

APPROPRIATE ASSESSMENT [HRA] RECORD

To be completed by the Merthyr Tydfil County Borough Council (MTCBC) Ecologist in consultation with Natural Resources Wales

Name of relevant MTCBC officer(s):	Matthew Davies (MTCBC Ecologist)
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INTRODUCTION

There is a requirement under the Conservation of Habitats and Species Regulations 2017 (as amended) to determine if a plan or project may have an adverse impact on a site designated under the same (or preceding Regulations) prior to any consent or permission being determined. The process of undertaking this assessment is known as a Habitats Regulations Assessment (HRA).

The 2017 Regulations include measures to establish and maintain a network of sites protecting habitats which in themselves are valuable and the species they support. These sites form a network that across Europe is known as Natura 2000, and domestically also known collectively as European protected sites. Within the UK, this network consists of Special Protection Areas (SPAs) and Special Areas of Conservation (SACs), together with proposed and candidate SPAs and SACs (pSPAs and cSACs). This network also extends to marine environments, with wetland sites of international importance (Ramsar sites) also treated equally within this assessment framework. These sites are collectively referred to in this document as 'European Sites'.

The 2017 regulations are set out in Parts, with Part 2 including provisions for the selection and designation of sites and Part 6 providing provisions to ensure that assessment of plans and projects are fully considered before being granted consent or permission. They also define the nature of and roles of statutory bodies, competent authorities and the appropriate nature conservation body and the requirements for information to be submitted to these bodies to enable them to undertake the required assessments.

The HRA process consists of four stages, each stage being informed by the one preceding, to ensure an iterative and objective assessment. If the conclusion of Stage 1 is that there will be no likely significant effects (LSE) on any features of a European Site, there is no requirement to undertake further stages. Similarly, if the Stage 2 Appropriate Assessment (AA) concludes there will be no adverse effect on integrity of the European Site, then the assessment is concluded.

This is a record of the Habitats Regulations Assessment (HRA) of the proposed development outlined below, undertaken by Merthyr Tydfil County Borough Council as the Local Planning Authority and 'Competent Authority'.

PROPOSED DEVELOPMENT

Type of application:	Outline Planning Permission
MTCBC reference:	P/23/0065
Site reference:	Land To The South West Of The A470/A4102 Roundabout At Rhydycar West Merthyr Tydfil
Brief description of proposal:	Application for erection of a mixed leisure development comprising Indoor Snow Centre (up to 39,200 sq m), Water park (up to 7,500 sq m), Indoor Activity Centre (up to 9,000 sq m), Outdoor Activity Centre, Hotel Accommodation (up to 418 bedrooms), Woodland Lodge accommodation (up to 30 units), car parking (up to 830 spaces) and associated earthworks, access, drainage, servicing and utilities connections/infrastructure
Documents available to view	Planning Application and supporting documents (including an Environmental Statement and response from Natural Resources Wales, NRW) found on publicly available MTCBC planning portal: https://www.merthyr.gov.uk/resident/planning-and-building-control/planning-search-and-weekly-lists/

REASON FOR HRA

In their consultation response (dated in relation to the above planning application, NRW, made the following comment:

“Habitats Regulations Assessment (HRA)

We advise you must consider whether there is a likely significant effect on the Blaen Cynon Special Area of Conservation (SAC). The applicant’s Ecological Impact Assessment acknowledges a link between the Marsh fritillary butterfly populations at Cwm Glo a Glyndyrys SSSI and the functional landscape area of the SAC metapopulation (the sites being potentially linked through stepping stone habitat in the intervening landscape.

Therefore, the proposal should be screened through a Habitats Regulations Assessment as required by the Conservation of Habitats and Species Regulations 2017 (as amended).”

STAGE 1: SCREENING

This is the process which identifies the potential effects upon the European Sites and considers if these are likely to be significant. Screening is an iterative process and before moving to Stage 2 it can be repeated if required. Proposals to mitigate any likely significant effects cannot be considered at the screening stage. If the Screening (Stage 1) identifies that the project or plan, alone or in combination, may have likely significant effects on a European Site and/or its features of interest, or if there is uncertainty, the competent authority must undertake an Appropriate Assessment (Stage 2) of the implications for that site in view of that site's conservation objectives.

1. Is the proposed development a plan or project within the scope of the Habitats Directive?

The proposal is a *project* within the scope of the Habitats Directive.

2. Is the whole of the project exclusively directly connected with or necessary to a management of a European site for nature conservation?

The whole of the project is not exclusively directly connected with or necessary to a management of a European site for nature conservation.

3. Should the project be eliminated from further assessment? (it is a 'project' but it could not have any conceivable effect on any European site)

European Sites

Identification: Although NRW's comments above specifically target Blaen Cynon SAC, a search was undertaken (using MAGIC - <https://magic.defra.gov.uk/>) for any European Sites within 20km of the proposed development site that were designated for Marsh fritillary butterfly. NB 20km was chosen as the Zone of Influence (Zoi) for the assessment as research indicates Marsh fritillary butterfly dispersal distances can be between 100m and 20km. Two such sites were identified within this distance of the site, Blaen Cynon and Aberbargoed Grasslands – both SACs designated for Marsh fritillary butterfly and both with functional linkages to the proposed development site by way of suitable breeding habitat (indicated by the presence of Devil's bit scabious, the principal larval foodplant of the Marsh fritillary butterfly).

Blaen Cynon SAC: *Core Management Plan can be viewed here:*
<https://naturalresources.wales/media/671013/Blaen%20Cynon%20core%20management%20plan.pdf>

Annex II species, primary reason for selection of this site:

- Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*

Site description:

Blaen Cynon contains an extensive complex of damp pastures and heaths supporting the largest metapopulation of marsh fritillary *Euphydryas aurinia* on the southern edge of the Brecon Beacons National Park. The marsh fritillary butterfly *Euphydryas aurinia* is found in a range of habitats in which its larval food plant, devil's-bit scabious *Succisa pratensis*, occurs. Marsh fritillaries are essentially grassland butterflies in the UK, and although populations may occur occasionally on wet heath, bog margins and woodland clearings, most colonies are found in damp acidic or dry calcareous grasslands. Populations of marsh fritillary vary

greatly in size from year to year, and, at least in part, this is related to cycles of attack from parasitic wasps. Adults tend to be sedentary and remain in a series of linked metapopulations, forming numerous temporary sub-populations, which frequently die out and recolonise. Blaen Cynon also supports a range of habitats. Marshy grassland, and flush and spring are of particular importance as they provide habitat for the marsh fritillary. Also present are areas of raised bog, species-rich neutral grassland, acid grassland and semi-natural broadleaved woodland.

Distance + direction in relation to the proposed development site:

c.9.7km WNW

Conservation Objective for Marsh fritillary:

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- i. The site will contribute towards supporting a sustainable metapopulation of the marsh fritillary in the Penderyn/Hirwaun area. This will require a minimum of 50ha of suitable habitat, of which at least 10ha must be in good condition, although not all is expected to be found within the SAC. Some will be on nearby land within a radius of about 2km.
- ii. The population will be viable in the long term, acknowledging the extreme population fluctuations of the species.
- iii. A minimum of 30% of the total site area will be grassland suitable for supporting marsh fritillary. (As the total area of the SAC is 66.62 ha, 30% represents approximately 20 ha.)
- iv. At least 40% of the suitable habitat (approximately 8 ha) must be in optimal condition for breeding marsh fritillary.
- v. Suitable marsh fritillary habitat is defined as stands of grassland where *Succisa pratensis* is present and where scrub more than 1 metre tall covers no more than 10% of the stands
- vi. Optimal marsh fritillary breeding habitat will be characterised by grassland where the vegetation height is 10-20 cm, with abundant purple moor-grass *Molinia caerulea*, frequent "large-leaved" devil's-bit scabious *Succisa pratensis* suitable for marsh fritillaries to lay their eggs and only occasional scrub. In peak years, a density of 200 larval webs per hectare of optimal habitat will be found across the site.

Conservation Status:

The SAC only includes the core of the marsh fritillary habitat (and hence core of the metapopulation). There are likely to be other small areas of habitat outside the SAC boundary which are used by the butterfly only occasionally, but which likely contribute to the long-term success of the metapopulation. Efforts should be made to encourage better management of these areas of land through schemes such as Tir Gofal or through specific grazing projects. Counts of marsh fritillary larval webs have been undertaken regularly since 1999. Numbers of webs have not achieved the levels required by the performance indicators. Monitoring has also concluded that there is insufficient good and available habitat. The assessment for both component SSSIs was that they were in **unfavourable condition**, and in this case we can give condition information at the unit level.

Aberbargoed Grasslands SAC:

Core Management Plan can be viewed here:

<https://naturalresources.wales/media/670637/Aberbargoed%20Grasslands%20Core%20SAC%20plan%20jan08.pdf>

Annex II species, primary reason for selection of this site:

- Marsh fritillary butterfly *Euphydryas* (*Eurodryas*, *Hypodryas*) *aurinia*

Site description:

Aberbargoed Grasslands covers an area of 42.5ha and lies on a southwest facing hillside in the Rhymney Valley, 1km east of Bargoed. The site occupies an urban fringe position, between 200m and 290m above sea level. The fields in the south and west

of Aberbargoed Grasslands have impeded drainage and contain a mixture of marshy grassland communities. Areas of particular interest are characterised by abundant purple moor grass *Molinia caerulea* and meadow thistle *Cirsium dissectum* with devil's bit scabious *Succisa pratensis* and carnation sedge *Carex panicea*. Other species such as saw-wort *Serratula tinctoria* and lousewort *Pedicularis sylvatica* occur frequently in heavily flushed areas. Associated stands of *Molinia caerulea* – *Potentilla erecta* mire contain abundant purple moor grass with tormentil *Potentilla erecta*, mat grass *Nardus stricta*, common sedge *Carex nigra* and spotted orchid *Dactylorhiza maculata*. Small stands of rush pasture are scattered across the site, with soft rush *Juncus effuses*, greater bird's foot trefoil *Lotus uliginosus* and marsh bedstraw *Galium palustre*.

Distance + direction in relation to the proposed development site:

c.12.4km ESE

Conservation Objective for Marsh fritillary:

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- i. The site will support a sustainable metapopulation of the marsh fritillary in the Aberbargoed area. This will require at least 50ha of suitable habitat, although not all of this will be within the SAC.
- ii. The population will be viable in the long term, acknowledging the extreme population fluctuations of the species. Habitats on the site will be in optimal condition to support the metapopulation.
- iii. At least 25ha of the total site area will be marshy grassland suitable for supporting marsh fritillary, with *Succisa pratensis* present and only a low cover of scrub.
- iv. At least 6.25ha will be good marsh fritillary breeding habitat, dominated by purple moor-grass *Molinia caerulea*, with *S. pratensis* present throughout and a vegetation height of 10-20cm over the winter period.
- v. All factors affecting the achievement of the foregoing conditions are under control.

Conservation Status:

Considered to be in **unfavourable condition and conservation status** (October 2003).

Assessment of conceivable effects:

Information required:

1. *In the absence of mitigation measures, would the project impact the population(s) of Marsh fritillary butterfly or its breeding habitat found within or near to the proposed development site?*

Consider Appendices I and II. These are included to illustrate the positions of the records of Marsh fritillary butterfly in relation to the proposed development and to inform the possible effects of the scheme on this species and its breeding habitat, which can be seen in Table 1 below.

Table 1: Possible effects of the project (in the absence of mitigation) on the local Marsh fritillary butterfly population and its breeding habitat (indicated by the presence of Devil's bit scabious)

Impacts	Construction phase	Operational phase
Habitat loss	No impacts regarding habitat loss of <i>occupied</i> habitat suitable for Marsh fritillary butterfly, but <i>unoccupied</i> suitable habitat (Devil's bit scabious) will be lost (informed by the most recent survey and biodiversity data available – 2020 – see Appendix I). NB unoccupied habitat is required for the maintenance of the locally fluctuating meta-population.	No further habitat should be lost when the site is in operation.
Fragmentation / Barrier effect	Physical barriers to movement of Marsh fritillary butterfly will increase as the build progresses ¹ .	There will be physical barriers to Marsh fritillary butterfly movement represented by some of the built elements of the proposed development (for example, Indoor Snow Centre, Indoor Tropical Water Park, Indoor Adventure Centre and Hotels ¹).
Collision	Introduction of large construction vehicles into an area currently devoid of vehicular activity will increase the risk of Marsh fritillary butterfly mortality due to collision.	The creation of roads and the introduction of regular vehicle activity will increase the risk of Marsh fritillary butterfly mortality due to collision.
Pollution	Pollution created by the construction process ² and from vehicle presence (e.g., dust, particulate matter, atmospheric pollution, leachate/run off) is likely to directly impact local Marsh fritillary butterfly populations. Impacts of pollution on suitable habitat (Devil's bit scabious) would also indirectly impact Marsh fritillary butterfly.	Pollution created when the site is in operation ² , for example from the introduction of roads and therefore vehicle presence (e.g., atmospheric, leachate/run off) is likely to directly impact local Marsh fritillary butterfly populations. Impacts of pollution on suitable habitat (Devil's bit scabious ³) would also indirectly impact Marsh fritillary butterfly.
Artificial Light At Night (ALAN)	ALAN can direct impacts on butterflies ⁴ and flora ⁵ in a range of ways. ALAN in operation during the construction phase is likely therefore to impact local Marsh fritillary butterfly populations directly and indirectly through impacts on suitable habitat (Devil's bit scabious) ⁶ .	ALAN in use during the operation phase is likely to similarly impact local Marsh fritillary butterfly populations and suitable habitat (Devil's bit scabious).
Anthropogenic activities / Recreational pressure / Disturbance	For example, trampling of important habitat through increased human presence.	For example, trampling of important habitat through increased human presence.
Drainage and Hydrological Conditions	There will be degradation of habitat suitable for Marsh fritillary butterfly through changes in hydrology brought about during the construction process ⁷ .	There will be degradation of habitat suitable for Marsh fritillary butterfly through changes in hydrology brought about by the project ⁸ .

2. Are the Marsh fritillary butterfly populations with the SACs (Blaen Cynon and Aberbargoed Grasslands) functionally linked to the population of Marsh fritillary butterfly found within the project site?

Marsh fritillary butterfly dispersal can be hindered by barriers such as urban development, hedges + trees and water courses. However, Marsh fritillary butterfly are known to sometimes colonise sites many kilometres from a known colony, particularly during favourable weather conditions during the flight period. Research indicates Marsh Fritillary dispersal distances can be between 100m and 20km. The Butterfly Handbook⁹ (English Nature) Page 2, Box 3 - “... distances of up to 3km are well within the range of female Marsh Fritillaries”. Both SACs are within 20km of the proposed development site.

There are several records of Marsh fritillary butterfly between Blaen Cynon SAC and the proposed development site with most of these records being relatively close together, the furthest distance between two records is c.2.9km (i.e., within the range of 3km quoted for females). See map (Appendix 1) showing buffers (3km) around point data for known Marsh fritillary butterfly records.

There are no Marsh fritillary butterfly records between the proposed development site and the Aberbargoed Grasslands SINC, e.g., over Merthyr Common. However, suitable habitat for Marsh fritillary butterfly is present along this route - there are multiple records for Devil's bit scabious (see map – Appendix II). The absence of Marsh fritillary butterfly data here is not evidence of its absence along this route.

Taking the above information into consideration, the project could have a conceivable effect on European Sites.

4. Would the project be likely to have a significant effect on a European site alone?

<i>Blaen Cynon SAC:</i>	Based on the information as set out in the “Assessment of conceivable effects” section, Point 2, above (i.e., records of Marsh fritillary butterfly, records of Devil's bit scabious and Marsh fritillary butterfly dispersal distances) a functional link and therefore a viable impact pathway has been identified between the application site (P/23/0065) and Blaen Cynon SAC. Due to this functional link, the project would be likely to have a significant effect on Conservation Objective Condition ii (“The population will be viable in the long term, acknowledging the extreme population fluctuations of the species.”). The SAC is c.9.7km WNW of the approximate centre of the development site. Any impacts on Marsh fritillary butterfly or its suitable breeding habitat (Devil's bit scabious) within or close to the project site would not be likely to have a significant effect on the remainder of the Conservation Objective conditions (i, iii, iv, v + vi) for this site (as set out earlier in this document). Taking the above information into consideration, the project (alone) is likely to have a significant effect on Blaen Cynon SAC.
<i>Aberbargoed Grasslands SAC:</i>	Whilst it is not inconceivable that the project (taken in its own right) could have some knock-on effect on the population of Marsh fritillary butterfly within Aberbargoed Grassland SAC, due to the distance between the SAC and the project site, the effect would

¹ https://enterprise.merthyr.gov.uk/PublicAccess_LIVE/Document/ViewDocument?id=F5C0C50B150C4EA5B76984E2C2B8C93 – Outline Masterplan

² https://enterprise.merthyr.gov.uk/PublicAccess_LIVE/Document/ViewDocument?id=F5C0C50B150C4EA5B76984E2C2B8C928 – see for example, Table 5.3, page 26 in relation to dust during construction

³ <https://besjournals.onlinelibrary.wiley.com/doi/full/10.1046/j.1365-2745.2003.00785.x>

⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5872287/>

⁵ <https://royalsocietypublishing.org/doi/10.1098/rstb.2022.0358>

⁶ https://enterprise.merthyr.gov.uk/PublicAccess_LIVE/Document/ViewDocument?id=F5C0C50B150C4EA5B76984E2C2B8C92A

⁷ https://enterprise.merthyr.gov.uk/PublicAccess_LIVE/Document/ViewDocument?id=57317C2537344421B66F3B9C6380C4BE – see Table 6.7 – Construction Phase Risk Assessment, pages 57-68.

⁸ https://enterprise.merthyr.gov.uk/PublicAccess_LIVE/Document/ViewDocument?id=57317C2537344421B66F3B9C6380C4BE – see Table 6.8 – Operational Phase Risk Assessment, pages 70-73.

⁹ The butterfly handbook. General advice on mitigating the impacts of roads on butterfly populations. (2005) English Nature.

	not undermine Conservation Objective Condition ii (<i>"The population will be viable in the long term, acknowledging the extreme population fluctuations of the species. Habitats on the site will be in optimal condition to support the metapopulation."</i>). The SAC is c.12.4km ESE of the approximate centre of the development site. Any impacts on Marsh fritillary butterfly or its suitable breeding habitat (Devil's bit scabious) within or close to the project site is not likely to have a significant effect on the remainder of the Conservation Objective conditions (i, iii, iv + v) for this site (as set out earlier in this document). Taking the above information into consideration, the project (alone) is not likely to have a significant effect on Aberbargoed Grasslands SAC.
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5. Would the project be likely to have a significant effect on a European site in combination?

In 2020, the Merthyr Tydfil County Borough Council First Replacement Local Development Plan was adopted by Council on 29th January 2020. As part of the development of the plan a screening report for a Habitats Regulations Assessment (HRA) was undertaken. The dualling of the A465: section 5 and 6 Dowlais Top to Hirwaun (as referred to the extracted table shown in Appendix V) is ongoing and due to be completed in the summer of 2025. Many of the comments in the extracted table (Appendix V) are relevant:

"According to Rhondda Cynon Taf County Borough Ecologist's [sic], 'the issue of Blaen Cynon SAC is relevant for Merthyr- especially since you have an occupied marsh fritillary site in your County Borough, which is probably functioning as part a network of sites which help support that SAC site.'

NRW monitors the SAC together with Butterfly Conservation. According to NRW 'in terms of the location of Merthyr's Marsh fritillary in the wider landscape, they are much more closely linked to the Blaen Cynon SAC than the Aberbargoed Grasslands SAC. This is driven mainly by availability and location of suitable habitat in the landscape and also to a degree by topography.'

As part of the National Transport Plan improvement projects across the heads of the valleys it is proposed to dual, sections 5 and 6 of the Heads of the Valleys Road, between Dowlais Top and Hirwaun during 2019-22. Assessment work carried out by Jacobs (Engineering Consultants) identified that a total of 11.4ha of Marsh fritillary breeding habitat would be lost through the scheme.

The loss of such a significant area of habitat would likely impact on the SAC and the viability of the wider Hirwaun meta-population. Likely 'in combination' effects of this (and any unforeseen effects of the development) and other local developments, include increased fragmentation of breeding sites (resulting in poorer connectivity between them), increased chance of direct collisions between dispersing marsh fritillary and motor vehicles, changes to hydrology, and atmospheric pollution impacts on breeding habitat.

Any compensation required for the A465 works i.e. through the creation of new habitat areas is likely to be 100% within Rhondda Cynon Taf County Borough Council [RCTCBC] area."

NB although most of the compensation habitat for Marsh fritillary butterfly in relation the dualling of the A465 will occur within the RCTCBC boundary, Devil's bit scabious plants have been included within MTCBC in the grassland compensation/creation plans (for the A465) at a range of points along the route of the updated road layout.

NB - As the A465 dualling scheme has already gone through its own appropriate assessment (alone), any significant effects of this project have and/or will be mitigated. Therefore, when screening for in combination effects (where P/23/0065 has effects that are not significant) only the *unmitigated* residual effects of the A465 scheme will be considered.

<i>Blaen Cynon SAC:</i>	As the project (alone) is likely to have a significant effect on Blaen Cynon SAC, an assessment of a significant effect on a European site in combination is not required for this European site.
<i>Aberbargoed Grasslands SAC:</i>	The project (in combination with the A465 dualling scheme - which has resulted in the loss of 11.4ha of Marsh fritillary butterfly breeding habitat) is unlikely to have any significant effects on Aberbargoed Grasslands SAC, as the majority of the impacts of the A465 scheme are in the opposite direction. As referred to above, any significant effects of this project already have and/or will be mitigated. In addition, the impact of the A465 scheme is WNW of the project site and the Aberbargoed Grasslands SAC is c.12.7km ESE of the project site.

The project (in combination with any residual effects of the A465 dualling scheme) is not likely to have a significant effect on the remainder of the Conservation Objective conditions for this site.

Taking the above information into consideration, the project (in combination) is not likely to have a significant effect on Aberbargoed Grasslands SAC.

SCREENING OUTCOME

Due to the likely significant impact of the project alone on Blaen Cynon SINC, the project is screened in for an ‘appropriate assessment’ – see Stage 2: Appropriate Assessment – below.

STAGE 2: APPROPRIATE ASSESSMENT

This stage involves the consideration of the predicted adverse effects of the project or plan either alone, or in combination with other projects or plans, on the integrity of the European Site with respect to the site's structure, function and conservation objectives. Additionally, where mitigation has been proposed to avoid or minimise likely significant effects, this stage includes assessment of the likely effectiveness of any mitigation applied.

A key outcome of the Appropriate Assessment is to identify whether the integrity of the European Site(s) is likely to be adversely affected by the plan/project.

1. What are the predicted adverse impacts of the project alone on the integrity of Blaen Cynon SAC?

See Table 1 for a full list of the possible effects of the project (in the absence of mitigation) on the local Marsh fritillary butterfly population and its breeding habitat (indicated by the presence of Devil's bit scabious).

Based on the information as set out in the "Assessment of conceivable effects" section, Point 2, a functional link and therefore a viable impact pathway has been identified between the application site (P/23/0065) and Blaen Cynon SAC. Due to this functional link, the project would be likely to have a significant effect on Conservation Objective Condition ii ("The population will be viable in the long term, acknowledging the extreme population fluctuations of the species.").

The SAC is c.9.7km WNW of the approximate centre of the development site. Any impacts on Marsh fritillary butterfly or its suitable breeding habitat (Devil's bit scabious) within or close to the project site would not be likely to have a significant effect on the remainder of the Conservation Objective conditions (i, iii, iv, v + vi) for this site (as set out earlier in this document).

2. What mitigation has been proposed?

See Table 8.7 Assessment Summary and Residual Environmental Effects, on pages 24-27 of The Rhydycar West Environmental Statement Addendum Volume 1: Main Text

No mitigation (or compensation) has been proposed in terms of Blaen Cynon SAC (as a key receptor) during either the construction or operational phases of the proposed project.

However, the following mitigation (and compensation) measures have been proposed in terms of Marsh fritillary butterfly (as a key receptor) during (a) the construction phase of the proposed project:

- "Sensitive lighting design, species protection plan"

And (b) the operational phase of the proposed project:

- "Sensitive lighting scheme, benefits of improved management of wider site"

NB a Drainage strategy including measures to mitigate impacts on suitable Marsh fritillary butterfly habitat would also be relevant.

See Table 2 (overleaf) for details of proposed mitigation and compensation documents received as part of the proposed project:

Table 2: Proposed mitigation and compensation received as part of the proposed project

Mitigation element	Documents provided	Comments
<i>Sensitive lighting design</i>	ES Appendix 16.1 Lighting Assessment (November 2022)	The document does not refer to marsh fritillary butterfly
<i>Species Protection Plan</i>	European Protected Species Conservation Strategy. Bioscan Report ref: E1835-EPSCS-v2 (November 2024)	The document does not refer to marsh fritillary butterfly
<i>Improved management of wider site</i>	Nature Conservation Management Plan (HOT). Bioscan Report ref: E1835-MP-v3 (November 2024)	Marsh fritillary butterfly is referred to throughout the main text in relation to Marshy grassland habitat: Marsh fritillary page references: 3, 5, 7, 10, 13, 16, 17 Marshy grassland page references: 2, 3, 4, 9, 16, 17 Devil's bit scabious page references: 9
<i>Sensitive drainage scheme</i>	Chapter 13.0 of the ES (Water, Drainage and Flooding) and ES Appendix 13.2 Drainage Strategy	The document does not refer to marsh fritillary butterfly habitat

3. What is the likely effectiveness of the proposed mitigation?

See Table 3 (below) for details of the likely effectiveness of the mitigation and compensation proposed as part of the proposed project:

Table 3: Likely effectiveness of the mitigation and compensation proposed as part of the proposed project.

Mitigation element	Likely effectiveness
<i>Sensitive lighting design</i>	Unknown at present. <i>Would this be likely to be effective in terms of mitigation of the impacts of ALAN (Artificial Light At Night) in both the Construction and Operational phases?</i> The document must be amended to consider marsh fritillary butterfly ¹⁰ in terms of these impacts and to include a more detailed horizontal illuminance contour plan overlaid onto an existing habitat plan – to demonstrate the light in sensitive areas. NB The contours for 0.2, 0.5, 1, 5, and 10 lux must be clearly shown, as well as appropriate contours for values above these.
<i>Species Protection Plan</i>	Unknown at present. <i>Would this be likely to be effective in terms of mitigation of the impacts of Fragmentation / barrier effects, Collisions, Pollution (in both the Construction and Operational phases).</i> The document must be amended to consider marsh fritillary butterfly in terms of these impacts.
<i>Improved management of wider site</i>	<i>Likely to be effective in terms of mitigating the impacts of Habitat loss (Construction phase), Anthropogenic activities / Recreational pressure / Disturbance (Construction and Operational phases).</i> Healthy and sustainable Marshy grassland (and other grassland types where Devil's bit scabious (plus other scabious species) occurs or can occur) are likely to result from the improved management of the wider site. This, in turn, would ensure a stable population of Marsh

¹⁰ NB General point - it would be useful for lighting document to include reference to other nocturnal and crepuscular species that have been identified or may occur onsite.

		fritillary butterfly within the application site and the wider area and therefore maintain the functional link between the site and Blaen Cynon SAC.
	<i>Sensitive drainage scheme</i>	Unknown at present. <i>Would this be effective in terms of mitigation the impacts of Drainage and Hydrological Conditions in both the Construction and Operational phases?</i> The document must be amended to consider marsh fritillary butterfly habitat in terms of these impacts.

APPROPRIATE ASSESSMENT SUMMARY

The screening assessment identified the following likely significant effects and impacts:

- Blaen Cynon SAC – viability of the marsh fritillary butterfly population (disruption to the functional link between the application site and Blaen Cynon SAC constituting an impact pathway)

Following implementation of the mitigation set out Stage 2, points 2 and 3 above 5, Table 4 (below) outlines the assessment of significant effects on Blaen Cynon SAC, following the application of mitigation, in line with the Appropriate Assessment stage of the HRA process.

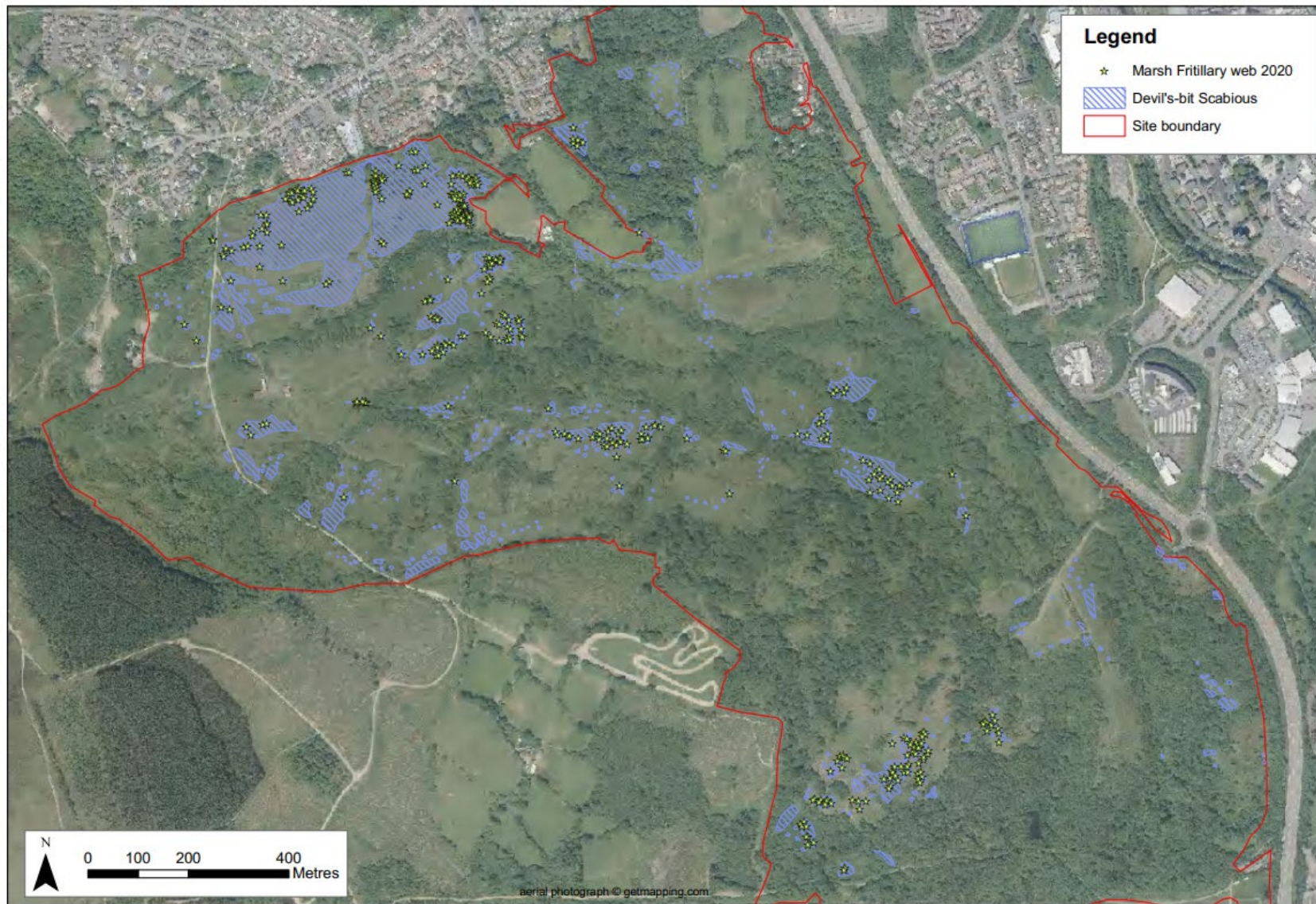
Table 4: Assessment of significant effects on Blaen Cynon SAC, following the application of mitigation.

Qualifying feature	Assessment of effects following the application of mitigation	Significance of effect
<i>Marsh fritillary butterfly</i>	The submission and implementation of the following, <i>a sensitive lighting design (to be supplied),</i> <i>a species protection plan (to be supplied),</i> - the improved management of the wider site, <i>a sensitive drainage scheme (to be supplied),</i> could ensure no adverse effects on the qualifying feature (Marsh fritillary butterfly) in Blaen Cynon SAC. <i>The details of the above mitigation information must be produced with consideration for and in reference to Marsh fritillary butterfly, its larval foodplant and relevant grassland habitat (principally Marshy grassland, but also any other grassland type where Devil's bit scabious (and other scabious species) occur or can occur)</i>	Not significant – <i>subject to the submission and implementation of appropriate / effective mitigation measures.</i>

STAGE 2: APPROPRIATE ASSESSMENT OUTCOME

It is concluded that, based on this assessment, and subject to *the submission of and implementation of appropriate / effective mitigation measures*, the proposed project would not produce an adverse effect the integrity of Blaen Cynon SAC or their designated interest features.

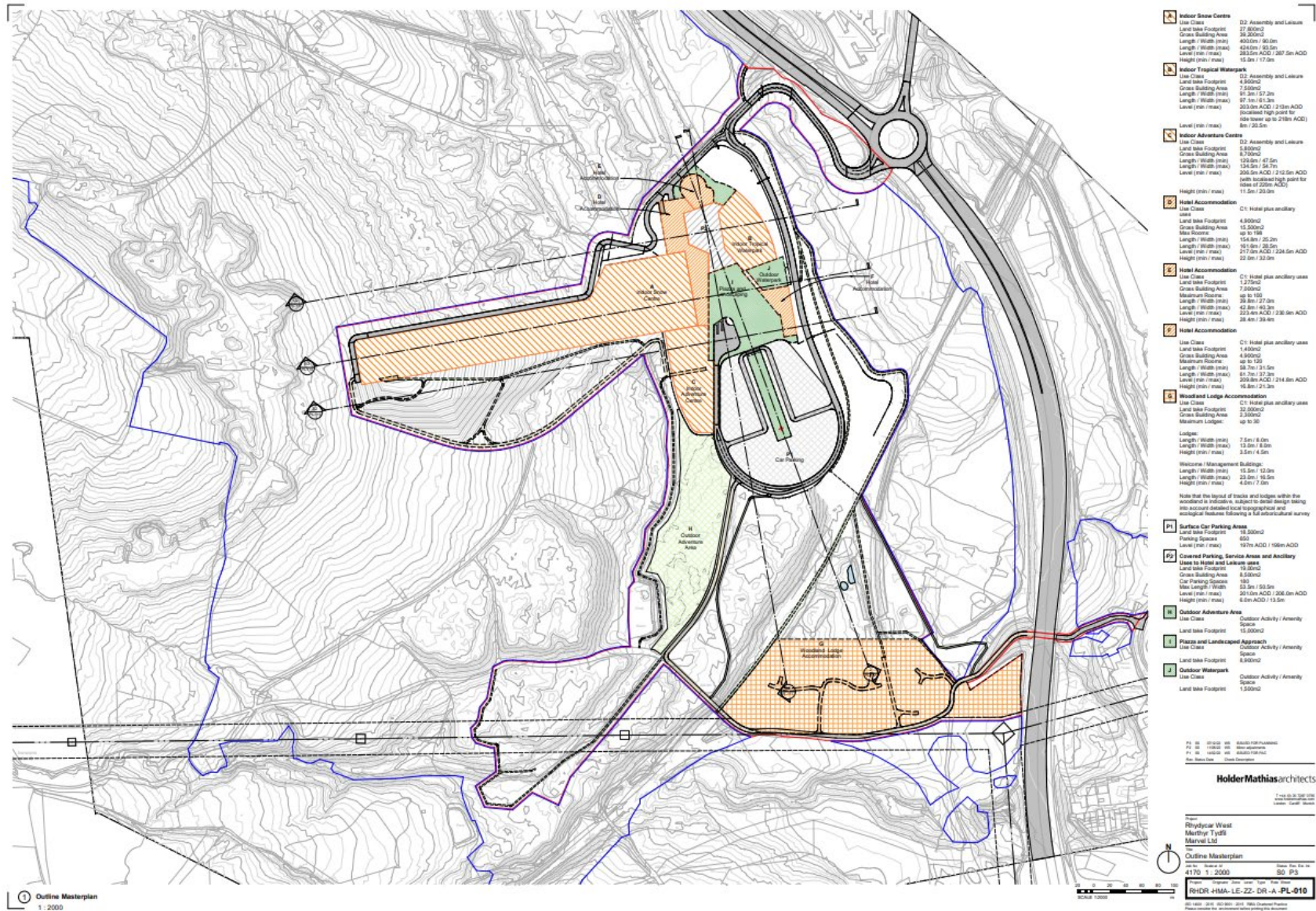
APPENDIX I: Marsh fritillary butterfly survey undertaken between 7 and 15 September 2020. Report produced by Sturgess Ecology. Full report is found within Appendix 5 Chapter 8 of the Environmental Statement submitted by the applicant in support of the outline planning application and can be viewed here: https://enterprise.merthyr.gov.uk/PublicAccess_LIVE/Document/ViewDocument?id=57317C2537344421B66F3B9C6380C45B



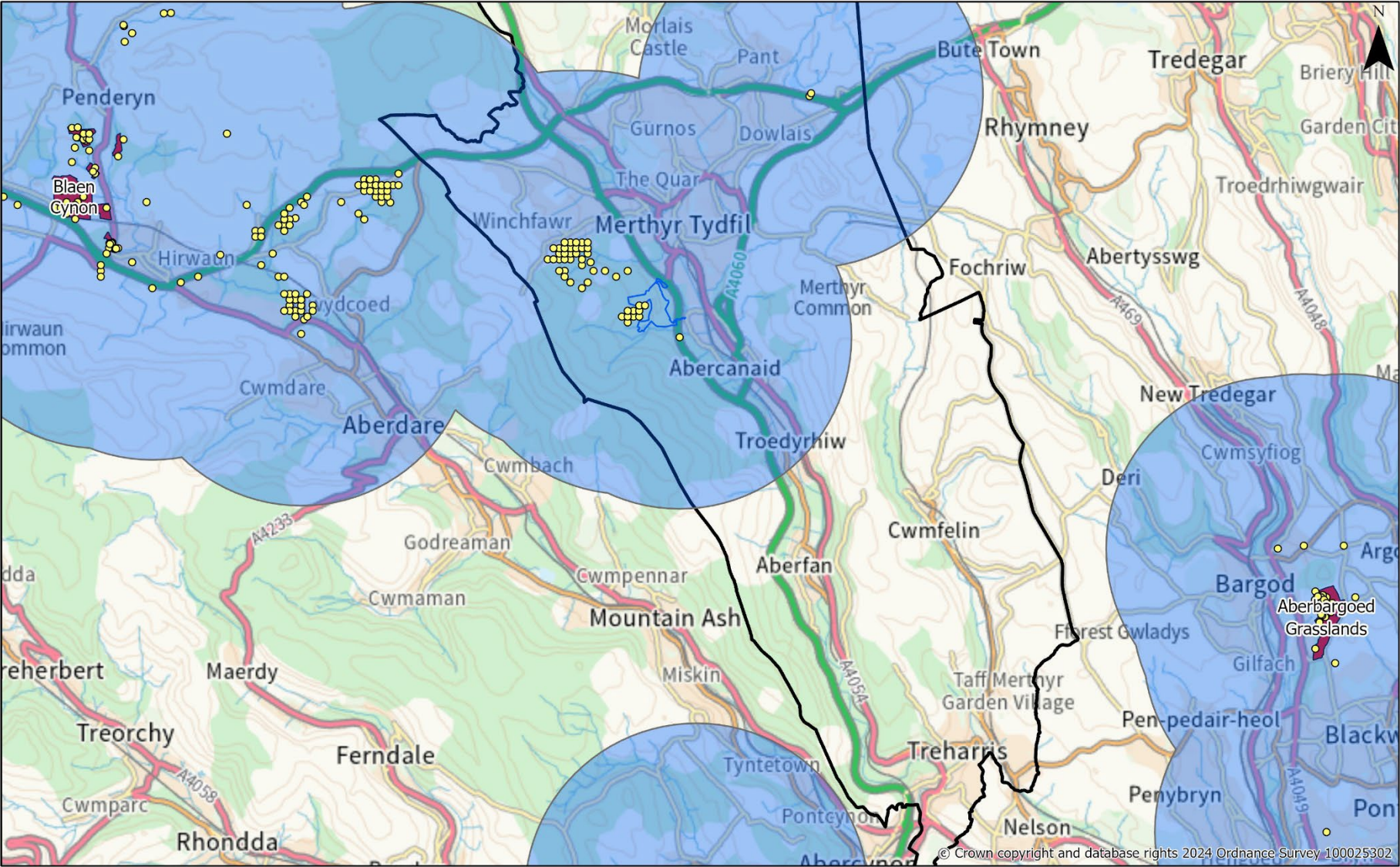
Cwm Glo Marsh Fritillary survey 2020. Location of Devil's-bit Scabious and larval web sightings

APPENDIX II: Outline Masterplan submitted as Figure 1.2 of the Environmental Statement by the applicant in support of the outline planning application and can also be viewed here:

https://enterprise.merthyr.gov.uk/PublicAccess_LIVE/Document/ViewDocument?id=F5C0C50B150C4EA5B76984E2C2B8C931



APPENDIX III: Marsh fritillary butterfly – links to SACs (Blaen Cynon + Aberbargoed Grasslands)



TITLE: Marsh fritillary butterfly - links to SACs (Blaen Cynon + Aberbargoed Grasslands)

SCALE: 1:85,000 at A4

DATE: 23/09/2024

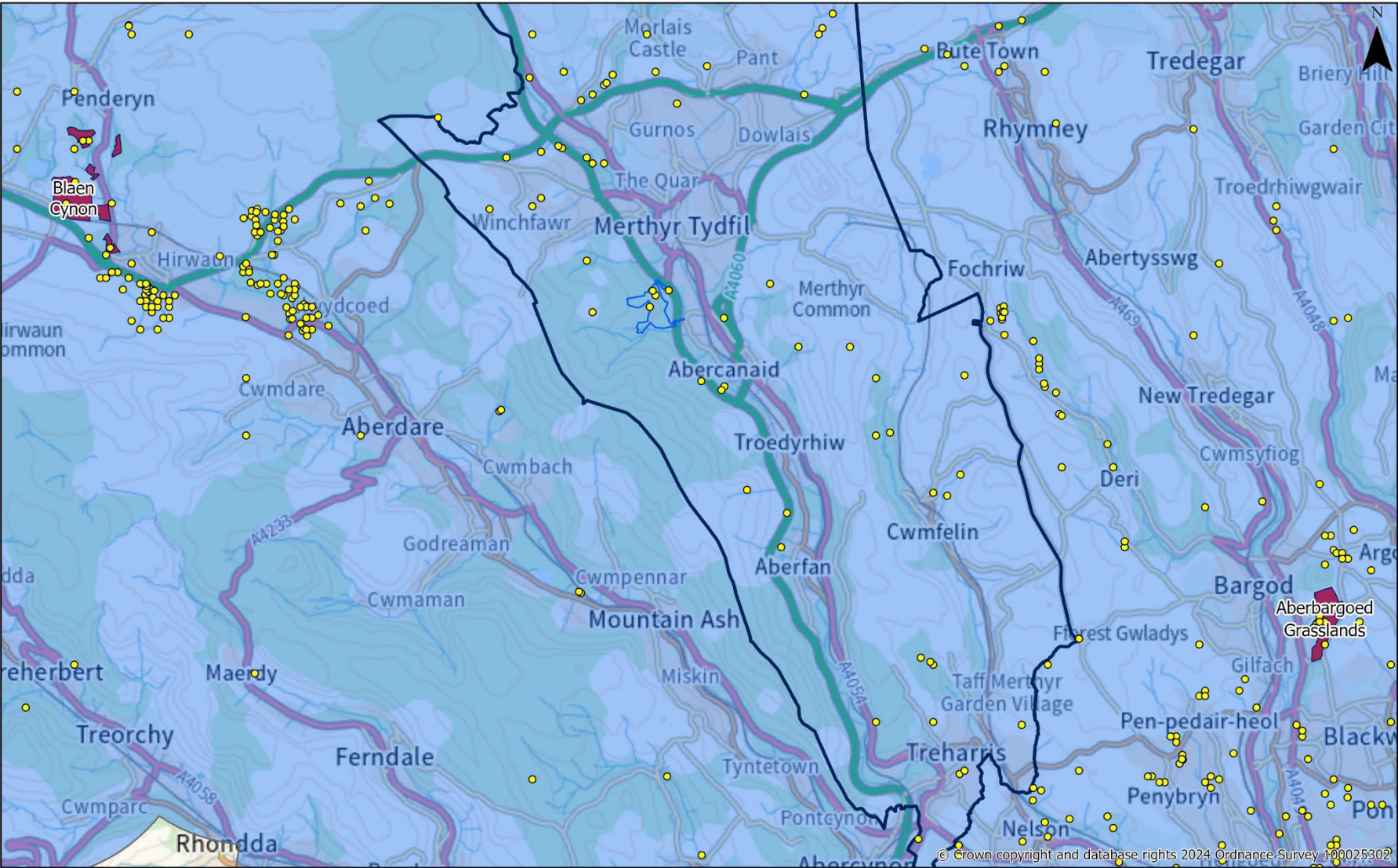
DEPARTMENT: Policy



- SAC sites
- Merthyr Tydfil
- Proposed development site
- Marsh fritillary butterfly data 2004 onwards
- Marsh fritillary butterfly 3K buffer



APPENDIX IV: Devil's bit scabious – links to SACs (Blaen Cynon + Aberbargoed Grasslands)



TITLE: Marsh fritillary butterfly - links to SACs (Blaen Cynon + Aberbargoed Grasslands)

SCALE: 1:85,000 at A4

DATE: 23/09/2024

DEPARTMENT: Policy



- SAC sites
- Merthyr Tydfil
- Proposed development site
- Devil's bit scabious 3K buffer
- Devil's bit scabious data 2004 onwards



APPENDIX V: Previous HRA assessment in relation to Blaen Cynon SAC.

In 2020, the Merthyr Tydfil County Borough Council First Replacement Local Development Plan was adopted by Council on 29th January 2020. As part of the development of the plan a screening report for a Habitats Regulations Assessment (HRA) was undertaken. This report included the following comments regarding the SACs (Box 1):

Relevant SAC within 15km	Marsh fritillary butterfly: Loss, degradation and management of habitat.	
	Consideration based on objective information.	Conclusion
The Aberbargoed Grasslands SAC is situated approximately 4.5km to the south of the MTCBC administrative boundary. It covers an area of 42.5ha on a southwest facing hillside in the Rhymney Valley; 1km east of Bargoed; occupying an urban fringe position, between 200m and 290m above sea level.	A management plan has been drawn up which states that it is essential that restoration management is undertaken at Aberbargoed Grasslands to improve the quality and quantity of habitat available to marsh fritillaries. This primarily needs to include the establishment of suitable grazing regime, scrub clearance and control of illegal burning. Natural Resources Wales (NRW) monitors the SAC together with Butterfly Conservation. The SAC supports the Aberbargoed Grasslands meta-population of marsh fritillary, the largest on the southern edge of the BBNP and one of the most important habitat networks for the Marsh fritillary in Wales. Although the Caerphilly County Borough Ecologist's considers that the occupied site situated in the MTCB area is probably functioning as part a network of sites which help support the Aberbargoed Grasslands SAC site, according to NRW, who monitor the species, <i>"In terms of the location of Merthyr's marsh fritillary in the wider landscape, they are much more closely linked to the Blaen Cynon SAC than this SAC. This is driven mainly by availability and location of suitable habitat in the landscape and also to a degree by topography."</i>¹¹ The area where the marsh fritillary butterfly has been recorded within Merthyr Tydfil County Borough is considered to form part of the Upper Cynon Functional Landscape Area for the species. Habitat suitable for the marsh fritillary in Merthyr therefore plays an important role in the conservation of marsh fritillary in the wider landscape. The Deposit Plan therefore directs no development within or in proximity to the habitat suitable for the marsh fritillary in Merthyr.	Given that all development in the Deposit Plan avoids the loss or degradation of marsh fritillary habitat the Plan is unlikely to adversely affect the Aberbargoed Grasslands SAC and its population of marsh fritillary butterfly.
Relevant SAC within 15km	Marsh fritillary butterfly: Loss and management of habitat.	
	Consideration based on objective information	Conclusion
The Blaen Cynon SAC is situated approximately 5km to the north of the MTCBC administrative boundary and lies	Blaen Cynon SAC supports the Aberbargoed Grasslands Hirwaun meta-population of Marsh fritillary, the largest on the southern edge of the BBNP and one of the most important habitat networks for the Marsh fritillary in Wales. The SAC contains an extensive complex of damp pastures and heaths, comprising Cors Bryn-y- Gaer SSSI and the nearby Woodland Park and Pontpren SSSI both used by and supporting the Hirwaun meta-population. The SAC designation helps to control threats from housing, opencast or other	Given that all development in the Deposit Plan avoids the loss or degradation of marsh fritillary habitat

¹¹ Email received from NRW Conservation officer dated 09/09/2016

within the South Wales Coalfield on the fringes of an urban area.	industrial development and pollution arising from such development in the immediate vicinity. Parts of Woodland Park and Pontpren SSSI, notably units 3 and 4 have been subject to improvement in preparation for tree planting, including draining, planting with trees and use of fertiliser. These areas have a programme of scrub removal and cattle grazing in place, to restore the grassland to a condition where it can be used by marsh fritillaries (Devil's scabious requires low nutrient grassland). Some drains have been blocked, to restore the hydrology of the site. According to Rhondda Cynon Taf County Borough Ecologist's, <i>'the issue of Blaen Cynon SAC is relevant for Merthyr- especially since you have an occupied marsh fritillary site in your County Borough, which is probably functioning as part a network of sites which help support that SAC site.'</i>^{12'} NRW monitors the SAC together with Butterfly Conservation. According to NRW <i>"in terms of the location of Merthyr's Marsh fritillary in the wider landscape, they are much more closely linked to the Blaen Cynon SAC than the Aberbargoed Grasslands SAC. This is driven mainly by availability and location of suitable habitat in the landscape and also to a degree by topography."</i> As part of the National Transport Plan improvement projects across the heads of the valleys it is proposed to dual, sections 5 and 6 of the Heads of the Valleys Road, between Dowlais Top and Hirwaun during 2019-22. Assessment work carried out by Jacobs (Engineering Consultants) identified that a total of 11.4ha of Marsh fritillary breeding habitat would be lost through the scheme. The loss of such a significant area of habitat would likely impact on the SAC and the viability of the wider Hirwaun meta-population. Likely 'in combination' effects of this (and any unforeseen effects of the development) and other local developments, include increased fragmentation of breeding sites (resulting in poorer connectivity between them), increased chance of direct collisions between dispersing marsh fritillary and motor vehicles, changes to hydrology, and atmospheric pollution impacts on breeding habitat. Any compensation¹³ required for the A465 works i.e. through the creation of new habitat areas is likely to be 100% within Rhondda Cynon Taf County Borough Council area. A465 Heads of the Valleys Section 2 Assessment of Implications (of highways and/or roads projects) on European sites (including Appropriate Assessment) (AIES) https://a465gilwern2brynmawr.files.wordpress.com/2014/02/a465-hov-s2_es_siaa.pdf The area where the marsh fritillary butterfly has been recorded within Merthyr Tydfil County Borough is considered to form part of the Upper Cynon Functional Landscape Area for the species. Habitat suitable	the Plan is unlikely to adversely affect the Blaen Cynon SAC and its population of marsh fritillary butterflies.
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¹² Email from RCT Ecologist dated 21/07/2016

¹³ Butterfly Conservation considers that a minimum compensation requirement of 2:1 should be imposed in 'perpetuity,' (up to 25 years)

	for the marsh fritillary in Merthyr therefore plays an important role in the conservation of marsh fritillary in the wider landscape. The Deposit Plan therefore directs no development within or in proximity to the habitat suitable for the marsh fritillary in Merthyr and It is therefore considered that there will be no ‘in-combination’ effects on the Blaen Cynon SAC.	
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