selene</i>) butterflies, and cinnabar (<i>Tyria jacobaeae</i>) and buff ermine (<i>Spilosoma lutea</i>) moths. Small heath, grayling, small pearl-bordered fritillary and dingy skipper (<i>Erynnis tages</i>) were the closest records from 120m to 300m also exist within 300 m (Redstart, 2020a)	Medium (County)	Invertebrate species listed on Section 7 EWA 2016 such as small heath butterfly was recorded during invertebrate survey for Phase 2 and 3 (Redstart, 2020c); other species such as grayling were recorded within Tylorstown Tip and within Old Smokey Slopes SINC. Dark green fritillary, small pearl-bordered fritillary and high brown fritillary butterfly species have historical records within Old Smokey Slopes SINC and one of the designated features. However, no violet - rich habitats were identified within the redline boundary of the Phase 4 during Phase 1 habitat survey (Redstart, 2020a), therefore, these species are unlikely present on site.
Well-established anthills	Abundant number of well-established anthills was identified during the Phase 1 Habitat Survey within the heathland and grassland habitats (Redstart, 2020a).	Low (County)	Abundant presence of the well-establish anthills is a feature for SINC designation on the county level.
Bluebell (<i>Hyacinthoides non-scripta</i>) and other protected	Bluebell was recorded within the broadleaved woodland mainly and some individual plants within the ffridd habitat on site.	Low (County)	This species is listed on Schedule 8 of Wildlife and Countryside Act.

Biological Resource	Baseline surveys results	Value	Justification
flora within donor site.			However, the species was recorded in low numbers within the broadleaved semi-natural woodland and fridd habitat.
Ivy-leaved bell flower	Identified during Phase 1 Survey within the site, located within the acid flush habitats at TN25, TN29 and TN31 (Redstart, 2020a).	Regional (Medium)	Well-connected sustainable population of plant species, which is nationally and regionally 'Near threatened', also listed on Local Biodiversity Action Plan. The three areas where the plant was identified are well-connected by small watercourses/issues / drains.
Lower Plants	39 species of bryophytes and 48 species of lichens were identified during the Lower Plants survey, including two notable species were recorded at the site: the: nationally scarce <i>Scapania lingulata</i> (a small liverwort), possibly the first record for the species in Glamorgan. <i>Lecidea promixta</i> is a Nationally Scarce lichen (Redstart, 2020g).	Regional (Medium)	Extensive number of sustainable population of bryophytes and lichens as part of Priority Habitats on site. Two notable species recorded in two sites.

2. Predicted Impacts upon the SINC, Priority Habitats and Protected Species

2.1 Predicted Impacts on Priority Habitats within Old Smokey Slopes SINC

The Old Smokey Slopes SINC has been assigned **county** level importance within the Environmental Impact Assessment (EIA) and Environmental Statement (ES) and the Priority Habitats (dry heath, mosaic dry heath and acid grassland; acid grassland; marshy grassland purple moor-grass and rush pastures and acid flush and raised bog) have been assigned **regional** importance .

2.1.1 Construction Stage Impacts

Habitat Loss

The proposed scheme would result in the overall loss of 12.5 ha of the Old Smokey Slopes SINC habitats (a total area 113 ha). This is made up of 4.34 ha of dry heath and mosaic of dry heath and acid grassland; 3.05 ha of marshy grassland and 4.8 ha of other habitats (dense bracken, acid flush, scrub, and bare ground¹). The habitat loss figures are collated in the Table 5. The total figure for habitat loss represents 11% of total area lost from a **county** level designated site and **regional** level Priority Habitats is considered a **large adverse** impact.

Table 5: Habitat loss of the Priority Habitats and other habitats within the Old Smokey Slopes SINC

Habitats	Donor site			Total
	Tip RH01	Haul Road	RS-C	
Dry Heath	1.08	0.13	0.33	1.54
Mosaic Dry heath and acid grassland	1.33	0.70	0.52	2.55
Gorse Scrub	0.56	0.04	0.00	0.60
Bramble Scrub	0.24	0.00	0.00	0.24
Marshy grassland	0.59	0.17	2.29	3.05
Bracken (dense)	1.79	0.38	0.00	2.18
Acid grassland	0.00	0.29	0.24	0.53

¹ Bare ground habitat figure for lost doesn't include the figure of the slip area.

Acid Flush	0.00	0.02	0.04	0.05
Bare ground	0.00	0.76	0.97	1.73
Total	5.60	2.48	4.40	12.48
Bare ground within the slip	4.00			

Habitat Degradation

The air quality impact assessment for the EIA, has identified that the SINC is at **low** risk from construction dust associated with earthworks. The dust emission magnitude for SINC was categorised as **negligible** with the site sensitivity being categorised as **low**.

However, the residual dust source of the entire operation is considered to be **large** and the most noticeable air quality impact likely to arise from the construction stage - dust accumulation resulting from the material deposition on to the RS-C. This can lead to the soiling of surfaces of the plants/habitats and potential nutrient influx along the borderline of the RS-C.

It is considered that this could lead to temporary habitat loss or changes in plant composition and soil reaction (pH) values over a period of time.

Construction dust impacts will decrease over distance from the source. Due to the length of the construction period (approximately 6 months) it is considered that impacts would be short term and is considered the impact of low **adverse** significance. If mitigation measures during the site preparation will be implemented (e.g. topsoil/ turf stripping of the extra areas of the potentially impacted habitats along the RS-C boundary), no significant effects are expected and the impact will be diminished and therefore, considered of **negligible adverse significance** then.

From reference to geological and hydrological assessments undertaken as part of the EIA, it is considered that the micro-topography and impeded drainage are more critical to the wetness of the wetlands of the designated features of SINC and Priority Habitats (marshy grassland, acid/neutral flush, raised bog) on site rather than groundwater (groundwater is approximately 60m below the ground level) and it is unlikely that any wetlands are groundwater fed. However, the change in micro-topography of the RS-C will affect the wet habitats adjacent to the landform of the RS-C leading to the habitat degradation and habitat loss. This impact is considered **low adverse significance**.

Habitat Severance

The Priority Habitats within the SINC will be severed by the proposed scheme, however, the access to manage the landform of the RS-C and surrounding habitats will be realisable, therefore, the impact significance is considered as **low adverse**.

2.1.2 Operational Impacts

No operational use of the landform of the RS-C is anticipated as a part of the proposed Scheme, however, access for drainage maintenance will be possibly required over the time, which could

lead to habitat loss on the small scale, therefore, it is unlikely the impact will be significant and it is considered to be a **negligible adverse** significance.

2.2 Impacts on Protected/ Notable Species

Predicted impacts on protected and notable species are summarised in Table 6.

Table 6: Predicted Impacts on the Protected and Notable Species

Receptor Name/Value	Impact	Effect	Magnitude	Significance
Great Crested Newt (GCN) Medium (County)	Direct mortality	<p>Site preparation and clearance have a potential to cause direct mortality and injury to GCN.</p> <p>The Proposed Scheme site is over 500m of the potential breeding pond for GCN, therefore the likelihood of encounter this species and therefore the direct mortality is low.</p>	Minor adverse	Slight adverse
	Terrestrial habitat loss	<p>Indirect impacts – degradation and loss of the suitable terrestrial habitat. No suitable waterbodies are identified within the redline boundary</p> <p>The proposed scheme will impact on the potential terrestrial habitat of the GCN through permanent habitat lost of the area within RS-C footprint.</p>	Negligible adverse	Neutral

Receptor Name/Value	Impact	Effect	Magnitude	Significance
Bats Medium (County)	Direct mortality	Direct impacts – injury/ death or killing by construction work is not anticipated. The mature trees, which the only potential bat roost on site are not anticipated to be removed during the construction. No works during night is anticipated.	Negligible	No change
	Foraging habitat loss, habitat modification; disturbance of flight line	Indirect impacts – disturbance from noise; degradation and foraging habitat within the donor site (RH01) removal, removal of the habitats within the footprint of the proposed RS-C and construction of the landform of the proposed RS-C	Minor adverse	Slight adverse
Otter Medium (County)	Direct mortality	Otter is utilizing the river stretch directly below the slip for foraging. A number of resting holts were identified during Phase 2 and 3 (Redstart, 2020b). No works are anticipated within the River channel of the Rhondda Fach	Negligible	No change
	Disturbance Habitat degradation and foraging habitat loss	Works within the main watercourse of Rhondda Fach are not anticipated, however indirect impact through pollution entering the drainage system of the tips and consequently the river can cause fish	Minor adverse	Slight adverse

Receptor Name/Value	Impact	Effect	Magnitude	Significance
		mortality and consequently habitat degradation and disturbance.		
Badger Low (County)	Direct mortality	No works are anticipated at night. No setts were identified within 30m buffer of the Proposed Scheme.	Negligible	No change
	Habitat degradation and foraging habitat loss	The habitat within the redline boundary was identified as having limited suitability for badger to forage and commute. The loss of these habitat to Proposed Scheme is anticipated, however, the farmland and woodland habitats adjacent to the site offer suitable habitat for foraging and sett establishment.	Slight adverse	Negligible
Breeding Birds Low (Local > 5km)	Direct mortality	The pre-construction phase such as vegetation clearance, topsoil and turves stripping can cause direct mortality to eggs and chicks of the ground nesting birds	Moderate adverse	Moderate adverse
	Roosting and/or nesting habitat loss	The breeding birds survey identified; the site is the potential breeding grounds for skylark. Approximately 4.4ha will be permanently lost to the proposed RS-C footprint. Additional breeding grounds will be temporary lost to the compound and potentially for areas of topsoil storage.	Moderate adverse	Slight adverse

Receptor Name/Value	Impact	Effect	Magnitude	Significance
	Foraging habitat loss	As stated above the RS-C footprint will cause approximately 4.4ha of permanent foraging habitat loss. Site compound and topsoil storage area will cause further temporarily habitat loss.	Moderate adverse	Slight adverse
Reptiles Medium/Low (County)	Direct mortality	Pre-construction works such as vegetation clearance and earth-moving works can cause direct mortality to the reptile population on site.	Moderate adverse	Slight adverse
	Habitat loss	As stated above the RS-C footprint will cause approximately 4.4ha of permanent foraging habitat loss. Site compound and topsoil storage area will cause further temporarily habitat loss.	Moderate adverse	Slight adverse
Amphibians Low (County)	Direct mortality	Pre-construction works such as vegetation clearance and earth-moving works can cause direct mortality to the amphibian population on site. Two ponds were lost due to the landslide at the donor site (RH01), therefore the amphibian population was already impacted by the landslide.	Moderate adverse	Slight adverse
	Habitat loss	As stated above the RS-C footprint will cause approximately 4.4ha of permanent habitat loss. Site compound and	Moderate adverse	Slight adverse

Receptor Name/Value	Impact	Effect	Magnitude	Significance
		topsoil storage area will cause further temporarily habitat loss.		
Fish Medium (Regional/County)	Direct mortality and Habitat loss	Works within the main watercourse of Rhondda Fach are not anticipated, however indirect impact through pollution, silt debris and sediment entering the watercourse from the drainage system on the tips may impact on the fish population in Rhonda Fach.	Minor adverse	Slight adverse
Small mammals (hedgehog) Low (County)	Direct mortality and Habitat loss	As stated above the RS-C footprint will cause approximately 4.4ha of permanent foraging habitat loss. Site compound and topsoil storage area will cause further temporarily habitat loss.	Moderate adverse	Slight adverse
Priority invertebrate species e.g. large grayling butterfly, mottled grasshopper, dark green fritillary, small pearl-bordered fritillary and high brown fritillary butterflies Medium (County)	Direct mortality and habitat loss	As stated above the RS-C footprint will cause approximately 4.4ha of permanent habitat loss. Site compound and topsoil storage area will cause further temporarily habitat loss. No sufficient areas containing the foodplant (violet species-rich habitat) of these invertebrate species were identified on site, therefore the presence of the larvae of this species is low. Some habitat was lost due to the landslide,	Slight adverse	Negligible

Receptor Name/Value	Impact	Effect	Magnitude	Significance
		therefore, the species may have been directly impacted.		
Well-established anthills Low (County)	Direct mortality and habitat loss	As stated above the RS-C footprint will cause approximately 4.4ha of permanent habitat loss and direct mortality. Site compound and topsoil storage area will cause further permanent habitat loss and direct mortality.	Minor adverse	Slight adverse
Bluebell and other protected flora within donor site. Low (County)	Direct mortality and habitat loss	A few individuals were noted within the woodland, which was adjacent to the landslide and therefore was already impacted.	Slight adverse	Negligible
Ivy-leaved bell flower Regional (Medium)	Direct mortality and habitat loss	Established population will be lost to the RS-C footprint. These population is the main source of this plant distribution in the lower ground in the area.	Major adverse	Medium adverse
Lower Plants Regional (Medium)	Direct mortality and habitat loss	Two notable species recorded on site: the: 'Nationally scarce' <i>Scapania lingulata</i> (a small liverwort), which is possibly the first record for the species in Glamorgan; and 'Nationally scarce' lichen <i>Lecidea promixta</i> will be lost to the construction of the haul road on site	Medium adverse	Slight adverse

3. Mitigation Approach

3.1 Mitigation Strategy Rationale for Restoration of Colliery Spoil Habitats. Key Components.

The habitats that have established on the disused colliery spoil sites of South Wales have become a valuable mosaic of habitats for biodiversity in South Wales (Personal Communication Richard Wistow and Liam Olds, 2021; Liam Olds, 2019; Liam Olds and Richard Wistow, 2018). The spoil is extremely nutrient poor, creating conditions that favour slow succession of plant species and prevent dominant grasses establishing, therefore resulting in complex habitat mosaics. Therefore, re-using the nutrient poor soils/ subsoils, along with the associated vegetation and seed bank, from the site is the key to replicating the conditions of the colliery soil diversity.

Consequently, stripping the existing vegetation and soil from the proposed RS-C footprint, the remains of the habitats on the failed Tylorstown Tip RH01 and any other areas required for construction; and re-using the topsoil/turves and allowing natural re-generation is the main mitigation approach for the project.

Other aspects of the colliery spoil features will be considered, including the complex mosaic of pH ranges, macro- and micro-topography and the associated diversity soil dampness/dryness. All these are important key features for the habitat assemblage on the colliery spoil.

3.1.1 *pH Range*

A feature of many colliery spoil sites is a large range of the spoils/soil pH values. These can range from acidic to neutral or mildly basic conditions and are often present in localised, complex mosaics of soil pH- an important driver in the colliery spoil habitat diversity. The stripped and re-used soils from the colliery spoil and those from other areas of the site must not be homogenised. Soil from specific locations will be stored in low bunds separately according to habitat type. A detailed Method Statement of spoil/turves handling, and reinstatement will be required for work to proceed.

3.1.2 *Macro- and Micro-topography*

Disused colliery spoil sites have a large variation in macro- and micro- topography within the landscape. Hummocks, banks, bowls, and tip faces with a variation of aspects, profiles and varied slope gradients contribute to the establishment of complex mosaics of the biodiversity of flora and fauna on colliery tips habitats. Therefore, there is a need to ensure that the diversity of macro and micro-topography is built into the design of the donor site- Tylorstown Tip and receptor RS-C, whilst not compromising the measures required to stabilise the spoil material for safety. The opportunities for such a design may range from areas of steeper bare ground (e.g. a few square metres bare ground for mining bees) to very gentle slope or creation of ripples on the new landform.

The incorporation of low spoil banks along trackways, or above drain banks, may also offer an opportunity for creating further micro-topographical features. If any slipped spoil is re-distributed

to the bottom of the slopes, to buttress the ground above the material can be formed into a more complex 'organic' topography.

Incorporating topography features into locations which receive full summer sun will maximise their value for invertebrates.

3.1.3 *Dampness and Dryness of Habitats*

Another key component of colliery spoil diversity is a high diversity of wet and dry areas of habitats, a result of the range of macro- and microtopography. The creation of diverse topography in the new landforms will establish a diversity of damp/dry habitats but, to further enhance the variety shallow bowls or pans of seasonally damp ground could be incorporated on the lower slopes to aid the re-establishment of biodiversity on the site.

The design of drains, and the treatment of exposed springs could also offer the potential conditions to provide localised, seasonal pooling within controlled channels. Any features of localised dampness/wetness that can be accommodated would help replace some of the wetland/pond features that have or will be lost. Additionally, wet areas can be designed within the areas of flat ground or shallower slopes, which would be a significant benefit to biodiversity.

3.1.4 *Future After-care, Management and Site Monitoring*

The future management and monitoring of the site is essential for ensuring success of the natural regeneration of diverse habitats.

The Site has previously been identified as suitable for inclusion in the Healthy Hillside project, a partnership between a number of organisations, including Natural Resources Wales (NRW), Wildlife Trust of South and West Wales (WTSWW), Rhondda Cynon Taff County Borough Council (RCTCBC) and South Wales Fire and Rescue Service (SWFRS) with the aim to manage hillsides for wildlife, and support the local communities in the Rhondda. Under the project the site could be grazed by cattle/ ponies to reduce bracken, rank purple moor-grass and soft-rush cover and therefore benefit biodiversity whilst also managing future wildfires risk.

To date the Site has not been adopted into the Healthy Hillside project due to the landslide, however the opportunity to develop a conservation grazed landscape around the restoration site should still be considered for the future and would tie into the biodiversity mitigation measures, as well as preventing future grass fires.

Fencing, access points and access to water for stock drinking are all key issues for the livestock and will be required to be considered at the design stage if required.

Local communities and NGOs such as Buglife and Colliery Spoil Initiative could be involved in co-ordinating and implementing long-term management plans and site monitoring programmes.

In summary, the re-modelling of the site and the implementation of mitigation measures opens up an opportunity for Tylorstown tips to be designated and managed as a 'colliery spoil and fridd' nature reserve in the future for future generations and communities to enjoy.

3.2 Mitigation of the Impacts

Following the mitigation rationale to reduce development impacts and control any negative effects on the environment, mitigation for the Proposed Scheme has been developed using a tiered approach:

1. Mitigation of direct impacts from the habitat loss of the Priority Habitats within the non-statutory designated site SINC:
2.
 - a. Minimising the footprint of the RS-C landform during the design consultations.
 - b. Minimising direct and indirect impacts during the construction (avoidance, work activity restrictions and topsoil/ turves stripping and storage for re-use in habitat restoration):
 - i. Phased Construction will be employed for the project.
 - ii. Control measures in place through Ecological Method Statement (EMS) Construction Environmental Management Plan (CEMP) and Environmental Monitoring and Implementation (EM&I) Certification
 - iii. Site preparation for construction and protection of the retaining habitats.
 - iv. Stripping and storing topsoil/ turves during the construction for further re-use in habitat restoration.
 - c. To incorporate features of importance for biodiversity while constructing and reprofiling the landforms of the RS-C and Tylorstown Tip.
 - d. Incorporating natural regeneration and habitat restoration (topsoil re-use and turves translocation) into the landscape and water management design of the landforms.
 - e. After-care and long-term monitoring and management.
3. Mitigation of indirect impacts on habitats (e.g. hydrological changes caused by the deposition of the material within RS-C, by drainage design and re-profiling Tylorstown Tip -donor site) by stripped turves/topsoil re-use within the water management design.

Minimising the direct and indirect impacts of the construction of the Proposed Scheme on the Priority Habitats within the SINC has been identified as the priority. However, mitigation will only be able to ameliorate the impacts to a certain degree. The physical loss of the biodiverse habitats requires further measures to develop and to implement to off-set the impacts.

Further measures should include developments of an After-Care and Habitat Management Plan by the Local Authority, where habitat restoration of the RS-C landform and the donor site within Tylorstown Tip will be described and followed to ensure restoration, management and monitoring of these habitats. The management could be focussed primarily on low intensity cattle or horse grazing, with if necessary, scrub and invasive plant control and access management. The site management could be integrated with other conservation grazing and management arrangements managed by RCTCBC and local wildlife groups to develop the management flexibility needed to maximise ecological compensation.

4. Mitigation of Direct Impacts on SINC and Priority Habitats

Mitigation of the direct impacts on Priority and SINC habitats will be following the approach outlined in Section 3, which include design, construction, habitat restoration, after-care, habitat management and monitoring stages.

4.1 Minimising the footprint of the RS-C Landform during the design consultations

All the potential design options for the landform of RS-C would have had a direct impact on the Priority Habitats within the SINC, however, through the involvement of ecologists in the design process it was possible to minimise the ecological impacts whilst considering all other factors.. In the course of the mitigation workshop consultations, the initial landform design of the RS-C (Figures 3) was discarded, as the largest footprint with total footprint 5.12 ha. Two further options, were considered and option number 2 (total footprint 4.4 ha, Figure 4) was the preferred option, balancing and/or negating all possible and relative constraints within the environmental disciplines (Biodiversity, Landscape Character and Visual Impact; and Cultural Heritage). Figure 5 illustrates the difference in land-take between the initial and the preferred option of the RS-C landform.

Figure 3: The initial option of the RS-C design footprint (in blue).

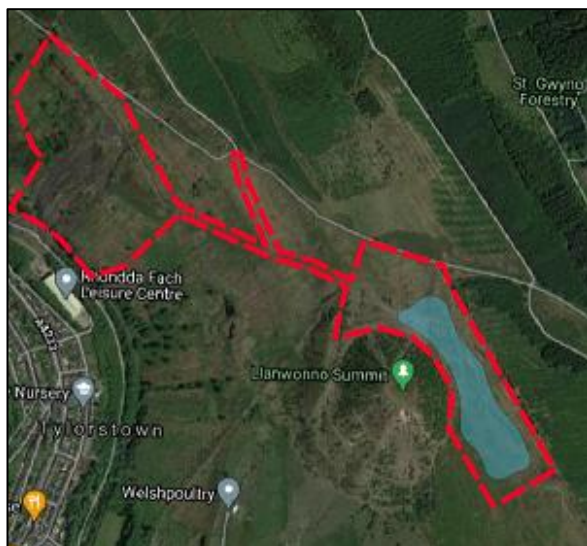


Figure 4: Option 2 of the RS-C design was chosen.

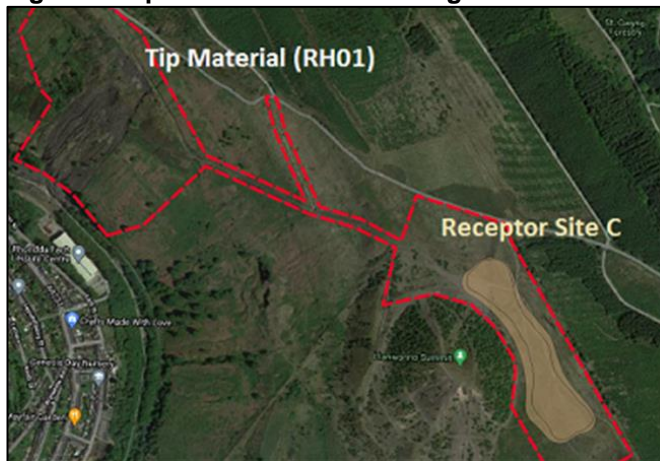


Figure 5: The comparison of the initial (blue shade) and preferred option (yellow shade) of the RS-C landform. The Option 2 has smaller footprint and therefore has less land-take on Priority Habitats within the SINC.



4.2 Mitigation/Compensation Strategy for the loss of Priority Habitats within the Old Smokey Slopes SINC

The mitigation strategy for habitat loss will be based on the restoration of the lost habitats within the footprint of the reprofiled donor (RH01) and receptor site (RS-C) and after-care and long-term management of these habitats. The reprofiling of the RS-C will add micro-topography specified in Section 3.1 to ensure the re-establishment of habitats and the sustainability of biodiversity on the newly built landforms. The reprofiling methods are outlined in the Ecological Method Statement.

A mix of two techniques such as turves translocation and natural regeneration, as well as re-use of the stripped topsoil with the existing seedbank, within the reprofiled donor (RH01) and the RS-C, will be used – this method is a proven heathland habitat restoration method and is appropriate for use on colliery spoil material (EN and HA, 2005; Environment Advisory Unit and University of Liverpool, 1988; and John Box et al, 2011). The colliery spoil will act as an appropriate low nutrient subsoil material for turves to settle in. Additionally, the translocation and topsoil re-use will be

implemented taking into account the micro-landscape features, hydrological conditions and types of the stored turves/ topsoil habitats, e.g. stored turves of acid/neutral flush and marshy grassland habitat will be translocated/ topsoil re-used within the attenuation areas and swales; dry heath and acid grassland will be translocated/ topsoil re-used within the higher ground areas of RS-C and Tylorstown Tip. It is planned to undertake the work between March and October, which is an appropriate timing for successful habitat restoration, adding more confidence in the success of the mitigation strategy.

The area will require after-care and habitat restoration in the form of removal of some dominant plant species (possibly scrub and bracken) removal, invasive species control, watering and monitoring. The monitoring results will be fed into the objectives for the proposed long-term Management Plan, which may include an introduction of cattle or pony grazing, implementation of occasional scrub and bracken cut and stock watering. Where it is appropriate, target species such as notable/protected invertebrates (high brown and dark-green fritillary; mining bees) and reptiles (adders) could be included in the long-term Management Plan, as these species were cited in the Old Smokey Slopes SINC description and the suitable habitat is present on site.

4.2.1 Proposed Constraint Prioritisation Plan

A Constraint Prioritisation Plan drawing was produced to mark the areas according to their value for the biodiversity and vulnerability for construction (Drawing GC3613-RED-61-SK-DR-C-0005). Thus, the site was divided in “RED”, “AMBER” and “GREEN” areas, where “RED” are highly biodiverse and the most vulnerable habitats for mechanical damaged and very slow to restore, “AMBER” are biodiverse habitats, but less vulnerable to mechanical damage and easier to restore. “RED” and “AMBER” habitats are to be avoided until the protection (fencing if the habitats are to be avoided during the construction) and mitigation (turf or topsoil stripping and storage if the habitats are deemed for construction) measures for habitats are in place before the construction. “GREEN” areas are lower ecological value, where compounds, access and storage are permitted without site preparation activities.

The proposed mitigation strategy for “RED”, “AMBER” and “GREEN” habitats is collated in Table 7.

Table 7: Proposed mitigation strategy for Priority Habitats within the Old Smokey Slopes SINC

Areas	Habitats	Mitigation during the construction		Habitats considered to be restored on the landform of RS-C or Donor Site RH01
		To be avoided during the construction, protection measures implemented	Impact is unavoidable during the construction	
RED	Dry heath	Fencing off to protect the habitat	Turf stripping and translocation	RS-C and Donor Site

	Mosaic of dry heath and acid grassland	Fencing off to protect the habitat	Turf stripping, storage and translocation	RS-C and Donor Site
	Acid/ neutral flush	Fencing off to protect the habitat	Turf stripping, storage and translocation	RS-C
	Raised bog	Fencing off to protect the habitat	NA	NA
AMBER	Marshy grassland	Fencing off to protect the habitat	Topsoil stripping, storage and reinstatement	RS-C
	Acid grassland	Fencing off to protect the habitat	Topsoil stripping, storage and reinstatement	RS-C and Donor Site
	Semi-improved acid grassland	Fencing off to protect the habitat	Topsoil stripping, storage and reinstatement	RS-C and Donor Site
	Bracken dense and scattered	Fencing off to protect the habitat	Topsoil stripping, storage and reinstatement	RS-C and Donor Site
	Broadleaved Woodland	Fencing off to protect the habitat	Topsoil stripping, storage and reinstatement	Donor Site
	Scrub	Fencing off to protect the habitat	Topsoil stripping, storage and reinstatement	RS-C and Donor Site
GREEN	Bare ground	Security fencing for the site only	Topsoil stripping is some remnants of habitat present	RS-C and Donor Site
	Hardstanding	Security fencing for the site only	Not required	NA

4.3 Minimising direct impacts during the construction

4.3.1 *Method Statements and Construction Environmental Management Plan*

To minimise direct and indirect impacts on the Priority habitats within the SINC during the construction phase, a suite of protection measures which will be implemented and adhered to by the contractor during the duration of the construction process. will be outlined in the appropriate documents:

- **A Construction Environmental Management Plan (CEMP)** will ensure that control measures to prevent dust, silt and water contamination of vegetation and watercourses and biosecurity measures are in place. The CEMP will also include the working practises to be adopted within Priority Habitats as a part of Old Smokey Slopes SINC as set out below.
- **Ecological Method Statement (EMS) and a Reptile and Amphibian Site Clearance Method Statement** will be developed and will be followed by contractors carrying out all aspects of the remedial works to ensure that the risk of significant negative impacts on habitats and protected species is minimised and that works are compliant with current wildlife legislation.
- **An ecological certification procedure** will be implemented, requiring the appointed Ecological Clerk of Works (ECoW) to agree that certain stages of works have been completed in accordance with the Ecological Method Statement and CEMP. An Environmental Monitoring and Implementation (EM&I) Certification document will be in place to record this process.
- The appointed contractor will include an appropriate **Invasive Species Method Statement** as part of the CEMP.

These method statement documents are the working practices to be followed to minimise impacts on ecologically important features, comply with legislation and measures for protection, storage and re-instatement of the protected habitats and protection and mitigation of the impacts on the protected species of fauna and flora. These had been designed in consultation with the Local Authority ecologist and will include the following:

1. Avoidance and mitigations of the direct impacts on the valuable for biodiversity habitats. Topsoil/turves stripping, storage and translocation.
2. Mitigation indirect impacts on habitats during construction process
 - a. Retaining habitats protection of the designated sites including SINC, Priority Habitats and Ancient Woodland Inventory;
 - b. Pollution prevention measures; and
 - c. Biosecurity measures
3. Avoidance and mitigation of the impacts on protected species of fauna and flora during the construction.
 - a. Great crested newt (GCN);
 - b. Bats;

- c. Otter;
 - d. Badger ;
 - e. Breeding birds;
 - f. Reptiles and amphibians;
 - g. Fish;
 - h. Priority invertebrate species e.g. large grayling butterfly, mottled grasshopper, dark green fritillary, small pearl-bordered fritillary and high brown fritillary butterflies; and
 - i. Bluebell (*Hyacinthoides non-scripta*); ivy-leaved bell flower and other protected flora including lower plants.
4. Avoidance and mitigation of the impacts on other fauna species during the construction.
- a. Small mammals (other than dormice)
 - b. Well-established anthills

4.3.2 *Phased construction*

A phased construction programme will be employed by the contractor, to allow works (following the avoidance and work activity restrictions outlined in Section 4.3.3) in certain areas/section to be completed minimising impacting on the habitats.

A phased construction programme will also be followed for the site preparation and material deposition on RS-C, dedicated haul routes for construction vehicles to travel over will be identified. This will:

- reduce physical disturbance/compaction of the ground;
- minimise damage to the SINC, Priority and other valuable habitats;
- assist movement of machinery across uneven/soft ground;
- minimise the chance of vehicles becoming stuck in soft ground;
- reduce/eliminate the requirement for habitat re-instatement; and
- prevent contamination with invasive Himalayan balsam.

4.3.3 *Avoidance and Work Activity Restrictions during Construction. General working practices.*

Avoidance, work activity restrictions during construction and general working practices are outlined in more details in Ecological Method Statement (Redstart, 2021b). The following working practices will be employed at all the times:

1. An Ecological Clerk of Works (ECoW) will be appointed to oversee the implementation of this method statement and provide ecological supervision.
2. The ECoW will provide their contact details to the appointed contractor prior to works commencing on site.

3. The appointed contractor will provide details for a main point of contact to the ECoW prior to works commencing on site.
4. All staff will receive an ecological briefing prior to commencing work on site. This will be delivered by the ECoW. The briefing will cover ecological constraints (including species identification where appropriate), working methods to be followed and the action to be taken in the event of discovering an unexpected constraint.
5. An ecological certification process will be implemented and 'hold points' will be identified (i.e. stages within a process/or processes where further actions are prohibited until the mitigation or other measures are in place) to be signed off by the ECoW prior to the next stage of works commencing (Redstart, 2021b).
6. No works will be undertaken within, or adjacent to, **any** areas of habitats identified as having high and medium biodiversity value, referred to as RED and AMBER habitats respectively (Drawing GC3613-RED-61-SK-DR-C-0005) until the required mitigation measures are in place, e.g. protective fencing, turves/topsoil stripping (Redstart, 2021b).
7. Topsoil/ turf storage areas will be fenced off throughout the duration of works and the locations will be recorded. Topsoil/ turf will be reinstated according to phased construction programme. The appointed contractor will undertake a site visit with the ECoW prior to starting works to review on-site conditions and ecological considerations.
8. The use and specification of plant and machinery will be at the discretion of the subcontractor, however, from an ecological perspective it is recommended that the smallest, lightest machinery is used at all times to minimise damage/impact on habitats and the ground/soil.
9. To avoid creating hazards (e.g. fire hazard), arisings from vegetation clearance/tree felling will not be chipped on site. Arisings will be left within suitable areas woodland areas as habitat creation or used to construct underground reptile and amphibian hibernaculum. Locations for habitat piles and hibernaculum will be identified by an ECoW.
10. The ECoW will retain records of any species observed/encountered/relocated during the works.
11. Any tree work and/or measures for protection will comply with *BS 3998:2010 - Tree Work. Recommendations* and *BS 5837:2012 - Trees in relation to design, demolition and construction – Recommendations*.
12. Measures shall be in place to avoid or minimise the loss and/or damage to Ancient Woodland (AW) and broadleaved trees, such as AW boundaries adjacent to the donor site RH01 will be clearly demarcated and protective fencing will be erected. A Root Protection Zone (RPZ) will be clearly demarcated around any trees identified by an arboriculturist as being at risk from clearance and excavation works.
13. The removal of broadleaved trees will be kept to the minimum where possible.
14. The contractor will take appropriate measures to prevent pollution of, and run-off into, watercourses and drains and surrounding vegetation. This measures will be implemented through a Construction Environmental Management Plans (CEMP) following best practise such as Guidance for Pollution Prevention (GPPs) outlined in NetReg (<https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/>) for the duration of the proposed works:

- No refuelling of plant and machinery will be permitted adjacent to any watercourses.
 - All fuel and chemicals will be stored away from any watercourse.
 - Bio-oils will be used in plant to ensure the risk of pollution is minimised.
 - Silt prevention measures will be installed to prevent debris and sediment entering watercourses.
 - Additional silt fencing will be utilised where and when necessary and the contractor should monitor weather to ensure conditions are suitable to continue work.
15. An appropriate Invasive Plant Species Method Statement (to form part of the CEMP) will be provided by the contractor and adhered to throughout pre-construction and construction stages to avoid spread of controlled invasive plant species.

Site Compounds, Access and Storage Areas

The locations and arrangement of site compounds, access routes and topsoil/turf storage sites will be agreed with the ECoW prior to construction. Areas of bare ground habitats of lower ecological value (referred to as GREEN areas (GC3613-RED-61-RSC-DR-C-0005) will be utilised for these purposes as far as possible.

Construction vehicles will remain on the designated access routes at all times to minimise damage to surrounding high ecological value habitats.

If at any time the dedicated routes cannot be followed and additional temporary access routes are required, the route will be agreed with the ECoW and tyre matting/ rafts will be employed to protect high quality ecological habitats.

Additionally, any damaged habitats will be re-instated, as detailed in this document (Topsoil Strip section in Construction Phase).

The existing access track that follows the route of the disused tramway, and bare ground on the plateau to the north of the Old Smokey (marked as "GREEN" habitat on GC3613-RED-61-RSC-DR-C-0005) will be used for construction traffic. Any additional haulage routes will be agreed with ECoW prior to use.

'RED' and 'AMBER' habitats areas must be avoided completely before translocation/topsoil stripping.

4.3.4 *Site preparation for construction. Protected species and habitats.*

Site preparation for construction works will be undertaken in line with the mitigation strategies for habitats and protected species outlined in the appropriate reports (Redstart, 2020a; 2020d; 2020e; 2020f; 2020g) and Ecological Method Statement (Redstart, 2021b). The mitigation strategy information for protected/notable species is presented in Table 8. Reptiles and amphibians are known to be present on site (Redstart, 2020a; Redstart, 2020c) therefore a separate Reptile and Amphibian Site Clearance Method Statement (Redstart, 2021c) will detail working methods and mitigation measures to protect these protected species. The contractor will follow CEMP and these method statements.

The site preparation for construction will include the following:

- Fencing erection to protect the habitats and species (reptiles and amphibians) encroachment into the working areas. Security fencing will be erected to protect habitats. Reptile fencing will be installed, followed the methodology, outlined in Reptiles and Amphibians Method Statement (Redstart, 2021c).
- Vegetation clearance will follow mitigation strategy for nesting birds (including ground nesting birds), reptiles, amphibians and protected habitats and flora. Mitigation measures will include:
 - Protection of nesting birds, including ground nesting birds (e.g. skylark) is required on site if vegetation clearance is scheduled for from March to August (inclusive).
 - Check for nesting birds within the site 48 hours prior the construction will be required if vegetation clearance during the bird breeding season (March to August inclusive) is scheduled for from March to August (inclusive).
 - No heavy machinery will access the site before the reptile and amphibian site clearance is completed.

4.3.5 *Stripping topsoil/ turves and their storage during the phased construction for further re-use in habitat restoration.*

Following the proposed constraints plan (Table 7) turf stripping will be carried out in RED areas (areas of dry-heath, mosaic of dry heath and acid grassland and acid/neutral flush with soft-rush habitats) and re-instated on RS-C at prepared receptor sites identified by ECoW following the completion of construction of the landform. The process will follow the methods described in this document and Ecological Method Statement.

Topsoil stripping will be required in AMBER areas (unimproved and semi-improved acid grassland, marshy grassland, dense bracken and mosaic of the scattered bracken and semi-improved acid grassland habitat, scrub and areas near woodland). The topsoil stripping, soil storage and re-instatement will follow the methods described in this document and Ecological Method Statement (Redstart, 2021b).

Turf removal and storage ('RED' areas on Drawing GC3613-RED-61-SK-DR-C-0005)

- All aspects of the turf removal (lifting, storage, transport and reinstatement) will be undertaken under the direct supervision of the ECoW.
- Turf removal will be undertaken using low bearing/tracked vehicles. This will minimise any potential damage to sensitive areas due to vehicle crossing/turf transportation.
- Turf removal will take place as a part of site preparation as specified within this document and Ecological method Statement (Redstart, 2021b).
- No significant vegetation clearance/ strimming of the dry heath habitat will be required in areas of the turf donor site, as the vegetation is naturally short.
- Vegetation clearance/ strimming – with a first cut to a height of 150mm of the acid flush (soft-rush and purple more grass dominated habitat) is required.

- Individual turves of a standard size (e.g. 2.4m × 1.2m) will be removed. The ECoW will specify details such as the width and length of the area to be turfed and suitable storage areas
- Turf depth will be dictated by root structure and soil characteristics. It is expected that the topsoil will be bound with roots and will follow the topsoil/subsoil interface (between 200 and 300mm). The ECoW will provide advice at the time of the works.
- The cut turf will be lifted and placed within designated storage area identified by ECoW. Turves will be stored in a single layer (i.e. not stacked).
- The lower ecological value identified by the ECoW (potentially within 'AMBER' areas illustrated on Drawing GC3613-RED-61-SK-DR-C-0005) will be utilized for temporary storage of turves.
- Areas for storage of turves are to be confirmed. Following consultation with the RCT County ecologist, areas of dense bracken were identified as suitable storage areas for topsoil, as the habitat has limited ecological value.
- Any identified topsoil storage within 'AMBER' areas will require vegetation clearance (two stage cut and topsoil stripping), as per described in this document and Ecological Method Statement (Redstart, 2021b).
- No vegetation clearance and topsoil stripping will be required on bare ground, marked as 'GREEN' illustrated on Drawing GC3613-RED-61-SK-DR-C-0005 if these areas are required to use for turves/ topsoil storage.
- Any soil excess from the cut turves will be stored in bunds of no greater than 1 metre in height or width within an area of lower ecological value identified by the ECoW.
- Turves must not be covered (otherwise plants will suffer from light deprivation).
- Turves must not be stored on geo-textile matting to prevent roots to be overheated.
- Turf storage areas will be protected by fencing and appropriate signage to ensure they are not tracked over. Coloured markers will be used to denote moved turf and relocation site (using timber dye which will not fade).
- Subject to weather conditions, watering or windbreaks may be required to reduce transpiration. This will be assessed by the ECoW and agreed with the contractor.
- The period of turf removal and storage will be kept as short as possible to minimise harm to the turf.
- The ECoW will record the coordinates and orientation of turves using GPS and annotate on a 1-10,000 Ordnance Survey map (or similar) for each area of turf stripped. The ECoW will provide a habitat description for turves to ensure future reinstatement of turves to the appropriate location.

Topsoil strip and storage ('AMBER' areas on Drawing GC3613-RED-61-SK-DR-C-0005)

- Where locations for topsoil stripping are on steep terrain, it will be necessary to create safe conditions for machinery to operate safely.
- Prior to topsoil stripping, vegetation will be cut down close to ground level if deemed necessary by the ECoW following methods detailed within this document and considering other ecological aspects, such as breeding birds, reptiles and amphibians. (see the Table 8 in this document and Ecological Method Statement and Reptiles and Amphibians Method Statement, Section Breeding birds; (Redstart, 2021b and 2021c))
- Detailed methods of excavation will be provided by the contractor, but must be in line with the specifications in this document and Ecological Method Statement and Reptiles and Amphibians Method Statement (Redstart, 2021b and 2021c):
- Areas for storing topsoil spoil are to be confirmed. Following consultation with the RCT County ecologist, areas of dense bracken were identified as suitable storage areas for topsoil, as the habitat has limited ecological value.
- The ECoW will identify and agree additional storage areas during works where required.
- Any topsoil storage area identified within 'AMBER' habitats may require vegetation clearance (e.g. if vegetation has regrown following being cut for the reptile clearance, this will be directed by the ECoW) and topsoil stripping, as described in this document and Ecological Method Statement and Reptiles and Amphibians Method Statement (Redstart, 2021b and 2021c).
- The topsoil will be stripped, stored and mapped according to habitat under the supervision of the ECoW.
- Storage areas will be clearly signed and demarcated and protected from compaction by heavy plant machinery and mixing between different layers or different soil types.
- The seed/root-bearing topsoil will be formed into low bunds no greater than 1 metre in height or width.
- The duration of storage for topsoil will be as short as possible and storage bunds will be reviewed on a regular basis by the ECoW. Any additional measures to protect the condition of the materials (such as keeping them moist) will be implemented.

4.3.6 *Turves/ Topsoil reinstatement During the Construction Stage*

Following the Mitigation Strategy Rationale described in Section 3.1, once the material is deposited from the donor (RH01) to the RS-C, the landform of RS-C will be shaped and profiled creating micro-topography within the landform, such as shallow ripples (approximately 300 mm in height) within the plateau and steps within the slopes of the landform.

Turf and topsoil reinstatement will be undertaken following the installation of the drainage system and profiling of the RS- C landform. Turves will be laid on to higher and flatter ground and steps of the RS-C and donor site RH01; topsoil will be reinstated in depressions and ripples within the micro-topography created on RS-C; within swales and attenuation areas of the drainage and on the donor site RH01 for natural regeneration.

Turf reinstatement

- This translocation method will be carried out by using the least damaging machinery possible.
- Turves shall be laid when the weather conditions are suitable (to avoid translocation during prolonged rains, very dry and frosty weather).
- Prior to turves translocation, the receiving surface shall be prepared by, lightly and uniformly raking, to relieve compaction. Large stones/rocks shall be removed from the surface.
- The turves shall be laid on the prepared turf bed firmed into position similar to brick laying sequence – “stretcher bond”, according to the habitat and orientation (these details noted by the ECoW during the turf stripping).
- The whole and less damaged turves should be used at the turfing edges and margins.
- Any gaps between the turves shall be filled with the soil excess, stored separately from the turves.
- The consolidation of the turves will be achieved by walking systematically over the turves.
- The newly laid area shall be protected by rabbit proof fencing. Rabbit proof wire fence (approximate dimensions of over 1.0m in height with 30 mm hexagonal mesh 19 swg gauge) to be turned out (away from the habitat, dug into the ground to a depth of 300mm and backfilled with excavated material and topsoil. The netting shall be properly strained and stapled to outside posts and stakes with the netting at least 750mm above the ground.
- Immediately after laying the turves shall be watered. The contractor shall be responsible for the adequate water supply and irrigation in the area throughout the construction and after-care period.
- No fertiliser shall be used due to valuable habitat presence.

Topsoil spreading

- The topsoil will be re-laid onto the RS-C in discrete habitat areas and left untreated to allow natural regeneration.
- The topsoil spreading must be carried out in a planned systematic way to ensure that the topsoil and turves are not damaged/ compacted or tracked over.
- Topsoil shall be loose tipped and spread to a depth of 100mm.
- The topsoil will be consolidated lightly and not compacted in 100-150mm layer.
- The edges will be filled and levelled with topsoil.
- No topsoil operations will be allowed during adverse weather conditions such as:
 - Prolonged heavy rain.
 - Pools of water within the RS-C.
 - Frozen and/ or snow-covered ground.

4.4 Landscape of the Landforms of the RS-C and Tylorstown Tip

Landscape and Water Management designs will follow the mitigation strategy outlined in this document, incorporating features of importance for biodiversity while constructing and reprofiling the landforms of the RS-C and Tylorstown Tip. All reseeded, as a part of erosion measures were carefully considered during the consultation with County Ecologist, particularly the following points:

- A local Welsh supplier should be used to source plant and seeds.
- Only two grass species (common bent (*Agrostis capillaris*) and red fescue (*Festuca rubra*)) should be used either for pre-seeded hessian mats or seeded on the steep slopes, as erosion measures.
- Slipped debris material is likely to contain acid grassland and dry heath habitat seed bank, therefore it could re-establish itself once the erosion measures are in place.

5. Mitigation of Indirect Impacts on Priority Habitats within SINC

5.1 Hydrological effects

Two of the Priority Habitats within SINC - Marshy grassland and acid/neutral flush (M23, M25 and M6 in National Vegetation Classification (NVC) terms) are potentially groundwater dependant terrestrial ecosystems (GWDTE) with high to medium level of dependency.

Based on the geological and hydrological assessments undertaken as part of the EIA (see Section 2.1) it is considered that these habitats are unlikely to be groundwater fed, however the change in the topography of the site due to the material deposition and creation of the RS-C landform will alter the shape and the extent of the wetland habitats on site. The marshy grassland habitat within the proposed area of the RS-C will be permanently lost to the Proposed Scheme, therefore even though the wetlands on site are unlikely to be GWDTE, the natural drainage pattern should be preserved as far as possible, and the engineered drainage design has taken the surrounding remaining habitats into consideration as much as possible. It is proposed that the drainage design will utilise existing depressions and follow the natural relief of the site, avoiding highly biodiverse areas, such as dry heath and acid/neutral flushes as far as possible and preserve the remaining wetlands outside of RS-C area of footprint.

The most valuable wetland habitats on site are considered to be three areas of acid/neutral flush (TN5, TN25, TN9) and the small area of raised bog (TN9), referred to as "RED" areas on the Constraints Plan for Phase 4 (GC3613-RED-01-XX-SK-C-0005.). The design of the footprint of the RS-C was reduced to avoid these habitats as far as possible, resulting in, the acid/neutral flush at TN9 being completely outside of the RS-C footprint and two areas at TN5 and TN25 (including the area of acid/neutral flush supporting a sustainable population of nationally and regionally 'Near threatened' ivy-leaved bellflower) only partially within the footprint. These residual impacts will be mitigated by turf translocation in near-by suitable habitat outside of the RS-C footprint and redline boundary. The translocated area will be protected by security fencing to avoid heavy load machinery tracking over the habitat.

Acid/neutral flush and marshy grassland turves/ topsoil be reused and reinstated within the newly excavated swales and attenuation areas around RS-C and within the reprofiled donor site RH01 to promote natural regeneration of marshy grassland and upland species such as ivy-leaved bellflower and hare's-tail cotton-grass (*Eriophorum vaginatum*), as described above in Section 4.

6. After-care and long-term monitoring and management.

6.1 After-care following the construction and Improvement of Habitat Conditions within the SINC

The Local Authority will be responsible for the production of a Five-year Aftercare Plan which will ensure the establishment of the reinstated habitats, control the growth of the heath assemblage plant species, to ensure the turves establishment and monitor the progress of the natural regeneration, as detailed in Mitigation Strategy Plan. The site should be monitored and managed annually. The monitoring should include a survey of habitat condition (e.g. disturbance from the public, negative species indicators) and population levels of key species (e.g. positive species indicators – heather, crossed leaved heath, sheep fescue, heath-grass; heath-rush; hare's tail cotton-grass, tormentil, bilberry, lower plants cover). The results should inform any additional actions required to improve the success of the mitigation strategies.

Weeding, watering and invasive species control should be included in the Aftercare Plan:

- The contractor will be responsible for supplying adequate irrigation until heath plant species assemblage establishment.
- Weed control of pernicious weeds (e.g. broadleaved dock (*Rumex obtusifolius*), creeping or field thistle (*Cirsium arvense*)) should be carried out by cutting and removal arisings from the site to prevent them to set seeds.
- Bracken and scrub control should be in place if required. This should be done by strimming /cutting and arisings will be removed of site.
- Extensive areas of grassland monoculture (particular Yorkshire fog (*Holcus lanatus*) or red fescue (*Festuca rubra*) should be cut, and arisings should be removed from site. If the grass lawns became established and grass coverage is too dense, disturbance and thinning of the habitat should be carried out to create clearings and allow heath plant species to establish.

No soil ameliorant fertilisers and herbicides should be used within the site.

Biosecurity measures should be included and followed by the contractor in the Invasive Species Method Statement (e.g. Himalayan balsam was identified on site).

It would be beneficial to fence the area until the heath habitat has re-established. An information board with the site history, details of habitat restoration and plans for the future would be beneficial to inform the general public.

6.2 Long-term Monitoring and Management

The Old Smokey Slopes SINC comprises an extensive area of fridd habitat within the slopes and mosaic of acid grassland dry heath habitat and wetland habitats (marshy grassland, flushes and mires) based partly on natural ground and partly on coal spoil. Therefore, the following should be considered within long-term monitoring and included as a part of Management Plan.

6.2.1 *Maintenance of the Mosaic of Habitats*

A combination of varied topography, aspect, substrate composition, hydrology and pH on colliery spoil sites results in complex habitat mosaics in close proximity. The presence of natural habitats between areas of colliery spoils adds to the complex requirements for the habitat management within the site and therefore these aspects should be taken into consideration within long-term Habitat Management Plan.

If conservation grazing is deployed on the site in the future, it will have to be managed successfully. Overgrazing is one of the most serious threats to dry heath and acid grassland, leading to rank grassland, bracken and possibly scrub encroachment. Undergrazing will lead to scrub and bracken encroachment and as a result habitat degradation as well.

If grazing is not deployed a cutting regime may be introduced (avoiding the use of heavy machinery). It would be important to cut on rotation to preserve structural diversity of vegetation across the site.

Invertebrate communities that are characteristic of heathland, including specialist invertebrate species (brush-thighed seed-eater (*Harpalus froelichii*), burrowing inverts and mining bees) should be taken into the consideration within the Management Plan.

Non-native invasive species (e.g. Himalayan balsam), self-regeneration of conifer plantations agricultural improvement involving the use of chemicals or re-seeding and wildfires are a significant threat to the habitats on site.

6.2.2 *Nutrient enrichment and chemical pollution pressure*

Any use of chemicals, fertilisers within heathland habitats is damaging, and would reduce the quality of all Priority habitats on site, e.g. some dung-feeding inverts could be threatened if the any grazing animals are treated with broad-spectrum antiparasitic avermectin medicine. Nitrogen fertilisers such as nitrogen oxides increase nutrient level within habitats, which encourages graminoids (grass species) to grow, outcompeting the forbs (flowering plants), reducing plant biodiversity and as a consequence impacting other components of the ecosystem leading to the habitat deterioration and loss.

If grazing is deployed stock feeding should be avoided and if it is not possible it should be part of the management plan for the heathland management, as the stock-feeding could lead to localised nutrient enrichment around the feeding areas.

6.2.3 *Scrub and Bracken Management and Control*

Bracken and scrub control is required in places where bracken and scrub are overtaking grassland and rich-violet habitats. Scrub patches are important to maintain an edge habitat, creating a mosaic with varying heights. Occasional scrub clearance is encouraged for violet species regeneration. It is important to consider that scrub is important habitat providing shelter particularly where the sites are too exposed.

Methods of bracken and scrub management and control measures should be carefully considered. Chemical treatment can be considered within very dense bracken patches with no other fern species present within the swards. Selective spraying in late summer or early autumn before the bracken begins to die back would be an option. Mechanical methods should be avoided on steep slopes due to soil displacement and run-off (NE, 2008).

Scrub (bramble, hawthorn, gorse) and bracken encroachment should be managed with the consideration of other species (e.g. reptiles, amphibians, birds).

6.2.4 *Fritillary Butterfly Species*

The SINC citation includes the suitability of the slopes for Protected/ Priority invertebrate species such as grayling, high brown fritillary, dark green and small pearl-bordered fritillary butterflies, therefore these species should be included within the Management Plan as a target species. The structure of the habitats within SINC should be maintained as follows (BC, 2020):

- Abundance of dog-violet species in medium height swards in association with bracken, acid grassland and marshy grassland/mire;
- Presence of some areas of leaf litter, grass/sedge/ rush tussocks and some scrub for butterfly larvae to overwinter;
- Presence of plants with suitable nectar sources in early spring; and
- Bracken, scrub and invasive species control.
-

6.2.5 *Grazing*

The abundance of violets should be encouraged by suppressing the grass and bracken growth within the mosaic of bracken and grassland habitat. Light extensive or periodic grazing by pony or cattle is ideal during the winter and early spring. Grazing cattle or horses would also control bracken and scrub growth by breaking its fronds, trampling over, and breaking dense dead bracken vegetation, which is creating a dense ground cover and suppressing growth of violets. Any grazing should be reduced in summer to enable violets vegetation growth to develop better. Heavy grazing particular by sheep is detrimental for the habitats present on site. Where grazing is impractical autumn mowing and raking can be effective to maintain suitable habitat.

No water supply currently exists at the site and therefore provision of water will be required if grazing is deployed.

7. Protected Species Mitigation Strategy

The mitigation strategy for Protected/ Notable species is collated in Table 8:

Table 8: Mitigation strategy for Protected/ Notable species

Species	Impacts	Mitigation Strategy	Associated documents
Great Crested Newt (GCN)	<p>Direct impacts – injury/ death or killing by construction work;</p> <p>Indirect impacts – degradation and loss of the suitable terrestrial habitat. No suitable waterbodies are identified within the redline boundary.</p>	<p>Vegetation clearance strategy was developed and outlined in Reptiles and Amphibian Site Clearance Method Statement, which includes the following:</p> <ul style="list-style-type: none"> • Ecological Clerk of Works (ECoW) will be appointed to oversee the implementation of the mitigation measures. This will be certified by Environmental Monitoring and Implementation (EM&I) Certification. • Ecological Toolbox Talk will be delivered by ECoW prior to commencing work on site. • Removal of natural refugia/ walls within the footprint of the works. • Hibernation period will be avoided during any earth-moving works and refugia dismantling • Reptile fencing should be erected (any time before 1st of March) and maintained around the site to exclude any accidental entrance to site. • A two-stage cut of the vegetation will be carried out to maximise the chances of any GCN present leaving the area and moving to the suitable habitat that is being retained nearby. • Following clearance of the site, artificial refugia (reptile mats) will be placed within the redline boundary, checked regularly to ensure, no GCN is present on site. • During any earthmoving works the topsoil will be carefully and systematically excavated and the ECoW will search for GCN as the work progresses. 	<p>Construction Environmental Management Plan (CEMP) Ecological Method Statement (EMS); Reptiles and Amphibian Site Clearance Method Statement (RASCMS); Environmental Monitoring and Implementation (EM&I) Certificate.</p>

Species	Impacts	Mitigation Strategy	Associated documents
		<ul style="list-style-type: none"> In the unlikely event that a GCN is found on site all works will cease and an appropriate licence will be sought from NRW. Works will only re-commence when the licence and associated method statement is in place. 	
Bats	Potential to disturb bats and their roosts.	<p>It is not proposed to remove any mature broadleaved trees, however, if the proposal is changed, further investigation will be required:</p> <ul style="list-style-type: none"> Additional inspection (Ground Level Tree Assessment- GLTA) to identify any trees with bat roost potential features. Where trees are identified as having low potential to support roosting bats, they will be section-felled under ecological supervision. The felled material will be left on site for a minimum of 24 hours to allow any animals present to move away. If, during the works, any trees are identified as having moderate or high potential for roosting bats, the trees will not be felled or limbed. The appropriate level of surveys will be carried out following published best practice guidelines. The results of these surveys will be used to inform an assessment of the impacts on the bat species identified, any mitigation/compensation measures and any requirement for a licence. 	CEMP; EMS

Species	Impacts	Mitigation Strategy	Associated documents
		<p>No work will be carried out at night ensuring that foraging bats are not disturbed, and that their flight lines are not severed by artificial lighting.</p> <p>If any additional lighting is required, for health and safety or security reasons, the location, specification and layout will be discussed with the ECoW.</p> <p>Should a bat or bat roost be identified, then works in the area will cease and a licensed bat ecologist consulted. An appropriate license will then be sought from NRW.</p>	
Otter	Indirect impact from pollution.	<p>Works within the main watercourse of Rhondda Fach are not anticipated, however indirect impact through pollution entering the drainage system of the tips and consequently the river should be avoided and standard best practice and pollution control measures will be implemented in accordance with relevant guidance (See Section River Rhondda Fach).</p> <p>These measures will be detailed in the contractor's CEMP.</p> <p>Silt prevention measures will be installed to prevent debris and sediment entering the watercourse and impacting the fish population.</p> <p>No works will be carried out within 30m of the two otter resting holts identified on the river.</p>	CEMP; EMS

Species	Impacts	Mitigation Strategy	Associated documents
		<p>Where possible the creation of any obstructions to established otter paths/access to open water will be avoided.</p> <p>Any exposed pipe systems near the river/ riverbanks will be capped when contractors are off site and exit ramps will be provided from any exposed trenches or holes (to prevent otters entering and becoming trapped).</p> <p>Working at night during the hours of darkness and within 1 hour after sunrise and 1 hour before sunset will be</p>	
Badger	Disturbance, injury or death of badgers and/or disturbance or destruction of a sett.	<p>A pre - construction check 100 m either side of works sites and compounds immediately prior to construction to find whether any badger setts have been established.</p> <p>The ECoW will remain vigilant for evidence of badger activity and the presence of badger setts in the vicinity of the works.</p> <p>If an active badger sett is identified no works can be carried out within 30m of the sett.</p> <p>If works are required within 30m of the sett an appropriate licence will be sought from NRW and works in that area can only commence if and when the licence is granted.</p> <p>Food must be disposed of properly to avoid attracting badgers onto the site.</p>	CEMP; EMS

Species	Impacts	Mitigation Strategy	Associated documents
Breeding birds	Intentional damage or destruction of the nest of any wild bird while it is in use or being built and/or destruction of eggs of any wild bird.	<p>Trenches or holes will be covered overnight and when site workers are not on site or exit ramps will be provided.</p> <p>All site operatives will receive a toolbox talk delivered by the ECoW prior to the commencement of work on site. The talk will cover the possible location of bird nests and actions to be taken should a nest be unexpectedly discovered.</p> <p>Works will be carried out in such a way as to ensure that no birds, eggs or active nests are damaged or destroyed.</p> <p>The following recommendations are made in order of preference. The chosen option will be outlined in CEMP.</p> <p>Option 1—All site clearance activities are undertaken outside of the breeding bird season</p> <p>All site preparation (vegetation removal, topsoil stripping etc) and construction activities will be undertaken between September and February inclusive to avoid the main bird breeding season i.e. March to August inclusive. This is the most effective way of avoiding impacts and meeting legal requirements.</p> <p>Option 2- Partial site clearance activities undertaken during the bird breeding season</p>	CEMP; EMS; Reptiles and Amphibian Site Clearance Method Statement (RASCMS); Environmental Monitoring and Implementation (EM&I) Certificate.

Species	Impacts	Mitigation Strategy	Associated documents
		<p>The vegetation clearance (tree, brush removal) will be undertaken outside the bird breeding season i.e. September to February inclusive.</p> <p>Removing all cut material from site and maintaining the cleared area of any brush and scrub make it unsuitable for the breeding birds.</p> <p>Ground nesting birds</p> <p>During the bird breeding season (March to August inclusive) the ECoW will check the area for nesting birds 48 hours prior to any construction activities and earth-moving works (turf/ topsoil stripping).</p> <p>If no nesting birds are identified within the area, works can proceed but if nesting is confirmed a species-specific 'no works zone' of undisturbed habitat will be established (to be determined by the ECoW but no less than 5 m) until the nest is no longer active.</p> <p>Active nests will be checked on a regular basis and clearance within the exclusion zone will only be permitted when the ECoW is satisfied that the nest is inactive.</p> <p><i>Option 3 - Site clearance during the bird breeding season</i></p>	

Species	Impacts	Mitigation Strategy	Associated documents
		<p>An ECoW will check the area for nesting birds 48 hours prior to any activities on site (vegetation clearance, turf/topsoil removal etc.).</p> <p>The works can only proceed if no nesting birds are identified within the area of the proposed works.</p> <p>If a nest is found a species-specific 'no works zone' of undisturbed habitat will be established (to be determined by the ECoW but no less than 5 m) until the nest is no longer active.</p> <p>Active nests will be checked on a regular basis and clearance within the exclusion zone will only be permitted when the ECoW is satisfied that the nest is inactive.</p> <p>WCA Schedule 1 Bird Species</p> <p>If Schedule 1 bird species are found to be nesting or constructing nests within 30 m of the scheme at any time during the development a risk assessment would be required to determine the likelihood of birds being disturbed by the construction activities and also to determine the appropriate extent of the exclusion zone. Any exclusion zone would need to be maintained until the end of the breeding season.</p> <p>Common crossbill (WCA Schedule 1 bird species) possibly breed in the forestry plantation 100 m east of the</p>	

Species	Impacts	Mitigation Strategy	Associated documents
		<p>receptor site and this species often commences breeding early in the calendar year.</p> <p><i>Siting of plant, compounds and access routes</i></p> <p>Some species recorded as breeding close to the proposed receptor site (e.g.) meadow pipit and skylark have specific breeding habitat requirements and are likely to return to the same areas to breed in subsequent seasons. Optimal habitat for these species will be retained where possible. An ECoW with ornithological experience should be consulted prior to any construction of access routes, siting of plant, machinery or compounds to minimise loss or disturbance to suitable breeding habitat for the above species.</p>	
Reptiles and amphibians other than GCN)	<p>Loss of habitats suitable to support reptiles and amphibians.</p> <p>Killing or injuring common reptiles.</p>	<p>See GCN Section. More detailed information is specified in the separate Reptiles and Amphibians Site Clearance Method Statement.</p> <p>The programme will ensure that once cleared, the receptor areas do not recolonise with vegetation to become reptile 'suitable' and appropriate on-going management will be employed until the remediation works commence.</p>	<p>CEMP; EMS; Reptiles and Amphibian Site Clearance Method Statement (RASCMS); EM&I Certificate</p>
Fish	<p>Injury and/or death of fish indirectly through pollution of the river channel, disturbance</p>	<p>Works within the main watercourse of Rhondda Fach are not anticipated, however indirect impact through pollution entering the watercourse from the drainage system on the tips will be avoided and standard best practice and pollution control measures will be</p>	<p>CEMP; EMS; Reptiles and Amphibian Site Clearance Method Statement (RASCMS); EM&I Certificate</p>

Species	Impacts	Mitigation Strategy	Associated documents
	of feeding sites and spawning grounds.	<p>implemented in accordance with relevant guidance (e.g. CIRIA, 2001 and Environment Agency (2018) Guidelines for Pollution Prevention (GPP), particularly GPP 5). These measures will be detailed in the contractors CEMP.</p> <p>Silt prevention measures will be installed to prevent debris and sediment entering the watercourse and impacting the fish population (see section Rhondda Fach).</p>	
Priority invertebrate species e.g. large grayling butterfly, mottled grasshopper, dark green fritillary, small pearl-bordered fritillary and high brown fritillary butterflies	Potential loss of habitats (such as heath, acid grassland and violet rich banks) that support, or have potential to support, breeding populations	The areas of bracken will be checked for violet-species rich habitats prior any topsoil stripping. If any violet-rich habitats will be identified, the areas will be demarcated, avoided and protected. If the avoidance is not practical turf translocation and storage in one layer and re-instatement within the RS-C will be implemented under ECoW supervision.	CEMP EMS EM&I Certificate
Well-established anthills	Direct impact from construction and habitat clearance	Avoidance is required where possible.	
Small mammals (other than dormice)	Direct impact from machinery by killing or injuring in the burrow (accidentally crushed	The ECoW will search areas of vegetation for hedgehogs and other small mammals prior to clearance commencing.	CEMP EMS EM&I Certificate

Species	Impacts	Mitigation Strategy	Associated documents
	or asphyxiated during any excavation works)	<p>Rabbit burrows will be temporarily fenced off and the entrances soft stopped with grass overnight. The ECoW will check the following morning, prior to destruction, to ascertain whether the burrow is in use.</p> <p>If the burrow is in use, it will be dug out with hand tools or a mini digger under ecological supervision to ensure no animals are harmed.</p> <p>Where excavation of land is required the topsoil will be carefully and systematically excavated and the ECoW will search for small mammals as the work progresses.</p> <p>Any small mammals found on site, will be translocated from the construction zone into adjacent suitable habitat.</p> <p>Following clearance of the site, reptile mats will be placed around the site periphery and checked regularly to ensure any small mammals remaining on the site are captured and moved to suitable, adjacent habitat.</p>	
Bluebell (Hyacinthoides non-scripta) and other protected flora within donor site.	Disturbance and loss of bluebells.	Topsoil containing seedbank or turves will be stripped, stored and reinstated within an appropriate habitat on the work completion.	CEMP EMS EM&I Certificate
Ivy-leaved bell flower	Direct impact – disturbance and loss	Ivy-leaved bellflower will be translocated into suitable receptor habitats on the site.	CEMP EMS EM&I Certificate
Lower Plants	Direct impact from the construction works - disturbance and loss.	Open habitats will be retained, or new open habitats created where possible to benefit <i>Scapania lingulata</i> .	CEMP EMS EM&I Certificate

Species	Impacts	Mitigation Strategy	Associated documents
		<p>Areas of spoil will be allowed to rest as heaps, or one steep-sided heap rather than as a flat expanse of soil. The locations will be indicated by the ECoW during restoration.</p> <p>It is not practicable to protect the track which has <i>Scapania lingulata</i>, as without periodic disturbance the bare-ground habitat will be lost. Retention or creation of open habitats at the site is the best way of conserving such species.</p> <p><i>Lecidea promixta</i> needs recently exposed surfaces and disturbed ground.</p> <p>Ground pollution events will be prevented by measures outlined in the CEMP.</p>	

8. References

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Drawings

GC3613-RED-74-XX-DR-L-0002_S2 P01 - Tylorstown Landslip Phase 4. Designated Sites

GC3613-RED-61-XX-DR-L-0016 - 0018 Tylorstown Landslip Phase 4. Phase 1 Habitat

GC3613-RED-61-SK-DR-C-0005 – Tylorstown Landslip Phase 4. Constraint Prioritisation Plan



- KEY:**
- Red line boundary
 - Receptor Site C
 - A - Woodland and scrub**
 - Woodland Broad-leaved Semi-natural (A1.1.1)
 - Woodland Coniferous Plantation (A1.2.2)
 - Scrub Dense/continuous (A2.1)
 - Scattered trees Broad-leaved (A3.1)
 - Scattered trees Coniferous (J3.2)
 - B - Grassland and marsh**
 - Acid grassland Unimproved (B1.1)
 - Acid grassland Semi-improved (B1.2)
 - Marsh/marshy grassland (B5)
 - C - Tall herb and fern**
 - Bracken Continuous (C1.1)
 - Bracken Scattered (C1.2)
 - D1 - Heathland**
 - Dry heath (D1)
 - Dry heath/acid grassland mosaic (D5)
 - E - Mire**
 - Bog Sphagnum bog Raised bog (E1.6.2)
 - Flush and spring Acid/neutral flush (E2.1)
 - G - Open water**
 - Standing Water (G1)
 - Rhondda Fach River
 - J - Miscellaneous**
 - Buildings / Hardstanding (J3.6 / J5)
 - Bare ground (J4)
 - Wall (J2.5)
 - Ditch/Drain
 - Slip
 - Target Note

Rev	Drawn	Chkd	App	Description	Date
02	SH	NH	RT	For Issue	12/08/2021
01	SH	NH	RT	For Issue	11/05/2021
01	SH	OK	RT	Created	07/04/2020

Purpose of Issue
S4 - Issued for Planning

Classification
Public

Client
**Rhondda Cynon Taf
 County Borough Council**

Project
Tylorstown Landslip Phase 4

Drawing
Phase 1 Habitat - plan 1 of 3

EIA Drawing Ref
V2-S09-0001

Scale @ A3	Drawn	Checked	Approved
1:3,000	SH	NH	RT

Project No	Date
CS100303	12/08/2021

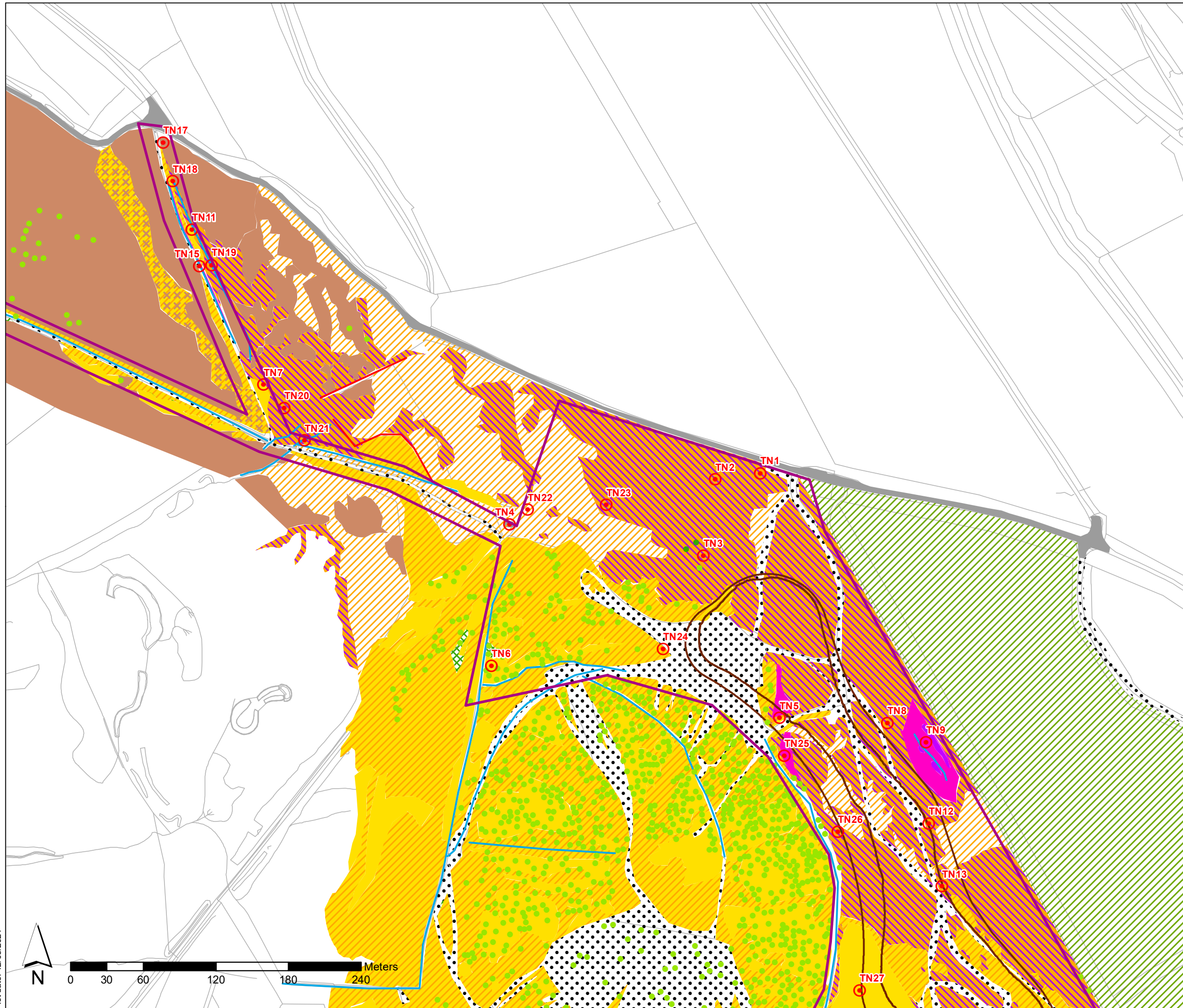
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GC3613-RED-61-XX-DR-L-0016 P02



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Plot date: 12/08/2021





- KEY:**
- Red line boundary
 - Receptor Site C
 - A - Woodland and scrub**
 - Woodland Broad-leaved Semi-natural (A1.1.1)
 - Woodland Coniferous Plantation (A1.2.2)
 - Scrub Dense/continuous (A2.1)
 - Scattered trees Broad-leaved (A3.1)
 - Scattered trees Coniferous (J3.2)
 - B - Grassland and marsh**
 - Acid grassland Unimproved (B1.1)
 - Acid grassland Semi-improved (B1.2)
 - Marsh/marshy grassland (B5)
 - C - Tall herb and fern**
 - Bracken Continuous (C1.1)
 - Bracken Scattered (C1.2)
 - D1 - Heathland**
 - Dry heath (D1)
 - Dry heath/acid grassland mosaic (D5)
 - E - Mire**
 - Bog Sphagnum bog Raised bog (E1.6.2)
 - Flush and spring Acid/neutral flush (E2.1)
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 - Rhondda Fach River
 - J - Miscellaneous**
 - Buildings / Hardstanding (J3.6 / J5)
 - Bare ground (J4)
 - Wall (J2.5)
 - Ditch/Drain
 - Slip
 - ⊙ Target Note

02	SH	NH	RT	For Issue	12/08/2021
01	SH	NH	RT	For Issue	11/05/2021
01	SH	OK	RT	Created	07/04/2020
Rev	Drawn	Chkd	App'd	Description	Date

Purpose of Issue
S4 - Issued for Planning

Classification
Public

Client
**Rhondda Cynon Taf
 County Borough Council**

Project
Tylorstown Landslip Phase 4

Drawing
Phase 1 Habitat - plan 2 of 3

EIA Drawing Ref
V2-S09-0002

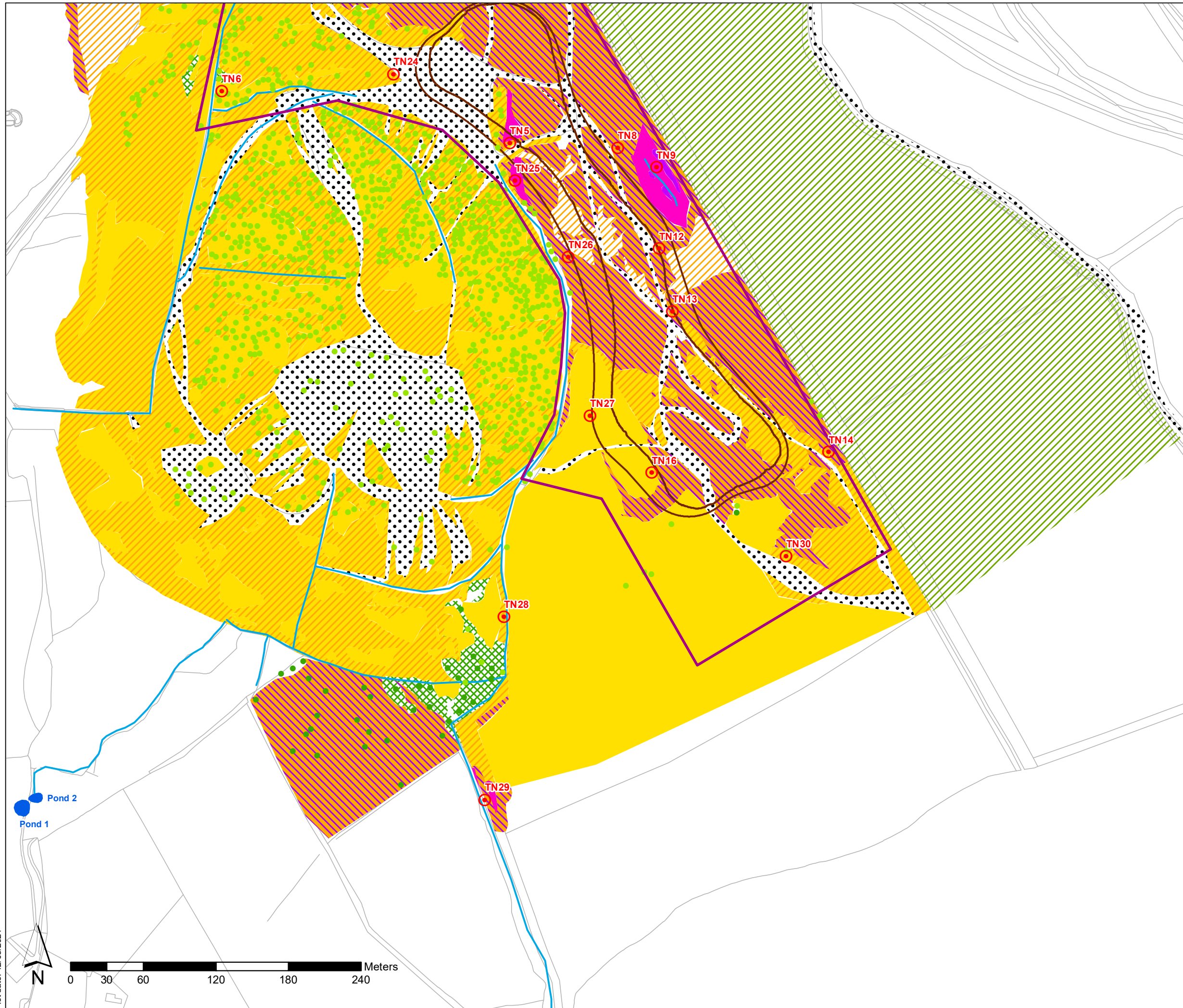
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Project No	Date
CS100303	12/08/2021

Drawing Identifier
 Project - Originator - Zone - Level - FileType - Role - Number Revision
GC3613-RED-61-XX-DR-L-0017 P02



Plot date: 12/08/2021



- KEY:**
- Red line boundary
 - Receptor Site C
 - A - Woodland and scrub**
 - Woodland Broad-leaved Semi-natural (A1.1.1)
 - Woodland Coniferous Plantation (A1.2.2)
 - Scrub Dense/continuous (A2.1)
 - Scattered trees Broad-leaved (A3.1)
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 - Bracken Scattered (C1.2)
 - D1 - Heathland**
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 - G - Open water**
 - Standing Water (G1)
 - Rhondda Fach River
 - J - Miscellaneous**
 - Buildings / Hardstanding (J3.6 / J5)
 - Bare ground (J4)
 - Wall (J2.5)
 - Ditch/Drain
 - Slip
 - Target Note

02	SH	NH	RT	For Issue	12/08/2021
01	SH	NH	RT	For Issue	11/05/2021
01	SH	OK	RT	Created	07/04/2020
Rev	Drawn	Chkd	App'd	Description	Date

Purpose of Issue
S4 - Issued for Planning

Classification
Public

Client
**Rhondda Cynon Taf
County Borough Council**

Project
Tylorstown Landslip Phase 4

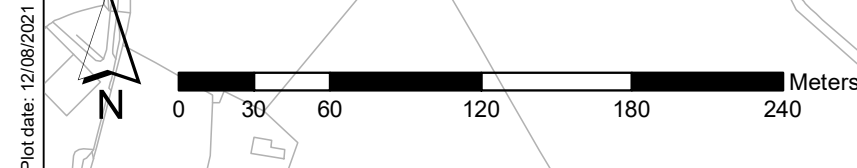
Drawing
Phase 1 Habitat - plan 3 of 3

EIA Drawing Ref
V2-S09-0003

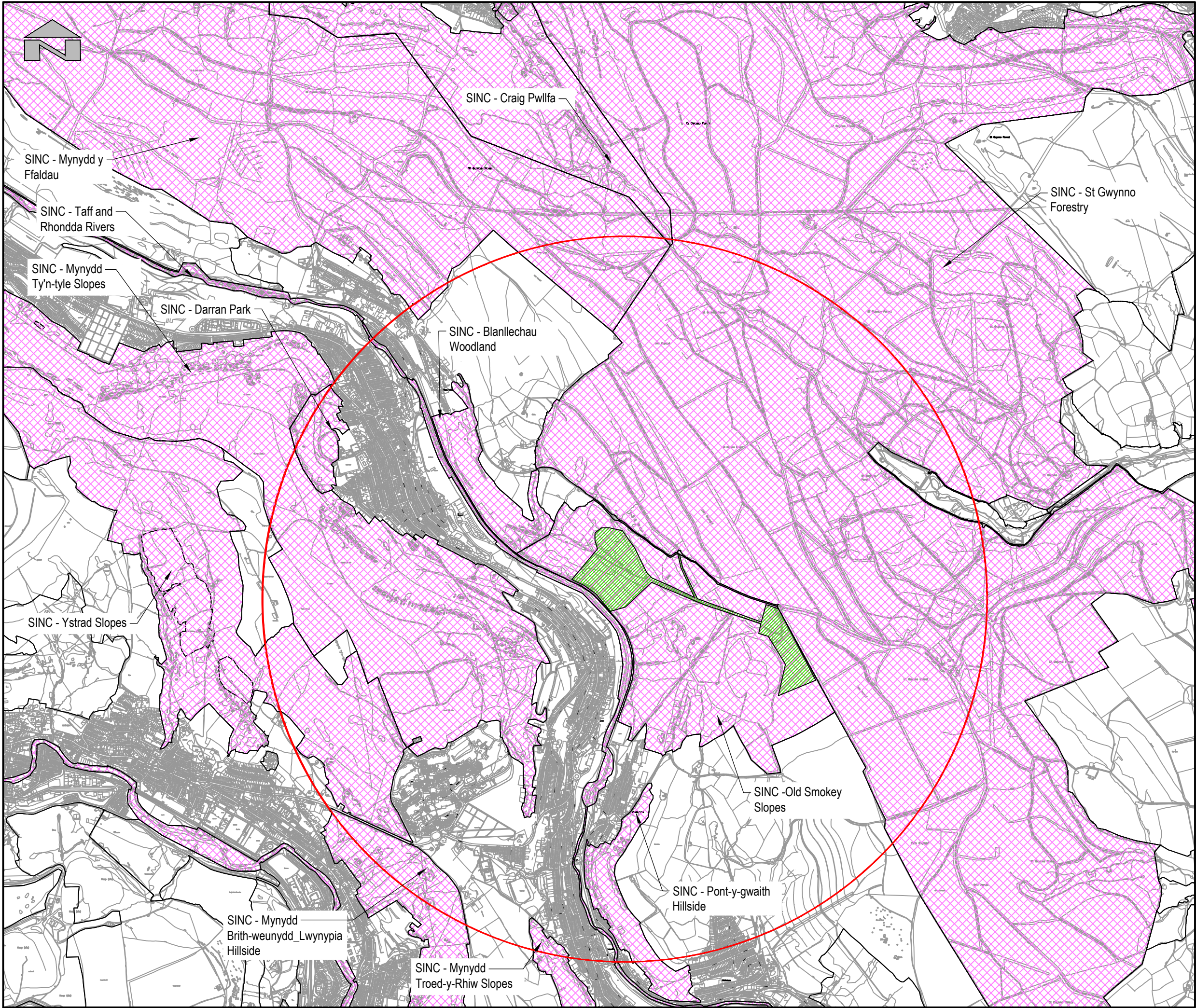
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Project No	Date
CS100303	12/08/2021

Drawing Identifier
Project - Originator - Zone - Level - FileType - Role - Number Revision
GC3613-RED-61-XX-DR-L-0018 P02



Plot date: 12/08/2021



Key:

- 2km Radius
- Site of Important Nature Conservation
- Site Location

Trwydded yr Arolwg Ordnans 100023458
 Ordnance Survey Licence 100023458

Rev	Dwn	Chkd	App'd	Description	Date
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Purpose of Issue
S2 - Suitable for Information

Classification
Commercial in Confidence

Client
**Rhondda Cynon Taf
 County Borough Council**

Project
Tylorstown Landslide

Drawing
Designated Sites Map

Scale @ A3	Drawn	Checked	Approved
1:20,000	EM	EC	EC

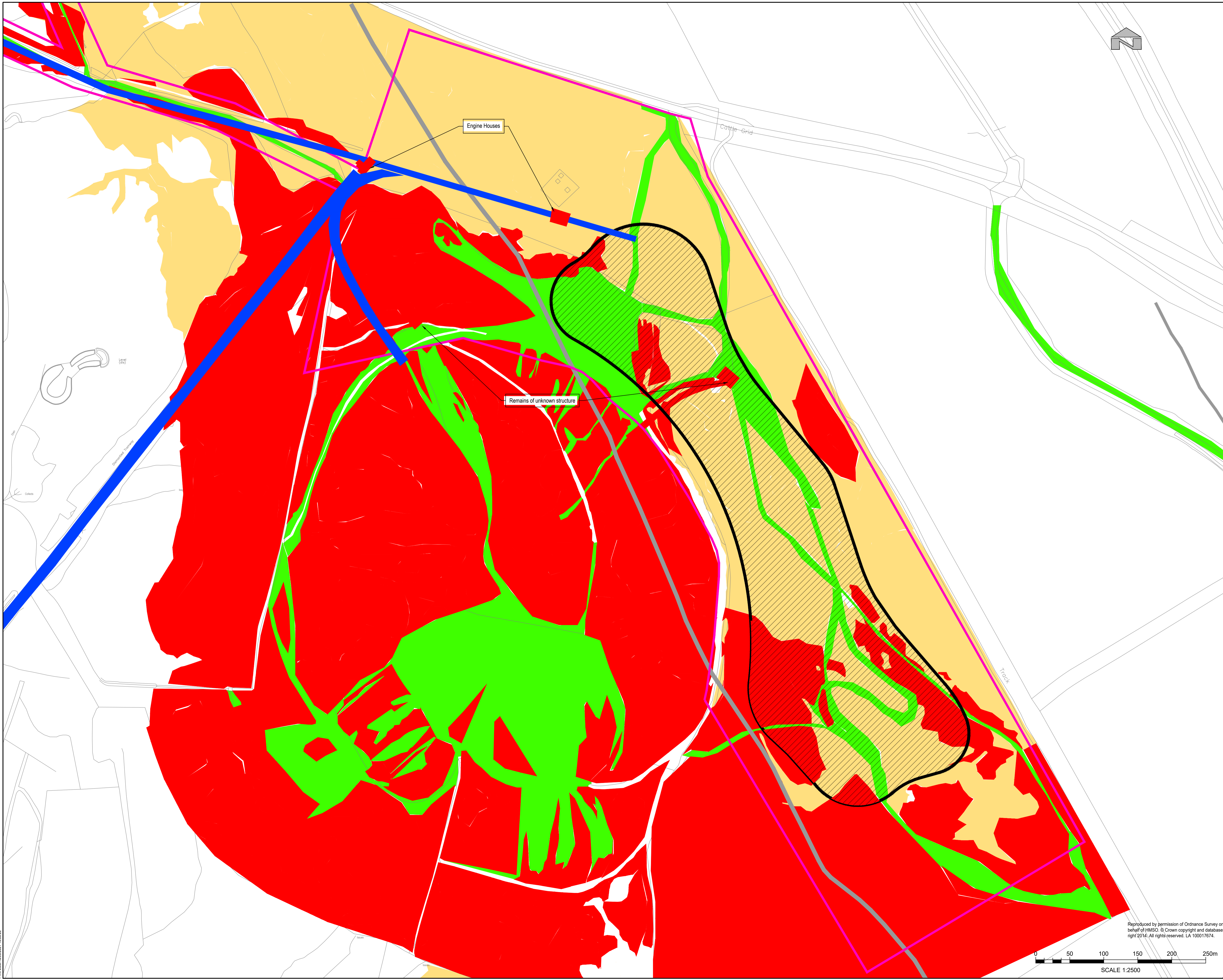
Project No.	Date
GC/003613	October 2020

Drawing Identifier	BS1192 Compliant
Project - Originator - Zone - Level - File Type - Role - Number	rev
GC3613-RED-74-XX-DR-L-0002	P01



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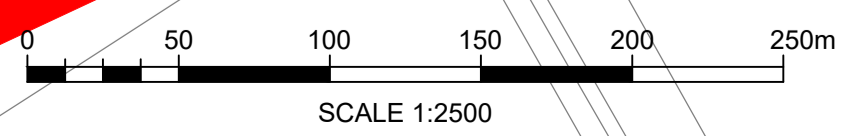
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- Key:
- Phase 4 Planning Boundary
 - Proposed Receptor Site C - planned habitat loss, agreed to mitigate
 - Area 1 Priority Habitats (the most biodiverse)- to avoid
 - Area 2 Priority Habitats - to avoid as far as possible
 - Area 3 - Bare ground - to utilise for works as far possible
 - Heritage Features - Avoid impacts as much as reasonably possible. However, if impacted, can be mitigated through pre-commencement surveys and recording.
 - Public Rights Of Way

Rev	Drawn	Checked	Approved	Description	Date
Purpose of Issue					
S0 - Work in Progress					
Classification					
Confidential					
Client					
Rhondda Cynon Taf County Borough Council					
Project					
Tylorstown Landslide					
Drawing					
Phase 4 Constraint Prioritisation Plan					
Scale @ A1					
1:1000		Drawn		Checked	
		MH			
Project No.					
GC/3613				Date	
				January 2021	
Drawing Identifier					
Project - Originator - Zone - Level - File Type - Role - Number					BS1192 Compliant
GC3613-RED-61-RSC-DR-C-0005					Version
					P01.1

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Appendix 9.8

Potential Bat Roost Inspection

Project:	Tylorstown Landslide Phase 3A & Phase 4 – Tree Assessments for Bats	
Our Reference:	GC/003613-RED-74-XX-RP-L-0013	
Prepared by:	Richard Poole	Date: 29 th April 2021
Approved by:	Geraint Pitman	Checked by: Janine Burnham
Subject:	Inspection of potential roost features for evidence of use by bats.	

Introduction

Rhondda Cynon Taf County Borough Council (RCTCBC) propose to undertake further works to stabilise slopes and improve drainage at the Tylorstown landslide area (central National Grid Reference ST 01136 96100).

Redstart were commissioned by RCTCBC to carry out an assessment of trees that may be impacted upon by planned work for evidence of previous or current use by bats. Figure 1 provides an outline of the survey area.

Figure 1: Outline of area surveyed (from Google Maps, 2021)



Methodology

A Natural Resources Wales licenced bat ecologist (Richard Poole) visited site on 29th April 2021 to undertake a ground level assessment of trees to identify potential roost features (PRFs) and to inspect roost features that were accessible by ladder or from the ground. Potential roost sites (where accessible) were inspected using an LED torch and SeeSnake endoscope to illuminate internal areas of roost features and search for evidence of bat use, e.g. droppings, remains of prey items, urine staining and scratch marks; and to examine deeper areas of roost features for bat presence.

Technical Note

Limitations

Only roost features within 6 m of ground level were inspected, that being the maximum length of the survey ladder used. Some roost features lower than 6 m could not be inspected as the steep gradient of the slope prevented safe access. Trees with roost features above 6 m were assigned a level of potential for bat roost sites in line with best practice guidelines (Collins, 2016).

Results

Bat Tree Assessment

Potential roost features identified in six sessile oaks (*Quercus petraea*) and one silver birch (*Betula pendula*) within the red line boundary for the proposed works for Phase 3A were inspected using an endoscope and torch for evidence of bat use. Five other trees; an ash (*Fraxinus excelsior*) a downy birch (*Betula pubescens*) and three alder (*Alnus glutinosa*) that could be affected by work associated with Phase 4 were also inspected. All potential roost features were recorded and assigned a level of potential in line with the Bat Tree Habitat Key (BTHK 2018).

A total of twelve trees were inspected and results are shown below in Table 1; tree locations can be found on drawing GC/003613-RED-74-XX-DR-L-0008.

Table 1: Ground Level Assessment and Inspection Results for Trees

Tree Number	Species	Roost Feature Number	NGR	PRF Height	Feature Type	Level of potential of PRF and Evidence Found
Phase 3A						
P3T1*	Silver birch	1	ST 00994 96065	2 – 3 m	Hollow trunk with holes and large split exposing feature to elements.	Low. Mouse droppings found.
		2		1 m	Rot hole through centre of trunk, open at top.	Low. Old mouse nest found.
P3T2*	Sessile oak	1	ST 01005 96070	4 m	Rot hole in limb. Depth c.300 x 25 mm suitable for low number of bats.	Moderate. None.
		2		4 m	Rot hole in limb. Depth c.325 x 30 mm suitable for low number of bats.	Moderate. None.
		3		5m	Rot hole in limb. Depth c.700 x 25 mm suitable for Moderate number of bats. Two other access holes,	Moderate. None.

Technical Note

Tree Number	Species	Roost Feature Number	NGR	PRF Height	Feature Type	Level of potential of PRF and Evidence Found
					one at end of feature.	
		4		5 m	Knot hole in trunk.	Low. None.
P3T3*	Sessile oak	1	ST 00995 96071	9 m	Knot hole in trunk. Shallow, c.50 mm.	Low.
		2		3 m	Knot hole in limb. 50 mm deep.	Low. None.
		3		6 m	Knot hole in limb. 50 mm deep.	Low. None.
		4		5 m	Rot Hole. Shallow.	Low. None.
P3T4*	Sessile oak (multi-stemmed)	1	ST 00986 96079	1 m	Hollow trunk. 1 m deep by 100 mm wide. Smooth internal surfaces, easily accessible to predators.	Low. None.
		2		0.5 m	Hollow trunk. Open at top, c.1.2 m long.	Low. None. Mouse droppings found.
P3T5*	Sessile oak	1	ST 01001 96097	1 m	Hollow trunk.	Low. None. Used by mice.
P3T6	Sessile oak		ST01108 95988	9m+	Woodpecker holes and knot holes.	Moderate.
P3T7	Sessile oak		ST 01095 95975		Dense ivy cover but no PRFs or large ivy stems visible.	Low
Phase 4						
P4T1	Ash		ST 01056 96194	6 – 9 m	Multiple features including knot holes, rot holes and woodpecker holes. Exposed location.	Moderate
P4T2*	Downey birch		ST 01062 96203		High level of fluting on trunk and limbs but no features usable by bats.	Negligible
P4T3*	Alder (A cluster of 3)		ST 01058 96208		No features present.	Negligible

Note: * – trees with all visible PRFs inspected internally

None of the PRFs examined contained any evidence of use by bats or had bats present. Low level features



Technical Note

on several oak trees were found to be in use by mice as fresh droppings were found together with two old nests. There was also evidence of past bird nesting in two features with old nests of woodpigeon (*Columba palumbus*) in a tear out on tree P4T2; and a tit (*Parus Sp.*) nest in tree P3T5.

Following inspection of accessible PRFs the following trees were allocated the following level of potential for bat roosts:

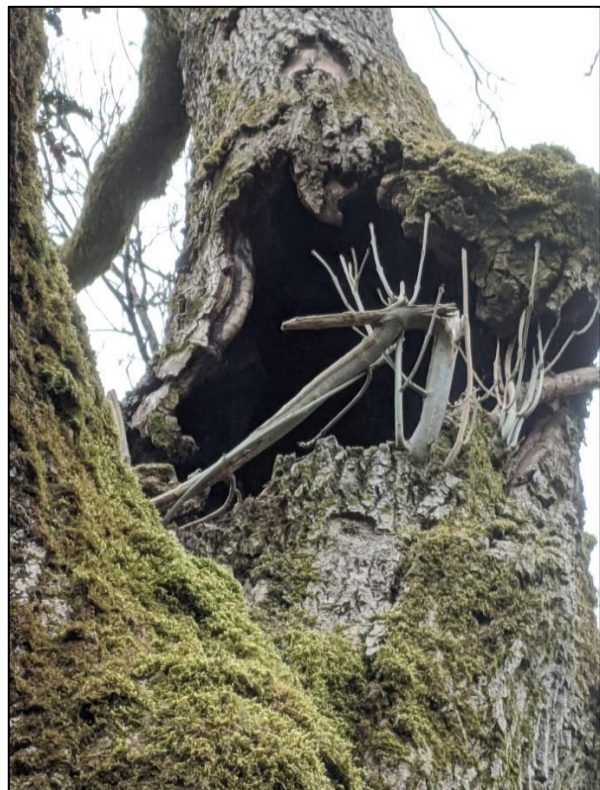
Level of Potential	Tree Number
Low	P3T1, P3T3, P3T4, P3T5, P3T7 P4T2, P4T3
Moderate	P3T2, P3T6, P4T1
High	None

One tree (P4T1 – see Photographs 1 and 2)) had numerous PRFs present (including woodpecker and knot holes) but the exposed location on the valley slopes, level of exposure to weather and limited connectivity to commuting features reduced the likelihood of it being used by roosting bats. None of the features identified on the tree were inspected closely due to the features being inaccessible by ladder.

Two other trees; P3T2 and P3T6 contained features that were deemed as being suitable for use by small numbers of bats so were assessed as having moderate potential for use by roosting bats.

Five trees (P3T1, P3T3, P3T4, P3T5, P3T7) had low potential and two had negligible potential (P4T2, P4T3).

Photograph 1 and 2: Tree P4T1 showing multiple features (arrowed) suitable for use by bats.





Technical Note

Discussion

Trees located to the northwest and southeast of the landslide area were surveyed to assess the level of potential for use of roost features by bats. Twelve trees were surveyed in detail and whilst a number of features were identified as having potential for use; no evidence was found to indicate current or past use by bats. Of the trees identified with moderate potential only P3T2 was inspected in detail, the other two were either in locations that were too hazardous to survey using a ladder or potential roost features were too high to be assessed without climbing.

Trees with negligible potential for bat roosts (P P4T2, P4T3) will not be discussed in this section as there is negligible risk to bats.

Tree P4T1 (moderate potential) is in close proximity to proposed drainage works on the site and may need to be removed. If the final drainage design does not necessitate the removal of the tree there is still a potential risk of disturbance from excavation works if a bat roost was present.

Tree P3T2 (moderate potential) lies at the northern edge of the erosion gully where works may be taking place and may require pruning of lower limbs to allow access for machinery, this has the potential for PRFs located on the two lower limbs to be removed. The proposed excavation for the drainage works will be at a sufficient distance from the tree not to cause further significant disturbance.

Works scheduled to be carried out on drainage improvements adjacent to trees P3T1, P3T3, P3T4 and P3T5 have low potential and are also unlikely to be impacted by the proposed works due to their location.

The installation of steel netting and rock bolts to stabilise the bank and rock face at the south eastern end of the site will likewise have negligible impact upon P3T6 and P3T7 due to their distance from the furthest southern extent of the proposed works. P3T7 has low potential and P3T6, with moderate potential is approximately 70 m from the proposed works. . Drilling and installation of bolts are unlikely to cause any significant levels of vibration that could affect any bats that may be present within roost features.

Recommendations

Tree P4T1

One emergence and one return to roost survey will be required to determine whether any of the features are being used as roosts.

If no bat roosts are identified during the surveys no further action is required.

In the unlikely event that a bat roost is identified in the tree a licence issued by NRW will be required before any work takes place that could damage the tree or disturb bats that may be present.

Removal of the tree should be avoided, if possible, whatever the outcome of the survey,

Tree P3T2

PRFs located on the two lower limbs will need to be inspected prior to removal. Limbs shall be cut and



Technical Note

lowered to the ground and left for 24 hours with PRFs facing upwards to allow any bats that may be present but not observed to escape. Should bats be found during the inspection prior to removal then all work will cease, and a suitably qualified ecologist consulted. A licence will need to be obtained from NRW prior to work continuing.

References

BTHK (2018). *Bat Roosts in Trees – A Guide to Identification and Assessment for Tree-Care and Ecology Professionals*. Exeter: Pelagic Publishing. Cardiff.

Collins, J., (ed.) (2016). *Bat Surveys for Professional Ecologists. Good Practice Guidelines (3rd edition)*. The Bat Conservation Trust, London.



P4T2
P4T3
P4T1

P3T5
P3T4
P3T3
P3T2
P3T1

P3T7
P3T6

Key: Redline Boundary Phase 4
Bat PRFs ● Moderate ● Low ● Negligible
Google Hybrid
Purpose of use: S2 – Suitable for Information
Client: Rhondda Cynon Taf
Project: RCT Tylorstown Landslide
Drawing: Trees with Potential Bat Roost Features
Project No: GC/3613 Date: April 2021
Drawing Identifier: GC3613-RED-74-XX-DR-L-0008
Revision PO1.0

0 25 50 m

Scale 1:2000





Appendix 9.9

Emergence and Return to Roost survey of Tree P4T1

Project:	Tylorstown Landslip Remediation Works	
Our Reference:	GC/003613-RED-74-XX-RP-L-0023	
Prepared by:	Richard Poole	Date: 20 th June 2021
Approved by:	Janine Burnham	Checked by: Holly Lewis
Subject:	Emergence and Return to Roost survey of Tree P4T1	

Introduction

Rhondda Cynon Taf County Borough Council (RCTCBC) propose to undertake further works to stabilise the slopes and improve drainage at the Tylorstown landslide area (central National Grid Reference ST 01136 96100).

Redstart were commissioned by RCTCBC to carry out emergence and return to roost surveys on trees that were found to have potential for roosting bats.

Methodology

An initial survey of roost features on 29th April 2021 identified Tree P4T1, a mature ash tree (*Fraxinus excelsior*) having a moderate potential for use by bats (see Figure 1 for location). In accordance with the the Bat Conservation Trust's Good Practice Guidelines (Collins, 2018) two activity surveys were therefore carried out to assess bat activity at the roost features. A dusk emergence visit was carried out on the 27th May 2021 followed by a dawn return to roost survey on the 15th June 2021.

Figure 1: Location of Tree P4T1 (from Google Maps, 2021)



The dusk survey commenced 15 minutes before sunset and ended 1 ½ after sunset; the dawn survey commenced 1 ½ hours before sunrise and ended at sunrise. Surveys were carried out by an NRW licenced

Technical Note

bat ecologist (Richard Poole) accompanied by one other Redstart ecologist with relevant bat survey experience (Megan Watts or Trevor Fletcher). Surveyors sat on opposing sides of the tree so that all potential features were in view.

Both surveyors used Anabat Express passive bat detectors to record bat activity and used SSF Bat2 heterodyne detectors to listen to bat calls and identify likely species using the displayed call frequency information.

Weather conditions were appropriate for each of the surveys; the environmental parameters and survey timings are detailed in Table 1 below.

Table 1. Environmental Parameters and Survey Timings

Date	Sunrise / Sunset	Start	Finish	Temp Start (°C)	Temp Finish (°C)	Humidity Start (%)	Humidity Finish (%)	Rain	Wind
27 th May 2021	21.16	21.00	22.45	14	12	66	79	None	None
15 th June 2021	04.55	03.31	04.55	10	9	87	87	None	None

Constraints

No constraints were encountered gaining access to the tree or survey locations, and all PRFs were in view of the surveyors.

Emergence and return to roost surveys have inherent constraints due to surveys either ending or commencing in darkness which introduces limitations on the the visibility of bat features and bat activity.

Each bat species differs in its likelihood of detectability, repetition rate and call intensity. Additionally, there is also variation in the sensitivity of different models of bat detectors to different bat calls and this variation should ideally be taken into account when using particular bat detectors.

Ecological survey can only identify what was present on site at the time it was conducted, and habitat use by species can change over time. The length of time that the survey data remains valid will depend on a case-by-case basis, but it is generally considered that if the development or proposed works do not commence within 2 years of the date of this report an update may be required.

Results

Dusk Emergence Survey 27th May 2021:

Bat activity was recorded from 21.05 (11 minutes prior to sunset) when a noctule (*Nyctalus noctula*) was observed flying parallel to the hillside and directly overhead in a south-east to north-westerly direction, returning along the same route some 2 minutes later.

One brief pass was recorded by soprano pipistrelle (*Pipistrellus pygmaeus*) at 21.12, four minutes before sunset. Common pipistrelle (*Pipistrellus pipistrellus*) was recorded foraging over bracken and gorse scrub adjacent to the ash tree, arriving from the direction of Ferndale, located to the north-west of the site. Two common pipistrelles observed foraging over the scrub and around the ash tree continuously throughout the

Technical Note

survey with brown long-eared bat (*Plecotus auritus*) observed flying through the ash tree canopy in a south-east to north-westerly direction at 22.03, forty-seven minutes after sunset. One further pass by soprano pipistrelle was recorded at 22.31.

Common pipistrelles were still present at the end of the survey, but foraging activity had reduced when compared to the activity level earlier in the evening.

No emergence of bats from any of the potential tree roost features was observed.

Note: a coal tit (Periparus ater) was noted to be nesting in a hole in one of the tree limbs.

Dawn Return to Roost Survey 15th June 2021:

A common pipistrelle was heard passing 9 minutes after the start of the survey at 03.40 followed by three passes by soprano pipistrelle between 03.49 and 03.56. Common pipistrelles were again recorded making brief passes at 03.59 and 04.09 before longer periods of foraging activity were observed around Tree P4T1 and adjacent scrub between 04.13 and 04.35. The bats were observed departing in a north-westerly direction towards Ferndale at 04.35 and no other bat activity was recorded. Due to the lack of bat activity the survey was terminated at sunrise.

No bats were observed entering any of the roost features identified on the tree.

Note: a juvenile green woodpecker (Picus viridis) was observed exiting one of the woodpecker holes 10 minutes before sunrise. The bird most likely using the tree as an overnight roost site.

Discussion

Tree P4T1 was initially assessed as having moderate potential for use by bats for roosting. Bat activity surveys have shown, however, that while the features present are suitable for use as roost sites, they are not currently being used by bats for that purpose. Bat activity within the area was regarded as low, with low numbers of bats present on both surveys.

It is unclear at present whether the final drainage design will require the removal of the ash tree; but should removal be required then there is no requirement to first obtain a protected species licence to allow the tree to be felled. The loss of the tree and its features will not have a detrimental impact to the favourable conservation status of bats locally.

Recommendations

Due to the age of the ash tree and abundance of features suitable for use by bats and birds it is recommended that the tree be retained if possible. Should drainage designs require its removal then a precautionary approach should be adopted with the tree being soft felled, and sections of limbs and trunks containing potential roost features shall be lowered to the ground and left for 24 hours with roost features facing upwards.

Features shall also be inspected for bird nests, eggs or dependent young immediately prior to felling and if present, work on the tree shall be postponed until nesting has been completed and young have left the nest.

To minimise impacts on bats and birds it is recommended that any felling work be carried out outside the bird breeding season (March to August inclusive) and prior to the bat hibernation period (November to February inclusive).

Technical Note

References

BTHK (2018). *Bat Roosts in Trees – A Guide to Identification and Assessment for Tree-Care and Ecology Professionals*. Exeter: Pelagic Publishing. Cardiff.

Collins, J., (ed.) (2016). *Bat Surveys for Professional Ecologists. Good Practice Guidelines (3rd edition)*. The Bat Conservation Trust, London.