Merthyr Tydfil County Borough Council Local Development Plan (2016 – 2031)

PRE-DEPOSIT PROPOSALS DOCUMENT 3

HABITATS REGULATIONS ASSESSMENT

SCREENING REPORT

June 2017

Cyngor Bwrdeistref Sirol
MERTHYR TUDFUL
MERTHYR TYDFIL
County Borough Council

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CONTENTS **Page number**

EXECTUTIVE SUMMARY

This screening report for a Habitats Regulations Appraisal (HRA) is required by the Habitats Directive (92/43/ECC) as set out in the Conservation of Habitats and Species Regulations 2010 considers the potential for the Merthyr Tydfil Local Development Plan (LDP) Preferred Strategy to adversely affect the integrity of any Natura 2000 Sites (also known as 'European Sites'). European Sites comprise:

- Special Areas of Conservation (SAC) and candidate SACs (cSACs);
- Special Protection Areas (SPA) and potential SPAs (pSPAs) and
- Ramsar sites.

The screening assessment focuses on the likelihood of significant impact on the ten European Sites within 15km of Merthyr Tydfil County Borough.

The methods and findings of this screening report reflect the fact that the screening process will be re-run to inform the full draft 'Deposit LDP'.

The screening concludes that, apart from the following, all matters should screened out at this stage:-

1. All development allocations in the deposit plan must avoid the loss and or degradation of marsh fritillary habitat (of relevance to the Aberbargoed Grasslands SAC and Blaen Cynon SAC).

2. Emissions from new industrial development on protected and allocated industrial sites in the deposit plan must not directly contribute to the degradation of the environmental conditions of the Brecon Beacons SAC, Coedydd Nedd a Mellte SAC, Cwm Cadlan SAC, and Llangorse Lake SAC.

Subject to appropriate investigations on the above matters informing the contents of the full draft Deposit Plan, the Preferred Strategy for the Merthyr Tydfil Local Development Plan 2016-2031, is not likely to adversely affect the integrity of any Natura 2000 Sites.

1. INTRODUCTION

1.1 This report forms part of a series of pre-Deposit proposals documents prepared by Merthyr Tydfil County Borough Council (MTCBC) to inform the Preferred Strategy of the First Replacement Merthyr LDP 2016 – 2031.

1.2 In line with the requirements of the Habitats Directive (92/43/ECC) (European Economic Community, 1992), as out set by the Conservation of Habitats and Species Regulations 2010) (UK Government, 2010), known as the Habitats Regulations, it constitutes the Habitats Regulations Appraisal (HRA) of the Preferred Strategy.

1.3 HRA is also commonly referred to as Appropriate Assessment (AA), although the requirement for AA is first determined by an initial 'screening' stage undertaken as part of the full HRA. This report addresses the Screening Phase of the HRA, by assessing the likely significant effects on designated European Sites of following the Preferred Strategy and key policies for its implementation.

1.4 For the purposes of this report 'European Sites' comprise:

- Special Areas of Conservation (SAC) and candidate SACs (cSACs) [designated under the Habitats Directive 1992 (European Economic Community, 1992)];
- Special Protection Areas (SPA) and potential SPAs (pSPAs), [classified under the EC Wild Birds Directive 1979 (European Economic Community, 1979) as amended by the Birds Directive (European Commission, 2009) and
- Ramsar sites [1] [Designated under the Convention on Wetlands of International Importance 1971, as amended (Ramsar Convention Secretariat, 1971).

[1] The Convention on Wetlands (Ramsar, Iran, 1971), called the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international co-operation for the conservation and wise use of wetlands and their resources.

2. REQUIREMENTS FOR HABITATS REGULATIONS APPRAISAL

2.1 In 2011, in line with the international commitments adopted at the Convention on Biological Diversity held in Nagoya, Japan in 2010, the European Union (EU) adopted a new Biodiversity Strategy which set the following headline target:

> *"Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss"* (European Commission, 2011)."

2.2 The EC Directive 1992/43/EEC (European Economic Community, 1992) on Conservation of Natural Habitats and of Wild Fauna and Flora or "Habitats Directive" and Directive 2009/147/EC (European Commission, 2009) on the Conservation of Wild Birds or "Birds Directive," sometimes jointly called "Nature Directives," form the cornerstones of the EU's biodiversity policy.

2.3 The Habitat Directive establishes a network of internally important sites designated for their ecological status, known as SACs, whilst the Birds Directive establishes a network of the most suitable territories for the conservation of naturally occurring populations of wild bird species, known as SPAs.

2.4 Sites designated under the Nature Directives are referred to as Natura 2000 (N2K) Network (European Union, 2000). The Natura network focus on a sub-set of around 2000 animal and plant species (out of the hundreds of thousands present in Europe) which are in need of protection to either prevent their extinction or enable their long-term survival. It is the largest co-ordinated network of protected areas in the world, offering a haven to Europe's most valuable and threatened species and habitats.

2.5 Article 6(3) and 6 (4) of the Habitats Directive introduces the requirement for AA to be undertaken on proposed plans and projects, which are not necessary for the management of the site, but which are likely to have a significant effect on one or more European sites either individually or in combination with other plans or projects.

Article 6(3) states:

"*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public*".

2.6 This requirement is set out in the 2010 regulations, which require the application of HRA to all land-use plans. In addition as a matter Welsh Government (WG) policy:

- Ramsar sites are to be treated as if they are '**European sites'** for the purpose of considering development proposals that may affect them and included within HRA/AA and

- cSACs and pSPAs are to be treated as '**designated sites'** in the context of the HRA.

2.7 An HRA/AA must have complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the European Sites concerned. Such findings and conclusions are essential in order that a competent authority might gain the necessary level of certainty to take the decision to authorise the works. In addition it should be noted that:

- Protective measures aimed at compensating for the negative effects on a Natura 2000 site <u>cannot be taken into account in the assessment and</u>

- Assessments carried out pursuant to the EIA Directive or SEA Directive <u>cannot replace the procedure provided for in Article 6(3) and (4) of the Habitats Directive.</u>

3. THE LOCAL DEVELOPMENT PLAN

3.1 Annex 6 'The Appraisal of Development Plans in Wales under the provisions of the Habitats Regulations,' of Technical Advice Note 5: Nature Conservation and Planning, Guidance (Welsh Government , 2009), provides guidance for HRAs. The former Countryside Council for Wales (CCW) also provided draft guidance (Countrysdie Council for Wales, 2009 revised 2010) to assist LPAs to comply with Habitats Directive compliance.

3.2 The HRA/AA must precede approval of the LDP and take into account the likely significant cumulative effects, which result from the combination of the plan, with other plans or projects against the conservation objectives of a European Site.

3.3 It should ascertain whether the LDP would adversely affect the integrity[2] of a European site (In order for the integrity of a site as a natural habitat not to be adversely affected the site needs to be preserved at a favourable conservation status[3]).

3.3 All the aspects of the LDP which can, either individually or in combination with other plans or projects, affect the conservation objectives must be identified, in the light of the best scientific knowledge in the field.

3.4 In this case:

- Where significant effects cannot be excluded on the basis of objective information, an appropriate assessment must be undertaken. Having undertaken the assessment, where adverse effects on the integrity of the site are not ruled out, the competent authority must not approve the plan unless a determination of over-riding public interest is made.

- Where the conservation objectives of the site concerned are likely to be undermined, the plan must necessarily be considered likely to have a significant effect. Where significant effects are identified, alternative options for mitigation measures should be examined to avoid any potential damaging effects[4].

[2] **Integrity** - the sites coherence, ecological structure and function across the whole area that enables it to sustain the habitat, complex of habitats and or/levels of populations of species for which it was classified.

[3] **Favourable Conservation Status** can be described as a situation where a species or habitat type is prospering (in both quality and extent/population) and has good prospects to do so in future as well.

[4] Member States are required to undertake positive management measures to ensure their populations are maintained at, or restored to, a favourable conservation status throughout their natural range within the EU.

- Where the LDP has an effect on that site but is not likely to undermine its conservation objectives, it cannot be considered likely to have a significant effect on the site concerned.

3.5 Although there are no European Sites present in the MTCBC administrative area, measures taken outside of a protected area[5], e.g. isolating sub-populations of a species found within a SAC by blocking communication corridors[6], linking those sub-populations with other populations, known as "connectivity", in some cases have the potential to significantly disturb the population protected. Even a small-scale project can have significant effects[7] on the environment if it is in a location where the environmental factors, such as fauna and flora, soil, water, climate or cultural heritage, are sensitive to the slightest alteration.

3.6 In addition, the following measures apply across the species´ entire natural range and therefore apply both inside and outside of protected sites:

- Species protection provisions: establish a general system of strict protection for all wild bird species in the EU and for other endangered and valuable species listed in Annex IV of the Habitats Directive, as well as taking specific measures towards selected species from Annex V of the latter.

- Site designation and management measures: aimed at conserving core areas for those species listed in Annex I (and regularly occurring migratory species) of the Birds Directive and Annex II of the Habitats Directive as well as habitat types listed in Annex I of the Habitats Directive.

[5] The European Court of Justice has held that all natural habitats and habitats of species found within SACs are protected against acts liable to deteriorate them. (Case C-75/01, Commission v Luxembourg, paragraphs 41 - 45) (Commission of the European Communities, 2003).

[6] Producing a barrier effect

[7] Measures must be taken to avoid man-caused impairment and disturbance and natural developments (e.g. natural succession) that may cause the status of species and habitats in SACs to deteriorate.

4. THE PREFERRED STRATEGY

4.1 The MTCBC replacement LDP will provide the framework for the future development of the County Borough up to 2031 and will replace the extant Merthyr Tydfil LDP 2006 -2021. Before the full draft LDP is finalised, the Preferred Strategy (PS) must be prepared as a means of seeking consensus on the amount and distribution of population growth and economic growth.

4.2 The Council has prepared a PS, which sets out the broad approach that the LDP intends to take in order to ensure that the County Borough is developed in a sustainable manner. It sets out the main issues to be addressed in Merthyr Tydfil and proposes a vision and 17 LDP objectives for tackling the issues. In line with the Well-being of Future Generations (Wales) Act 2015 the LDP objectives are grouped by their contribution to Social, Cultural, Environmental and Economic well-being.

4.3 The PS proposes preferred growth and spatial options to achieve the objectives. Most significantly, it seeks to address a projected population decline in the County Borough by encouraging a sustainable level of population growth. To facilitate this sustainable level of growth, it is estimated that 2,250 new homes need to be built by 2031.

4.4 Development will be primarily directed to the main settlement of Merthyr Tydfil where there is greater capacity for regeneration and development than anywhere else in the County Borough. The 'Hoover Strategic Regeneration Area' is proposed at Abercanaid/Pentrebach to deliver a significant proportion of new homes (up to 800 homes) along with other smaller sites within existing urban areas of the County Borough.

4.5 The PS also contains draft key polices to address the 17 specific objectives. These set out the spatial strategy for the development and use of land in greater detail and support the protection and management of the historic environment, natural environment.

5. METHOD

5.1 The method and approach used for screening are based on formal Welsh Government Guidance and emergent practise, which recommends that the HRA is approached in three main stages:

- Stage 1: Screening for likely significant effect –
  - If no effects likely – report no significant effect (taking advice from NRW) or;
  - If effects are judged to be likely or uncertainty exists – take the precautionary principle and proceed to stage 2;

- Stage 2: Appropriate Assessment -
  - If effects or uncertainty remain following the considerations of alternatives and development of mitigations proceed to Stage 3;

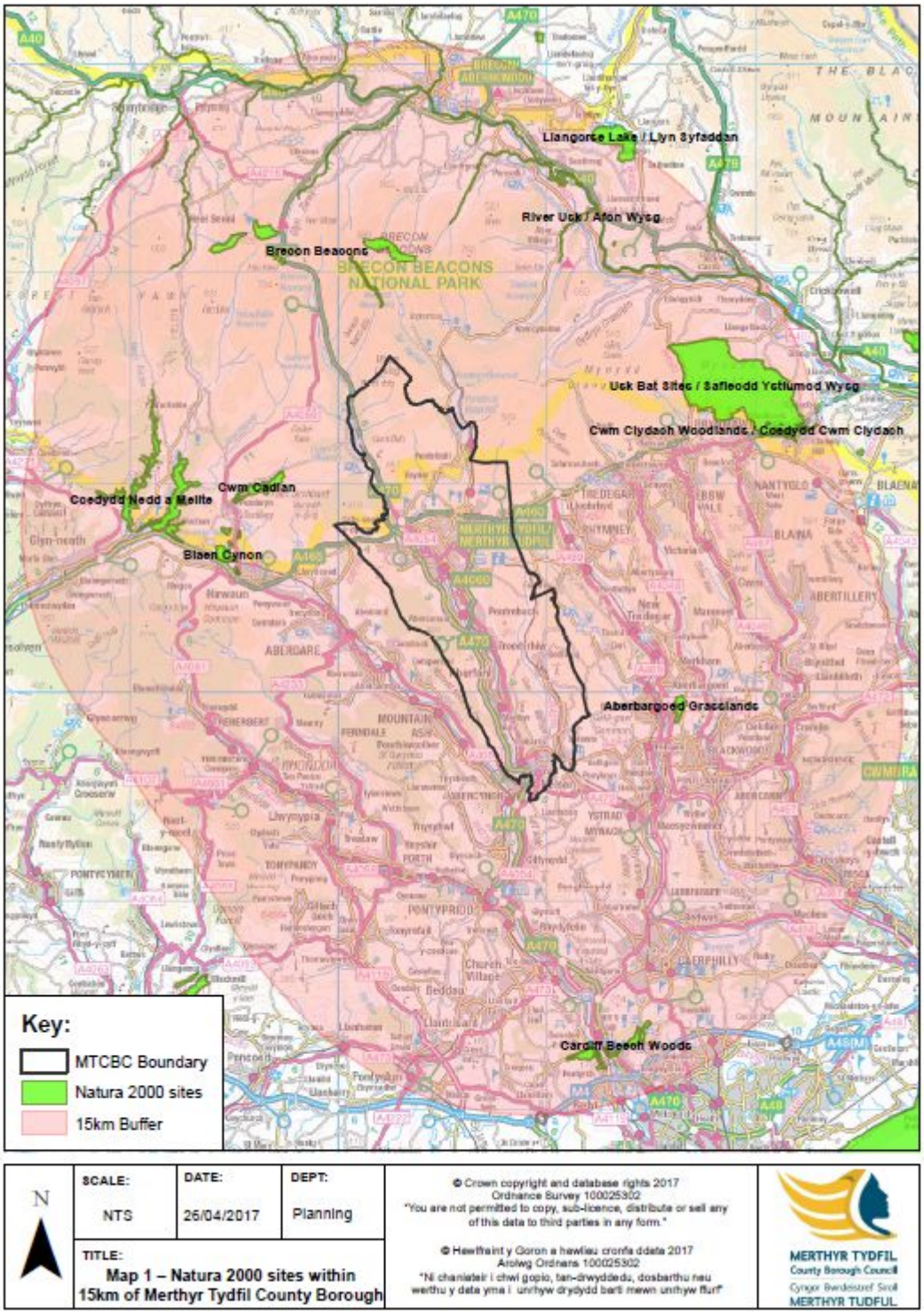
- Stage 3: Procedures where significant effect on integrity of international site remains.

5.2 An assessment was made of the likelihood of the potential for the Preferred Strategy to impact of the on each of the ten European Sites situated within 15km of Merthyr Tydfil County Borough. These are listed in Table 1 below and shown in Map 1. Information on each of the sites is included in the screening assessment and Appendix 5.

TABLE 1: Natura 2000 sites within 15km[8] of Merthyr Tydfil County Borough Council	
Special Areas of Conservation (SAC)	Also known as
Aberbargoed Grasslands	
Blaen Cynon	
Brecon Beacons	
Cardiff Beech Woods	
Coedydd Nedd a Mellte	
Cwm Cadlan	
Cwm Clydach Woodlands	Coedydd Cwm Clydach
Llangorse Lake	Llyn Syfaddan
River Usk	Afon Wysg
Usk Bat Sites	Safleodd Ystlumod Wysg

[8] Natural Resources Wales advises 15km as an appropriate distance for scoping purposes.

Map 1 – Natura 2000 sites within 15km of Merthyr Tydfil County Borough



The screening of the PS (see tables 2 and 3 below) identifies key issues against which the potential effect of the PS has been assessed and takes into account other relevant issues as follows:

- Vulnerabilities identified in the conservation management objectives, which a land use plan could theoretically affect (Appendix 1).
- Other relevant LDP screening assessments (Appendix 2).
- The qualifying features of relevant NATURA 2000 sites (Appendix 3).
- Information on the migration of qualifying species (Appendix 4).
- Other supporting information as referenced in Table 2 and that identified in Appendix 5.

5.3 Given that there are no Natura 2000 sites in the County Borough, the key issues against which the PS has been considered are indirect impacts and impacts migratory qualifying species. The key issues from the 10 Natura 2000 sites within 15km of the County Boundary which elements of a land use plan could affect are summarised below:

- The loss and management of habitats potentially supporting the Marsh fritillary butterfly meta-populations at Aberbargoed Grassland SAC and Blaen Cynon SAC;
- The impact of disturbance, temperature change, habitat fragmentation and deterioration of roosting sites on potential meta-populations of lesser horseshoe bats; Usk Bat Sites SAC;
- The impact of dumping and invasive alien plant species on the Cwm Clydach Woodlands SAC;
- Recreational pressure from population expansion on the Brecon Beacons SAC, the Cardiff Beech Woods SAC and Coedydd Nedd a Mellte SAC;
- Development impacts on water resources and the associated ecology of the River Usk SAC;
- The impacts of air pollution & nutrient enrichment on water resources in Llangorse Lake SAC and
- The impact of air pollution on the Brecon Beacons SAC, Cwm Cadlan SAC and Coedd Nedd a Mellte SAC.

5.4 The PS has also been screening to identify, at a broad level, those policies which do not have the potential to affect Natura 2000 sites on the basis of the following criteria:

- The policy itself will not lead to development.
- The location of the development is unknown, and will be selected following consideration of options in lower plans.
- The policy will have no effect because development is dependent on implementation of lower tier policies.

- The policy concentrates development in existing urban areas, steering development away from European sites and sensitive areas.
- The policy will steer development away from European sites and associated sensitive areas.
- The policy is intended to protect the natural environment, including biodiversity.
- The policy is intended to conserve or enhance the natural, built or historic environment, and such enhancements are unlikely to affect a European site.

5.6 The results are shown in Table 3.

6. STAGE 1: SCREENING

TABLE 2: SCREENING 'APPROPRIATE ASSESSMENT' ON THE BASIS OF OBJECTIVE INFORMATION		
KEY ISSUE: Marsh fritillary butterfly: Loss and management of habitat.		
The UK Biodiversity Action Plan for the marsh fritillary (updated 2010) identifies sources of information on the species (Joint Nature Conservation Committee, 2010). 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 (including 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) and 6210 Semi-natural dry grasslands and scrubland (*Facies*) on calcareous substrates (*Festuco-brometalia*). 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 meta-populations, forming numerous temporary sub-populations, which frequently die out and re-colonise. Management in both wet and dry situations is predominantly by low-intensity cattle or pony grazing. Sheep selectively graze devil's-bit (*Scabious*) and are therefore detrimental to marsh fritillary populations, except at very low stocking rates. Burning and mowing are also known to have caused the extinction of populations.		
Relevant SAC within 15km	Marsh fritillary butterfly: Loss 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	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. 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 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 Preferred Strategy is unlikely to adversely affect the Aberbargoed Grasslands SAC and its population of Marsh fritillary butterfly. However, it is recommended that the screening process

Bargoed; occupying an urban fringe position, between 200m and 290m above sea level.	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, "*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.*[9]" Although the Preferred Strategy directs no significant development proximate to the area it is considered a more detailed assessment maybe required to inform the deposit plan because habitat suitable for the marsh fritillary in Merthyr plays an important role in the conservation of marsh fritillary in the wider landscape.	with regard to this be re-run to inform the Deposit Local Development Plan stage.
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 within the South Wales Coalfield on the fringes of an urban area.	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. Blaen Cynon SAC supports the 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 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.	The Preferred Strategy is unlikely to adversely affect the Blaen Cynon SAC and its population of Marsh fritillary butterflies. However, it is recommended that the screening process with regard to this is re-run to inform the Deposit Local Development

[9] Email received from NRW Conservation officer dated 09/09/2016

	According to Rhondda Cynon Taf County Borough Ecologist's, '*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.*[10]' 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[11] 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. Although the Preferred Strategy directs no significant development proximate to the area it is considered a more detailed assessment maybe required to inform the deposit plan, considering 'in-combination' effects on the Blaen Cynon SAC because habitat suitable for the marsh fritillary in Merthyr plays an important role in the conservation of marsh fritillary in the wider landscape.	Plan stage.

[10] Email from RCT Ecologist dated 21/07/2016

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

	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	
KEY ISSUE: Lesser horseshoe bats: Disturbance, temperature change, habitat fragmentation and deterioration of roosting sites.		
The UK Biodiversity Action Plan, Species Action Plan for the lesser horseshoe bat states that females forage within 2 – 3km of the maternity roost. The former CCW management plans identify Lesser horseshoe bats as sensitive to disturbance such a noise and light pollution and human presence. It should be noted that the Brecon Beacons National Park Local Planning Authority (BBNPLPA) undertook an appropriate assessment focussing on disturbance and habitat loss and fragmentation. The potential for significant effects, alone and in combination with other plans and programmes was ruled out, subject to policy safeguards.		
Relevant SAC within 15km	Lesser horseshoe bats: Disturbance, temperature change, habitat fragmentation and deterioration of roosting sites.	
	Consideration based on objective information	Conclusion
The Usk Bat/ Safleodd Ystlumod Wysg SAC is situated approximately 9.65km from the MTCBC administrative boundary located around the valley of the River Usk near to Abergavenny.	Lesser horseshoe bats are present within the MTCBC administrative boundary. A report, following a survey for the presence of bats , submitted to support the development of Wind Farm proposal on Merthyr Common (Consultancy, 2007), recorded Common pipistrelle (Pipisterllus pipisterllus), Noctule (Nyctalus noctula) and Daubenton (Myotis daubentonii) during the summer and only one commuting during Daubenton in the autumn. Although no Lesser horseshoe bats were detected it was thought that the species might be present in the area, feeding over the open moorland. Other 2007 records for the species, some 1.9km[12] to the west suggested that individuals were in the general area. In this case, although no Lesser horseshoe bats were detected on site their possible presence was considered. However, it was concluded that although they could not totally be discounted due to lack of evidence of their presence on site, the likelihood of impact on the project on the species was considered to be negligible. Consequently, subsequent ecological studies requested in support of planning applications in the area have not required an assessment of the likely effects of the proposal on the Usk Bat Sites SAC.	The Preferred Strategy will not adversely affect the Usk Bat Sites SAC and its population of lesser horseshoe bats.

[12] A lesser horseshoe bat hibernation site in a wooded valley 1.9km to the west

	However, it was recommended that a wintertime assessment of the disused mine level (NGR SO 0759 0982) noted in the gorge, be undertaken to establish if it is capable of being used for hibernation purposes. Since that time Lesser horseshoe bat winter cave roosts have been found within the Taf Fechan Site of Scientific Interest (SSSI)/ Local Nature Reserve. Given that the A465[13], will be dualled nearby, it was considered appropriate to 'scope-in' these populations to establish whether there is a significant link between them and the wider Usk Bat SAC. NRW state that "*the Jacobs team[14] has undertaken work last year [2016] that appears to show that no large scale movements of lesser horseshoe bats in or out of the Taf Fechan area that might indicate a strong connection with the Usk Bat Sites SAC a link is almost inevitable but it appears not to be a strong link. By this I mean that it is unlikely that significant numbers of SAC bats are regularly moving between the SAC and the Taf Fechan area as part of normal movement patterns*." NRW therefore concluded that although, "*I am not familiar with your LDP but in view of the reasoning above I feel it is safe to say that any impact is unlikely[15]*." Similarly, bearing in mind that the Taf Fechan site is afforded SSSI protection, and that the Preferred Strategy has no plans proximate to the area it is considered unlikely that it will have a significant effect on the Usk Bat Sites SAC.	
KEY ISSUE: Dumping and invasive alien plant species.		
Fallopia japonica, commonly known as Asian knotweed or Japanese knotweed, is a large, herbaceous perennial plant of the knotweed and buckwheat family Polygonaceae. It is native to East Asia in Japan, China and Koreaon the side of volcanoes but also flourishes on waste ground. It was introduced to Britain by the Victorians as both an ornamental plant and a cattle feed. It has no natural enemies in Britain, no wildlife eats it and no other plants can compete with it. This invasive plant has therefore flourished to extreme proportions across the UK. In winter the plant dies back beneath ground but by early late March to early April shoots start to emerge and by summer the bamboo-like stems shoot to over 2.1m (7ft), suppressing all other growth. The rhizome (or root) system can extend up to 3m in depth and 7m in all directions. These rhizomes can squeeze through the smallest cracks in masonry and concrete, meaning they pose a serious threat to building foundations and drains. EU and UK law requires that land owners must prevent Japanese knotweed from spreading into the wild and		

[13] The National Transport Plan Heads of the Valleys Improvement project – to dual the A465 between Dowlais Top and Hirwaun during 2019-22

[14] The survey results will be shown in the second draft of the environmental Statement set to be completed by March 2017

[15] Email-NRW - Senior Species Officer – South Region 17/03/2017

causing a nuisance.		
Relevant SAC within 15km	Dumping and invasive alien plant species.	
	Consideration based on objective information.	Conclusion
The Cwm Clydach Woodlands/ Coedydd Cwm Clydach SAC is situated approximately 12.6km from the MTCBC administrative boundary on the southern side of the River Clydach valley, approximately 2km east, north east of Brynmawr.	Japanese knotweed (*Fallopia japonica*) is present within the MTCBC administrative boundary. The introduction of invasive alien plant species by dumping is recognised as a threat to the SAC by its management plan. The SAC is in excess of 10km from the administrative boundary and the issue of illegal dumping is primarily related to waste management policy rather than land use which provides support for a network of suitable waste facilities.	The Preferred Strategy will not adversely affect the Cwm Clydach Woodlands SAC through invasive alien plant species introduced by illegal dumping.
KEY ISSUE: Recreational pressure: Population expansion may lead to increased recreational pressures.		
The key pressures arise from walking, climbing, mountain-biking and outdoor activities.		
Relevant SAC within 15km	Recreational pressure: Population expansion may lead to increased recreational pressures.	
	Consideration based on objective information.	Conclusion
The Brecon Beacons SAC is situated approximately 3km north of the MTCBC administrative boundary. It is located to the	Although the SAC is relatively inaccessible (mountain side including cliffs) recreational pressures can cause erosion of paths along the cliffs resulting in rock and soil being washed down from eroded areas on the cliffs above. Many routes in the area are of national fame, partially for their relative ease of access but also because Pen-y-Fan is the highest point in Southern Britain. The 2014 Wales Outdoor Recreation Survey shows that 75% of all outdoors visits take place within 5 miles of the visit start point down from 78% in 2011. The Brecon Beacons National Park Management Plan identifies management of the Public Rights	The Preferred Strategy will not have a significant effect on the number of people who choose to walk the Brecon Beacons SAC and

south of the town of Brecon and the Old Red Sandstone cliffs and escarpment is typical of the upland scenery within the National Park.	of Way network via the Rights of Way Improvement Plan as a priority action. Continued improvements will help discourage people from walking off the path, however it also increases accessibility and so may encourage more walkers to the area. There is no time series data available on the recreational patterns or Merthyr Tydfil's residents to the area. It is clear from traffic congestion and verge parking around 'Storey Arms' that the popularity of walking the main peaks of the Brecon Beacons has increased substantially in recent years. In particular, from the junction of the A470 and the A465, the Storey Arms car park is approximately 13km distant. From the car park, a 3km walk with approx 460m of height gain leads to Pen-y-Fan. Despite the path being 'cobbled' in many places, which has discouraged walking off the path, it is heavily used and erosion is still evident along the path. In this case it has the potential to impact on the SAC. However, the Storey Arms is not a visitor centre but an outdoor education centre run by Cardiff Council, open only to schools from the Cardiff Council area. Therefore it is unlikely that the LDP will have any significant impact on the SAC.	therefore will not adversely affect the SAC through recreational pressure.
Relevant SAC within 15km	Recreational pressure: Population expansion may lead to increased recreational pressures. Consideration based on objective information.	Conclusion
The Cardiff Beech Woods SAC is situated approximately 13km to the South of the MTCBC administrative boundary. It lies to the north east of Cardiff and is intersected by the A4054 and the A470.	The Cardiff Beech Woods are famously the home of Castell Coch, William Burgess' fairy-tale castle. The Taff Trail, which runs between Cardiff Bay and Brecon via Merthyr Tydfil, runs through the woodland site. Several other trails also exist in the area including a sculpture trail. The SAC is underpinned by Garth Woods SSSI, Castell Coch Woodlands and Road Section SSSI and Fforestganol a Chwm Nofydd SSSI. Since the assessment of the Local Development Plan (2006 – 2021) was undertaken, Bike Park Wales in Merthyr Tydfil has become a very popular regional mountain biking facility. Given the distance of the site from Merthyr's main centre of population and the fact that alternative recreational facilities are more readily accessible to the existing and proposed population, impacts from the LDP are not considered significant.	The Preferred Strategy will not have a significant effect on the number of people who choose to spend time in the Cardiff Beech Woods SAC and therefore will not adversely affect the SAC through recreational pressure.
Relevant SAC	Recreational pressure: Population expansion may lead to increased recreational pressures.	

within 15km	Consideration based on objective information.	Conclusion
The Coedydd Nedd a Mellte SAC is situated approximately 7.5km from MTCBC with the most direct access to the site being via the A465.	The wooded valleys, particularly within Dyffrynoedd Nedd a Melte, a Moel Penderyn SSSI are branded as 'Waterfalls Country' by the Brecon Beacons National Park and are popular with tourists and outdoor groups. This results in erosion. Since the assessment of the Brecon Beacons National Park Local Development Plan (2006 – 2021) was undertaken, a Waterfall Country Management Plan has been introduced. Given the distance of the site from Merthyr's main centre of population impacts from the LDP on the site will not be significant.	The Preferred Strategy will not significantly increase the number of people who choose to spend time at Coedydd Nedd a Mellte SAC and therefore will not adversely affect the SAC through recreational pressure.
KEY ISSUE: Water quality and quantity: Development may affect water resources and their associated ecology.		
Development may affect water resources and their associated ecology.		
Relevant SAC within 15km.	Development may affect water resources and their associated ecology.	
	Consideration based on objective information.	Conclusion
The River Usk / Afon Wysg SAC is situated approximately 9.65km from the MTCBC administrative boundary. It rises in the Black Mountain range in the west of the BBNP and flows east and then south, to enter the	The site management plan identifies water abstraction, eutrophication, diffuse pollution and migration barriers as vulnerabilities. The majority of Merthyr Tydfil County Borough's water supply is from the Pontsticill Reservoir which is fed by the Taf Fechan and Taf Fawr rivers, a different catchment to the Usk.	The Preferred Strategy will not adversely affect the water environment of the River Usk SAC.

Severn Estuary at Newport.		
KEY ISSUE: Water quality and quantity (Air pollution & nutrient enrichment).		
The general background to airborne pollution and local climatic conditions are considered under airborne pollution key issue bellow. In general it must be recognised that the state of the atmosphere helps to determine the concentrations of pollutants observed at receptors.		
Relevant SAC within 15km	Water quality and quantity (Air pollution & nutrient enrichment).	
	Consideration based on objective information.	Conclusion
The Llangorse Lake/ Llyn Syfaddan SAC is situated approximately 14.8km from the MTCBC administrative boundary and is a large shallow lake lying in a natural depression of the Old Sandstone drift.	Brecon Beacons National Park Local Planning Authority undertook an appropriate assessment of its LDP which focussed on disturbance and water quality. The potential for significant effects, alone and in combination with other plans and programmes was ruled out. The site management plan identifies the source of pollution as the air and small connected watercourses. The majority of Merthyr Tydfil County Borough's water supply is from the Pontsticill Reservoir which is fed by the Taf Fechan and Taf Fawr, a different catchment to the Wye. However, as airborne pollution is a key issue for this site, air quality impacts arising due to specific proposals will need to be assessed in more detail before being able to conclude that the deposit LDP will not give rise to likely significant effects.	The Preferred Strategy is unlikely to adversely affect the Llangorse Lake SAC through air pollution or nutrient enrichment. However, it is recommended that the screening process with regard to this is re-run to inform the Deposit Local Development Plan stage,

KEY ISSUE: Air Pollution

Critical loads for air pollutants are being exceeded. Development in and around Merthyr Tydfil has the potential to increase air pollution (through a combination of development [emissions from building stock] and a growth in road traffic [emissions from vehicles] including on the A456.

Background to atmospheric deposition

Much of this atmospheric pollution comes from distant, diffuse sources, such as traffic and domestic emissions, but some can be attributed to large point sources, such as major power stations or industrial processes. The concentration of atmospheric pollutants observed at different locations depends on more than just the quantity of pollutants emitted at the various sources. The atmosphere is the agent that transports and disperses pollutants between sources and receptors. Consequently, the state of the atmosphere helps to determine the concentrations of pollutants observed at receptors (DEFRA, 2015), (DEFRA)

Unlike emissions sources, which can be controlled, the state of the atmosphere is not at present susceptible to human control. In general, three parameters are used to describe atmospheric transport and dispersion processes. These are wind speed, wind direction, and atmospheric stability. For emissions at a given source, a higher wind speed provides the pollutants with a greater air volume within which to disperse. This causes ground level pollutant concentrations, other things being equal, to be inversely proportional to wind speed. Horizontally, the wind direction is the strongest factor affecting pollutant concentrations. For a given wind direction, nearly all the pollutant transport and dispersion will be downwind. Wind direction determines which sector of the area surrounding a source will receive pollutants from that source.

Atmospheric stability directly affects the vertical dispersion of atmospheric pollutants. Unlike wind direction and wind speed, atmospheric stability cannot be measured directly. Atmospheric stability is a measure of air turbulence and may be defined in terms of the vertical atmospheric temperature profile. When the temperature decreases rapidly with height, vertical motions in the atmosphere are enhanced, and the atmosphere is called unstable. An unstable atmosphere, with its enhanced vertical motions, is more effective for dispersing pollutants, and because of the large volume of air available for the spread of pollutants, ground-level concentrations can be relatively low. When the temperature does not decrease rapidly with height, vertical motions are neither enhanced nor repressed and the stability is described as neutral. Under these conditions, pollutants are also allowed to disperse vertically in the atmosphere, although not as rapidly as when it is unstable.

When the temperature decreases very little, remains the same, or increases with increasing height, the atmosphere is called stable. Under these conditions, the atmosphere inhibits the upward spread of pollutants. Upward-moving smoke, which rapidly assumes the temperature of the surrounding air, reaches a point where it is colder, and hence denser, than the air above it, so it can rise no further. This suppression of upward motion effectively forms a lid beneath which pollutants can disperse freely. The weaker the temperature decrease with height, the

higher the lid is. The extreme case is an inversion, when the temperature increases with height. Often, clouds are topped by a stable or inversion layer, which stops their vertical growth. This wind rose is a set of tables, one for each stability class (ranging from very stable to very unstable), listing the frequency of occurrence of all possible combinations of wind speed and wind direction[16].

Mountains and valleys have characteristic airflow patterns, too. In the evening, as the earth cools, the coldest air will sink into the lowest part of the valley. This creates a stable inversion layer because lighter, warmer air stays above the valley. In this way, pollutants are trapped in the valleys all night. During the daytime when heating occurs, the air in the valley is warmed and rises, permitting the pollutants to escape. Unfortunately, this heating and upward motion does not always occur. During periods when high pressure settles over a region and the air is stagnant, the atmosphere is stable all day long, and pollutants continue to accumulate in the valley.

In towns, buildings form the topography. Where rows of tall buildings front on narrow streets the air flows through the streets as though they were canyons. Since ventilation is determined by building configuration, many distortions in wind, and hence pollution flows, take place in a city. Air flows over a building and into a street downwind of it. The building, because the air cannot flow through it, creates an obstruction in the pattern of the smooth airflow. Downwind of the building, an eddy, or circular movement of air at variance with the main airflow, is formed in its wake. The eddy can trap pollutants emitted by cars in the street, and can cause concentrations of pollutants, for example, carbon monoxide, to be as much as three times higher on the side of the street further downwind than at the site of pollutant origin.

The well-mixed layer beneath a stable layer is called the mixing layer. When it extends to the ground its vertical extent is known as the mixing height or the mixing depth. Generally, turbulence is enhanced in the early morning hours as the sun heats the ground and temperature decreases with height, causing unstable conditions. At night, as the earth cools, temperature increases with height causing less turbulence and stable atmospheric conditions. Wind speed, wind direction, and atmospheric stability will vary greatly with time. For a certain location, some combinations occur more frequently than others. Where detailed meteorological records have been kept for a year or more, a stability wind rose can be calculated.

Relevant SAC within 15km	Air Pollution	
	Consideration based on objective information.	Conclusion
The Brecon Beacons SAC is situated approximately 3km north of the MTCBC administrative	A Report of a Health Impact Assessment Study of an Opencast Scheme at Ffos-Y-Fran, Merthyr Tydfil (Group, Ffos-y-Fran Health Impact Asessment Steering, 2007) cites useful sources of information on local wind conditions. Information from lay local weather studies was presented and considered at the Public Inquiry	The Preferred Strategy is unlikely to adversely affect the Brecon

[16] It should be noted that topographical features such as mountains, hills, valleys, bodies of water, buildings, and other terrain features can change airflow patterns, resulting in unexpected pollution effects

boundary.	and in the Air Quality Statement of Evidence (2004) but some of this information is also presented in this report alongside other supporting data. Meteorological data was collected at the Cwmbargoed Weather Station between 1967 and 1986. Wind roses showing the direction of prevailing winds on an annual basis for periods between 1967 and 1986 have been presented in a number of publications (Our Changeable Weather, 1986; Merthyr Tydfil: A valley community, 1981; and, Living in the Clouds, 1986) and show that wind in this location can come from several different directions over a twelve month period, and especially over much longer periods of time. Studies carried out by Josh Powell (a resident of Merthyr Tydfil) show that average wind direction for the period 1967-1980 came from the north west for 60 days, west for 65-70 days but south west for only 35 days over this period. The wind also came from a north easterly direction for just over 40 days of the year, more frequently than from a south westerly direction (35 days). A further study of air quality was carried out by the former Environment Agency at a car-park adjacent to Dowlais Rugby Club. It provides valuable data on wind speed and direction relevant to this area.	Beacons SAC through atmospheric deposition. However, it is recommended that the screening process with regard to this is re-run to inform the Deposit Local Development Plan stage.
The Cwm Cadlan SAC is situated approximately 4km north west of the MTCBC administrative boundary, approximately 1km north-east of the village of Penderyn and about 4km north of Hirwaun, near Aberdare.	From data collected a wind rose was produced which displays aggregated data for a four month period, 17 December 2002-14 April 2003. This shows that the strongest winds during these winter months were from the west south west and south west. Mean wind speeds and gusts are stated as strongest during the winter half of the year and as coming from the south west and south-south west. This Agency study also examined wind direction and shows a much greater frequency of wind coming from a northerly direction than previous studies, but at slightly less strength (5-7 m/s). Indeed, at this location during this period the prevailing wind was east north east NRW states that the topography of an area dominates wind direction and that Merthyr Tydfil is at the head of a deep valley. The prevailing wind direction of 'east north east' in the study carried out adjacent to Dowlais Rugby Club in 2003 means that wind coming from the south west is being channelled by a valley (EAW representative, interview, 13/10/06). Given the location of the European sites proximate to the County Borough, the prevailing wind direction and the significant variables impacting Air Pollution, impacts from the LDP on the site are unlikely to be significant. However, as airborne pollution is a key issue for these sites, air quality	The Preferred Strategy unlikely to adversely affect the Cwm Cadlan SAC through atmospheric deposition. It is recommended that the screening process with regard to this is re-run to inform the Deposit Local

	impacts arising due to specific proposals will need to be assessed in more detail before being able to conclude that the deposit LDP will not give rise to likely significant effects.	Development Plan stage.
The Coedydd Nedd a Mellte SAC is situated approximately 7.5km from MTCBC with the most direct access to the site being via the A465.		The Preferred Strategy is unlikely to adversely affect Coedydd Nedd a Mellte SAC through atmospheric deposition. However, it is recommended that the screening process with regard to this is re-run to inform the Deposit Local Development Plan stage.

TABLE 3: Screening of the Preferred Strategy

Key issues to consider:

1. The loss / degradation of marsh fritillary habitat.
2. Air quality impacts arising from specific proposals.

Preferred Policy Approaches	Description of Likely Effect	Potential Effect
Vision		
To strengthen Merthyr Tydfil's position as the regional centre for the Heads of the Valleys within the Cardiff Capital Region, to encourage a sustainable level of population growth and be a place to be proud of where: • People learn and develop skills to fulfil their ambitions; • People live, work, have a safe, healthy and fulfilled life; and • People visit, enjoy and return.	*Sets overarching framework for development*	Issues addressed as part of the PS policy screening below.
PS Objectives		
Improving social well-being 1 To encourage a sustainable level and distribution of population growth. 2 To promote use of the Welsh language. 3 To promote suitable previously developed land for the delivery of a diverse supply of housing. 4 To ensure the provision of infrastructure and open space is the basis for the regeneration of communities. 5 To promote high quality, sustainable and inclusive design and support measures which mitigate the predicted effects of climate change. 6 To support an integrated transport system, promote active travel and ensure new developments are accessible by walking, cycling and public transport. 7 To support existing community facilities and suitable community led development **Improving cultural well-being**	*Sets strategic framework for development*	Issues addressed as part of the PS policy screening below.

8 To protect, enhance and promote heritage and cultural assets **Improving environmental well-being** 9 To improve habitats which contribute to ecosystem resilience and connectivity and which support protected species 10 To protect and enhance the character and appearance of the landscape and the countryside. **Improving economic well-being** 11 To provide and safeguard appropriate land for economic and skills development. 12 To strengthen and diversify the rural economy. 13 To develop the town and local centres as accessible, attractive, viable and vibrant places. 14 To support suitable tourism, leisure and recreation developments and encourage a year round tourism industry 15 To promote renewable and low carbon energy. 16 To ensure a sustainable supply of minerals. 17 To promote the efficient use of materials and resources and ensure an integrated network of waste management facilities.		
Summary of policies		
Policy SW 1: Provision of new homes. To sustainably grow our population, 2250 additional homes are required. To ensure these are delivered, provision is made for 2825 additional homes. ***Screening:*** • The policy will have no effect because development is dependent on implementation of lower tier policies.	♣ Potential effects arising from a growth in housing development are increased air pollutants from development and a growth in traffic movements. ♣ Policies SW10 & 11, seek to reduce the emissions through improved design and more sustainable transport modes which act in mitigation. ♣ Policies EnW 16 and EnW 18 prevent development where ecological impacts are unacceptable.	None
Policy SW 2: Provision of affordable housing.		

To help meet the County Borough's identified need for affordable housing, the LDP will contribute (x number) affordable homes. ***Screening:*** • The policy itself will not lead to development.	The policy does not explicitly involve development.	None
Policy SW 3: Sustainably distributing new homes. New homes will be concentrated within the main settlement of Merthyr Tydfil (Primary Growth Area). A significant proportion of these (circa 800) will be delivered within the 'Hoover Strategic Regeneration Area'. • List of allocations added at deposit stage. New homes will also be directed to our other settlements of Troedyrhiw, Merthyr Vale and Aberfan, Bedlinog, and Edwardsville, Quakers Yard, Trelewis and Treharris (Other Growth Area). • List of allocations added at deposit stage. Affordable housing developments of x homes or fewer will be supported on sites no greater than x Ha. outside but adjoining the settlement boundary. ***Screening:*** • The location of the development is unknown, and will be selected following consideration of options in the deposit plan. • The policy will have no effect because development is dependent on implementation of lower tier policies. • The policy concentrates development in existing urban areas, steering development away from European sites and sensitive areas. • The policy will steer development away from European sites and associated sensitive areas.	♣ The policy places the most significant level of housing development in and around the existing Merthyr Tydfil urban area. ♣ There are no Natura 2000 sites adjacent to the primary growth area which could be directly impacted or easily accessible for recreational purposes. ♣ The policy will steer/ place small scale development in existing settlements away from European sites and associated sensitive areas. ♣ Policies EnW 16 and EnW 18 prevent development where ecological impacts are unacceptable.	Uncertain
Policy SW 4: Settlement Boundaries.	♣ This policy concentrates	Uncertain

To encourage development within urban areas, support the re-use of previously developed land, and to protect and support the functioning of our rural economy and the countryside, settlement boundaries will be defined as follows: Primary Growth Area: • Merthyr Tydfil. • Trefechan. Other Growth Areas: • Troedyrhiw. • Aberfan and Merthyr Vale. • Quakers Yard, Edwardsville, Treharris and Trelewis. • Bedlinog. Outside defined settlement boundaries, proposals will be regarded as 'countryside development' and will not be permitted unless:- • The development is associated with rural enterprises or the winning and working of minerals. • The development is for the re-use, adaptation, or replacement of rural buildings and dwellings. • The development supports the expansion of an existing business in the countryside. • The development is for tourism, recreation or leisure facilities where a countryside location is fully justified and viability demonstrated. • The development is for the provision of public utilities, infrastructure or waste management facilities that cannot reasonably be located elsewhere. • The development is required for the reclamation or treatment of unstable or contaminated land. • The development is for renewable energy. • The development is for affordable housing. ***Screening:*** • The policy will have no effect because development is dependent on implementation of lower tier policies. • The policy concentrates development in existing urban areas, steering development away from European sites and sensitive areas.	development in existing settlements/ urban areas with a focus around the main Merthyr Tydfil settlement. Focusing on existing urban areas by definition steers development away from European sites and sensitive areas. ♣ The nearest Natura 2000 sites to Merthyr Tydfil town are Blaen Cynon, Cwm Cadlan and the Brecon Beacons. The development proposed will not have direct impacts at these sites. ♣ The policy is for limited growth (that will not generate significant increases in traffic/ recreational pressures) in settlements located at a distance from the nearest SAC, Aberbargoed Grasslands which is also separated from development at Trelewis by the conurbation of the settlement of Bargoed. ♣ There is potential for the concentration of development to lead to an overall increase in harmful air pollutants, e.g. through increased traffic movements. The potential for significant impact is however, dependant on the respective site sensitivities and the	

	cumulative impacts of other plans. ♣ Policies SW10 & 11, seek to reduce the emissions through improved design and more sustainable transport modes which act in mitigation.	
Policy SW 5 – Hoover Strategic Regeneration Area The Hoover Strategic Regeneration Area is identified on the key diagram to facilitate a major mixed-use development. ***Screening:*** • The policy concentrates development in existing urban areas, steering development away from European sites and sensitive areas.	♣ The development proposed is within the existing urban area. ♣ There are no Natura 2000 sites adjacent to this area. ♣ Policies SW10 & 11, seek to reduce the emissions through improved design and more sustainable transport modes which act in mitigation. ♣ Policies EnW 16 and EnW18 prevent development where ecological impacts are unacceptable.	None
Policy SW 6: The former Ivor Steel Works Regeneration Site. Appropriate development on the former Ivor Steel Works site in Dowlais will be supported. ***Screening:*** • The policy concentrates development in existing urban areas, steering development away from European sites and sensitive areas.	♣ Supports development within existing urban areas on brownfield land with existing transport links which reduces the need to travel and the potential for increased emissions arising from a growth in road traffic. ♣ There are no Natura 2000 sites within close proximity.	None
Policy SW 7 – Gypsy, Traveller and Showpeople sites. The Glynmill site will be shown on the deposit proposals map as the preferred location for development for Gypsy, Traveller and Showpeople needs.	♣ Policies EnW 16 and EnW18 prevent development where ecological impacts are unacceptable.	None

Development for Gypsy, Traveller and Showpeople needs will be the subject of a criteria based policy in the Deposit Plan. ***Screening:*** • The policy itself will not lead to development.		
Policy SW 8: Planning Obligations Planning Obligations may be sought for: 1. On site provision of affordable housing on sites of x homes or more at an indicative level of: • x% in the Primary Growth Area. • x% in the Other Growth Area. 2. A financial contribution towards the provision of affordable housing: • On sites of between x and x homes • On sites of x or more homes, where on-site provision is not appropriate. 3. The provision and / or improvement of open space on sites of x or more. 4. Other relevant obligations not included within the Council's Regulation 123 List of Infrastructure ***Screening:*** • The policy itself will not lead to development.	The policy does not explicitly involve development.	None
Policy SW 9: Protecting and improving our open spaces Designated open space will be protected unless its loss is mitigated or compensated by improvements to the quality of other nearby open space. ***Screening:*** • The policy itself will not lead to development. • The policy is intended to conserve or enhance the natural, built or historic environment, and such enhancements are unlikely to affect a European site.	This policy approach implicitly protects the natural environment.	None

Policy SW 10: Sustainable Design and Placemaking Development must contribute to the creation of attractive and sustainable places through high quality, sustainable and inclusive design Detailed criteria to be identified in the Deposit Plan. ***Screening:*** • The policy itself will not lead to development. • The policy is intended to protect the natural environment, including biodiversity. • The policy is intended to conserve or enhance the natural, built or historic environment, and such enhancements are unlikely to affect a European site.	Provides sustainable design criteria for development that includes provision for a reduction in the potential indirect effects of construction and development.	None
Policy SW 11: Improving our local transport network. Development supporting the enhancement of pedestrian, cycle, road, rail and bus routes will be supported. Development meeting the access and mobility requirements of all and adhering to maximum parking standards will be supported where it does not cause unacceptable levels of congestion or safety risk to highway users and/or pedestrians. ***Screening:*** • The policy itself will not lead to development.	Policy focused on avoidance and mitigation of impacts that may arise from increased mobility and transportation. Requirement for assessment of effect where significant traffic movements predicted.	None
Policy SW 12: Improving our strategic transport networks. Land is safeguarded for the 'South Wales Metro' and dualling of the A465. ***Screening:*** • The policy itself will not lead to development. • Potential in-combination impact with National Transport Finance Plan project (dualling of A465).	This policy safeguards land for development of the A 465 (T) Heads of the Valleys in close proximity to Rhondda Cynon Taf and the BBNP. Potential impacts arising from the road and regeneration area improvements	Uncertain

	are increases in air pollution generated by a growth in traffic movements on the road and potential effects on migrating species including lesser horse shoe bats and marsh fritillary butterflies.	
Policy SW13: Central bus station. Allocation T1 will show the site of the new central bus station. ***Screening:*** • The policy itself will not lead to development.	Supports public transport which reduces the potential for increased emissions from road traffic.	None
Policy SW 14: Protecting and improving our local community facilities The provision of new and enhanced recreational, educational and commercial community facilities will be supported. The protection of existing community facilities may be the subject of a criteria based policy in the Deposit Plan and Supplementary Planning Guidance. ***Screening:*** • The policy itself will not lead to development.	Directs development for community facilities within settlement limits.	None
Policy CW15: Historic Environment The setting and integrity of our designated historic environment assets will be conserved and enhanced. Development within Urban Character Areas, Archaeologically Sensitive Areas must have regard to their special character and archaeological importance. ***Screening:*** • The policy itself will not lead to development. • The policy is intended to conserve or enhance the natural, built or historic environment, and such enhancements are unlikely to affect a European site.	Seeks to control, rather than direct development and is concerned with conservation and preservation of the historic and cultural environment.	None

Policy CW16: Cyfarthfa Heritage Area The Cyfarthfa Heritage Area is identified on the key diagram to support the development of a heritage based visitor attraction to complement the offer of Cyfarthfa Castle and park. ***Screening:*** • The policy will steer development away from European sites and associated sensitive areas.	Directs development to within settlement limits.	None
Policy EnW 17: Environment Development must contribute to the creation of an ecologically connected and sustainable environment. To achieve this: I. Development is expected to protect 'green infrastructure'. Any loss of ecosystem connectivity, flowering habitats, locally distinctive geological features and soil will only be supported where mitigation is achievable or compensatory measures are provided. II. The features and conservation value of Sites of Importance for Nature Conservation and Regionally Important Geological Sites will be protected and enhanced unless appropriate mitigation or compensatory measures are provided. ***Screening:*** • The policy itself will not lead to development. • The policy will steer development away from European sites and associated sensitive areas. • The policy is intended to protect the natural environment, including biodiversity. • The policy is intended to conserve or enhance the natural, built or historic environment, and such enhancements are unlikely to affect a European site.	Policy is focused on environmental protection and prevents development where ecological impacts are unacceptable.	None
Policy EnW 18: Local Nature Reserves To enable access to nature, Local Nature Reserves are proposed as part of the following designated open spaces: • Bedlinog – Old colliery site Coed-y-Hendre/Nant Llwynog • Cyfarthfa – Scwrfa (Gellideg Fields)/Cwm Ffrwdd Woodland	Seeks to control, rather than direct development and is concerned with conservation and preservation of the	None

• Dowlais – Ifor Tip • Gurnos – Y Graig • Merthyr Vale – Bryngolau • Park – Cwm Taf and Cefn Coed Tip • Penydarren – Goitre Lane • Plymouth – Pentrebach/Nant-yr-Odin Tip • Town – Cwm Blacs • Treharris – Cefn Glas • Penydarren, Dowlais and Town – Newlands Park • Vaynor – Cwm Taf Fechan; only existing LNR	landscape environment.	
Policy EnW19: Protected sites and species The Cwm Glo & Glyndyrus and Taf Fechan Sites of Special Scientific Interest and habitats and species of principle importance in Wales will be protected. ***Screening:*** • The policy itself will not lead to development. • The policy concentrates development in existing urban areas, steering development away from European sites and sensitive areas. • The policy will steer development away from European sites and associated sensitive areas. • The policy is intended to protect the natural environment, including biodiversity. • The policy is intended to conserve or enhance the natural, built or historic environment, and such enhancements are unlikely to affect a European site.	Seeks to control, rather than direct development and is concerned with conservation and preservation of the landscape environment.	None
Policy EnW 20: Special Landscape Areas Development within Special Landscape Areas must be sensitive to their special characteristics. ***Screening:*** • The policy itself will not lead to development. • The policy concentrates development in existing urban areas, steering development away from European sites and sensitive areas. • The policy will steer development away from European sites and associated sensitive areas. • The policy is intended to protect the natural environment, including biodiversity.	Seeks to control, rather than direct development and is concerned with conservation and preservation of the landscape environment.	None

• The policy is intended to conserve or enhance the natural, built or historic environment, and such enhancements are unlikely to affect a European site.		
Policy EcW 21: Provision of employment land. To support economic development, up to 30Ha. (in total) of employment land (B1, B2, B8) will be allocated in the deposit plan in the Primary Growth Area: • Strategic Regeneration Area • Goatmill Road • Ffos-y-fran ***Screening:*** • The policy concentrates development in existing urban areas, steering development away from European sites and sensitive areas.	♣ The policy directs development within and around existing urban areas with existing transport links. ♣ There are no SACs within proximity to these areas, ♣ Policies SW10 & 11, seek to reduce the emissions through improved design and more sustainable transport modes which act in mitigation. ♣ Policy EnWB 16 prevents development where ecological impacts are unacceptable.	Uncertain
Policy EcW 22: Protecting employment sites. In order to protect the employment function of the County Borough's business and employment sites, development will be permitted at Rhydycar Business Park where:- • it falls within Use Class B1; or • it provides an ancillary facility or service to the primary employment use. At Pengarnddu, Pant Industrial Estate, Goatmill Road, Triangle Business Park and Merthyr Tydfil Industrial Park development will be permitted if:- • It is within Use Classes B1, B2 or B8; or • It provides an ancillary facility or service to the primary employment use, or • It is an acceptable commercial service unrelated to class B uses, or • It is an appropriate waste management facility compatible with existing industrial and commercial activities. Development proposals for uses other than those stipulated and that would result in the loss of employment land / premises at the above sites will only be permitted where it can be demonstrated that the existing use is inappropriate or the land / premises are surplus to the requirements of the employment market.	♣ The policy directs development within and around existing urban areas with existing transport links. ♣ There are no SACs within proximity to these areas, ♣ Policies SW10 & 11, seek to reduce the emissions through improved design and more sustainable transport modes which act in mitigation. ♣ Policy EnWB 16 prevents development where ecological impacts are unacceptable.	Uncertain

Screening: • The policy itself will not lead to development. • The policy concentrates development in existing urban areas, steering development away from European sites and sensitive areas. •		
Policy EcW 23: Retail Hierarchy - supporting our retailing provision. Merthyr Tydfil Town Centre is the favoured location for retail development, being situated at the head of a retail hierarchy and being followed by the local centres of Dowlais, Gurnos, Cefn Coed and Brecon Road/Morgantown, Troedyrhiw, Aberfan, Treharris and a new local centre forming part of the 'Hoover Strategic Regeneration Area'. Outside the above centres, proposals will be subject to an assessment of need and a strict application of the sequential test. Proposals will then only be permitted where they avoid causing harm to town/local centre vitality and viability. ***Screening:*** • The policy itself will not lead to development. • The policy concentrates development in existing urban areas, steering development away from European sites and sensitive areas.	Directs development within existing urban areas. Seeks self - sufficiency and viability of local town centres which reduces the need to travel and the potential for increased emissions arising from a growth in road traffic.	None
Policy EcW 24: Retail Allocation To support the Town Centre, land will be allocated for retail and commercial development at the Merthyr Tydfil bus station. ***Screening:*** • The policy concentrates development in existing urban areas, steering development away from European sites and sensitive areas.	Directs development within existing urban areas. Policies SW10 & 11, seek to reduce the emissions through improved design and more sustainable transport modes which act in mitigation.	None
Policy EcW 25: Town and Local Centre Development.		

Development enhancing the vitality and viability of the Town and Local Centres will be supported. Within the Town Centre Primary Shopping Area (PSA) the change of use from A1 to another 'A class' use will be permitted where; • At least 75% of the commercial uses at street level within the PSA remain A1, and; • In any row of five shops there are a maximum of two neighbouring properties which are 'non-A1'. ***Screening:*** • The policy itself will not lead to development. • The policy concentrates development in existing urban areas, steering development away from European sites and sensitive areas.	♣ Seeks to control, rather than direct development. ♣ Seeks self-sufficiency and viability of local town centres which reduces the need to travel and the potential for increased emissions arising from a growth in road traffic. ♣ Policies SW10 & 11, seek to reduce the emissions through improved design and more sustainable transport modes which act in mitigation.	None
Policy EcW 26: Renewable Energy The Deposit Plan will contain policy on renewable and low carbon energy development. ***Screening:*** • None at this stage.	♣ There are no SACs within the authority area which may be subject to direct impacts (habitat disturbance, fragmentation, loss) from renewables, including wind turbine development. ♣ Policy EnWB 16 prevents development where ecological impacts are unacceptable.	Uncertain
Policy EcW 27: Sustainably supplying minerals The Deposit Plan will contain a policy on minerals development. ***Screening:*** • None at this stage.	♣ There are no SACs within the authority area which may be subject to direct impacts (habitat disturbance, fragmentation, loss) from renewables, including wind turbine development. ♣ Policy EnWB 16 prevents	Uncertain

	development where ecological impacts are unacceptable.	
LDP Policy EcW 28: Waste facilities Waste treatment facilities will only be permitted where there is an identified need, where they are situated away from sensitive locations, accord with the waste hierarchy, the proximity principle and provide comprehensive restoration and aftercare of the land for a beneficial re-use. ***Screening:*** • The policy itself will not lead to development. • The policy concentrates development in existing urban areas, steering development away from European sites and sensitive areas.	Provides a framework for waste management. Policy requires the consideration of environmental impacts and is based on the proximity principle – reducing the likelihood of increased traffic based impacts from waste transportation.	Uncertain

5. CONCLUSION

7.1 For each of the ten Natura 2000 sites within a 15km radius of the County Borough, the conclusion of screening the PS is shown in Table 4 below. Key issues for the deposit plan to avoid are the loss / degradation of marsh fritillary habitat, of relevance to the Aberbargoed Grasslands SAC and Blaen Cynon SAC and air quality impacts arising from specific proposals impacting on the Brecon Beacons SAC, Coedydd Nedd a Mellte SAC, Cwm Cadlan SAC, and Llangorse Lake SAC.

TABLE 4: HRA Screening Summary			
Special Areas of Conservation (SAC)	Key issue	AA required alone or in combination for LDP Preferred Strategy? **x** No ✓ Yes **?** Uncertain	AA required alone or in combination for Deposit LDP stage? **x** No ✓ Yes **?** Uncertain
Aberbargoed Grasslands	Loss and management of Marsh fritillary butterfly habitats	**x**	**?**
Blaen Cynon	Loss and management of Marsh fritillary butterfly habitats	**x**	**?**
Brecon Beacons	Impact of air pollution Recreational pressure	**x**	**?**
Cardiff Beech Woods	Recreational pressure	**x**	**x**
Coedydd Nedd a Mellte	Impact of air pollution	**x**	**?**
Cwm Cadlan	Impact of air pollution	**x**	**?**
Cwm Clydach Woodlands/ Coedydd Cwm Clydach	Impact of dumping and invasive alien plant species	**x**	**x**
Llangorse Lake / Llyn Syfaddan	Impact of air pollution & nutrient enrichment on water resources	**x**	**?**
River Usk/ Afon Wysg	Impacts on water resources and associated ecology	**x**	**x**
Usk Bat Sites/ Safleodd Ystlumod Wysg	Impact of development on lesser horseshoe bats	**x**	**x**

7.2 The screening process will be re-run to inform the contents of the full draft 'Deposit' LDP ensuring any adverse effects arising from specific LDP proposals, either alone or in combination with other proposals, plans, projects or programmes on the integrity of the Natura 2000 sites, are avoided.

APPENDIX 1: IDENTIFICATION OF NATURA 2000 SITE VULNERABILITIES.

SAC NAME / Vulnerabilities	An LDP could have a direct impact	An LDP could have an indirect impact	Aberbargoed Grasslands	Blaen Cynon	Brecon Beacons	Cardiff Beech Woods	Coedydd Nedd a Mellte	Cwm Cadlan	Cwm Clydach Woodlands / Coedydd Cwm Clydach	Llangorse Lake / Llyn Syfaddan	River Usk / Afon Wysg	Usk Bat Sites / Safleodd Ystlumod Wysg
Weather	X	✓	X	✓	X	X	X	X	X	X	X	X
Air pollution	X	✓	X	X	✓	✓	✓	X	X	✓	X	X
Grazing	X	✓	✓	✓	✓	X	✓	✓	✓	X	X	✓
Burning	X	✓	✓	✓	X	X	X	X	X	X	X	✓
Fly tipping/dumping	X	✓	✓	X	X	X	X	X	✓	X	X	✓
Parasites	X	✓	X	✓	X	X	X	X	X	X	X	X
Invasive species	X	✓	X	X	X	✓	X	X	✓	X	X	✓
Scrub encroachment	X	✓	✓	✓	X	X	X	✓	✓	X	X	✓
Disturbance	✓	X	X	X	X	X	X	X	X	X	X	✓
Development/ urbanisation	✓	X	X	X	X	✓	X	X	X	X	✓	✓
Quarrying / dust deposition	✓	X	X	X	X	✓	X	✓	X	X	X	X
Erosion	✓	X	X	X	✓	X	✓	X	X	X	X	X
Rock climbing	X	✓	X	X	✓	✓	X	X	X	X	X	✓
Fishing	X	✓	X	X	X	X	X	X	X	✓	✓	X

SAC NAME / Vulnerabilities	An LDP could have a direct impact	An LDP could have an indirect impact	Aberbargoed Grasslands	Blaen Cynon	Brecon Beacons	Cardiff Beech Woods	Coedydd Nedd a Mellte	Cwm Cadlan	Cwm Clydach Woodlands / Coedydd Cwm	Llangorse Lake / Llyn Syfaddan	River Usk / Afon Wysg	Usk Bat Sites / Safleodd Ystlumod Wysg
Water sport	X	✓	X	X	X	X	X	X	X	✓	X	X
Scrambling	X	✓	X	X	X	X	✓	X	X	X	X	✓
Unauthorised vehicles	X	✓	X	X	X	X	X	X	X	X	X	✓
Inappropriate tree planting	X	✓	X	✓	X	X	X	X	X	X	✓	X
Competition from conifers, beech and sycamore.	X	✓	X	X	X	X	✓	X	X	X	X	X
Nutrient Enrichment	✓	X	X	X	X	X	X	✓	X	✓	X	X
Traditional agricultural management, agricultural practice and land improvement.	X	✓	X	✓	X	X	X	X	X	✓	✓	X
Maintenance of hydrological regime	✓	X	X	✓	X	✓	X	✓	X	X	✓	✓
Impact of geese	X	✓	X	X	X	X	X	X	X	✓	X	X
Migration barriers	X	✓	X	X	X	X	X	X	X	X	✓	X
Fish competition / Non - native fish / Reduction in eels and amphibians	X	✓	X	X	X	X	X	X	X	X	✓	X

APPENDIX 2: CONSIDERATION OF NATURA 2000 SITES IN LDP SCREENING ASSESSMENTS.

SAC NAME	RELEVANT LDP SCREENING ASSESSMENT
Aberbargoed Grasslands	Caerphilly - Detailed screening assessment. The most significant potential 'in-combination' impact identified is air pollution arising from the cumulative effects of development (housing, infrastructure, major transport routes) in the region (Page 18 of 257) (Enfusion, 2008).
Blaen Cynon	RCT - It is assessed that the LDP will not have LSEs on Blaen Cynon SAC either alone or in-combination in regards to airborne pollution. There is potential for development proposed in the LDP (Policy NSA 8 & Policy NSA 14) (Rhondda Cynon Taff County Borough Council, 2011) and the Trunk Road Forward Programme to have significant effects on Blaen Cynon SAC through changes to the hydrological regime in management units 2, 3, 5 and 6. If the avoidance and mitigation measures proposed earlier in this section (paragraphs 4.17-4.18) (Efusion, HABITATS REGULATIONS (APPROPRIATE ASSESSMENT) REPORT, 2010) are effectively implemented. The Deposit Draft Plan is unlikely to have significant adverse effects on the Blaen Cynon SAC either alone or in-combination. BBNPA - For this strategic plan level HRA to conclude that the Deposit LDP would not have likely significant effects (LSEs) on the Blaen Cynon SAC as a result of atmospheric pollution either alone or in combination the recommended policy safeguard and monitoring requirements must be incorporated into the Deposit LDP. It is assessed that development would not have LSEs on the Blaen Cynon SAC as a result of habitat loss or fragmentation either alone or in combination if the recommended policy safeguard is incorporated into the Deposit LDP.
Brecon Beacons	BBNPA - Scoped out.
Cardiff Beech Woods	Cardiff - Scoped in. Recreational pressure, atmospheric pollution, mineral extraction and related activities, development, changes to local hydrology (Cardiff Council, 2012). RCT - The HRA Screening assessed that there is also potential for significant impact on the Cardiff Beech Woods SAC, in-combination with development proposed in Cardiff. Given the location of the proposed development within RCT's Deposit Draft Plan and the availability of alternative recreation space, the Deposit Draft Plan is not likely to have significant effects on Cardiff Beech Woods SAC through increased recreational activity either alone or in-combination. It is not likely that RCT's LDP

	will have significant effects either alone or in-combination with Cardiff's LDP on the Cardiff Beech Woods SAC in relation to airborne pollution (Efusion, HABITATS REGULATIONS (APPROPRIATE ASSESSMENT) REPORT, 2010).
Coedydd Nedd a Mellte	RCT - Scoped out (Neath Port Talbot County Borough Council, 2011). BBNPA – Scoped out.
Cwm Cadlan	RCT - Scoped out (Efusion, HABITATS REGULATIONS (APPROPRIATE ASSESSMENT) REPORT, 2010).
Cwm Clydach Woodlands / Coedydd Cwm Clydach	Monmouthshire - (Efusion, Habitats Regulations Assessment (Appropriate Assessment) Addendum Report, 2014). It is assessed that the Deposit LDP in combination with development proposed in surrounding areas will not have adverse effects on the integrity of European sites through increased atmospheric pollution (Efusion, Habitats Regulations Assessment (Appropriate Assessment) Addendum Report, 2014).
Llangorse Lake / Llyn Syfaddan	BBNPA - It is assessed that the Deposit LDP alone will not have LSEs on Llangorse Lake SAC through increased disturbance; therefore the Stage 1 screening assessment is supported. The Deposit LDP will not have likely significant in combination effects on Llangorse Lake SAC through increased disturbance. It is assessed that the Deposit LDP will not have likely significant effects either alone or in combination on Llangorse Lake SAC through reduced water quality if the recommended policy safeguards are incorporated into the Plan.
River Usk / Afon Wysg	BBNPA - It is assessed that the Deposit LDP alone would not have LSEs on the River Usk SAC through increased disturbance if the recommended policy safeguard is incorporated into the Plan. It is assessed that the Deposit LDP would not have LSE on the River Usk SAC either alone or in combination through reduced water quality if the recommended policy safeguards and monitoring are incorporated into the Plan. It is assessed that the Deposit LDP would not have LSE on the River Usk SAC either alone or in combination through reduced water levels if the recommended policy safeguard is incorporated into the Plan.

Usk Bat Sites / Safleodd Ystlumod Wysg	BBNPA / Monmouthshire/ Powys - Scoped in. BBNPA - It is assessed that the Deposit LDP alone will not have LSEs on the Usk Bat Sites SAC as a result of increased disturbance and habitat loss and fragmentation if the recommended policy safeguards are incorporated into the Plan. Assessed that the Deposit LDP would not have likely significant in combination effects on the USK Bat Sites SAC through increased disturbance and habitat loss and fragmentation if the recommended policy safeguards are incorporated into the Plan.

APPENDIX 3: RELEVANT NATURA 2000 FEATURES.

Relevant SAC features	Affected SAC	Best scientific knowledge in the field
Marsh fritillary Butterfly.	Aberbargoed Grasslands Blaen Cynon	http://jncc.defra.gov.uk/_speciespages/300.pdf
Molinia meadows on calcareous, peaty or clayey-silt laden soils	Aberbargoed Grasslands Cwm Cadlan	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H6410_UK.pdf
Calcareous rocky slopes with chasmophytic vegetation	Brecon Beacons Usk Bat Sites	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H8210_UK.pdf
Siliceous rocky slopes with chasmophytic vegetation	Brecon Beacons	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H8220_UK.pdf
European dry heaths	Brecon Beacons Usk Bat Sites	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H4030_UK.pdf
Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	Brecon Beacons	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H6430_UK.pdf
Beech forests	Cardiff Beech Woodlands Coedydd Cwm Clydach	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H9130_UK.pdf
Tilio-Acerion forests of slopes, screes and ravines	Cardiff Beech Woodlands Coedydd Nedd a Mellte Usk Bat Sites	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H9180_UK.pdf
Old sessile oak woods with Ilex and Blechnum in the British Isles	Coedydd Nedd a Mellte	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H91A0_UK.pdf
Alkaline Fen	Cwm Cadlan	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H7230_UK.pdf

Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer	Coedydd Cwm Clydach	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H9120_UK.pdf
Natural Eutrophic Lakes with Magnopotamion or Hydrocharition – type vegetation.	Llangorse lake	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H3150_UK.pdf
Sea lamprey	River Usk	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1095_UK.pdf
Brook lamprey	River Usk	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1096_UK.pdf
River Lamprey	River Usk	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1099_UK.pdf
Twaite shad	River Usk	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1103_UK.pdf
Atlantic salmon	River Usk	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1106_UK.pdf
Bullhead	River Usk	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1163_UK.pdf
European otter	River Usk	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1355_UK.pdf
Allis shad	River Usk	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1102_UK.pdf
Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	River Usk	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H3260_UK.pdf
Lesser Horseshoe Bat	Usk Bat Sites	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1303_UK.pdf
Blanket Bog	Usk Bat Sites	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H7130_UK.pdf
Caves not open to the public	Usk Bat Sites	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H8310_UK.pdf
Degraded raised bogs still capable of natural regeneration.	Usk Bat Sites	http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H7120_UK.pdf

APPENDIX 4: QUALIFYING SPECIES MIGRATION

Species	Suggested buffer	Source material supporting buffer distance	Particular vulnerabilities	Associated Natura 2000 sites
Otter	5km (In addition tributaries of the SAC need to be considered)	JNCC Conserving Natura 2000 Rivers – Ecology series 10	• Pollution from a wide range of substances including PCBs (polychlorinated biphenyls) and heavy metals, e.g., lead, cadmium and mercury. Full impacts of these effects are unclear due to the complex way in which they interact in the aquatic environment • Water abstraction, which can concentrate pollutants and reduce food availability • Loss and lack of wetland habitats associated with rivers, leading to the loss of resting and breeding sites. Development pressures, wetland drainage, intensified riparian management, agricultural cultivation along riverbanks, river engineering and flood prevention measures • Loss of suitable resting and breeding sites due to lack of appropriate management of riverside pollards • Disturbance from people, dogs and livestock and water based recreation activities such as angling and boating • Accidental death: road and rail casualties • Poor habitat and water quality reducing the sustainability of fish stocks	River Usk SAC
Lesser horseshoe bat	15km	Schofield, H. (2010) Lesser Horseshoe Conservation Handbook. Bat Conservation	• Loss of Roost sites including old buildings during the summer and caves, mines and other cave-like places for hibernation in the winter. • Fragmentation of habitat. Summer and winter roosts are usually less than 5-10 km apart. The bats	Usk Bat Sites SAC

		Trust.	are vulnerable to the loss or disturbance of both summer and winter roost sites and the removal of linear habitat corridors. • The species is particularly sensitive to light. Increased lighting in commuting/foraging areas can cause the bats to abandon the site. • Loss of foraging/feeding habitat. The species prefers sheltered valleys with extensive deciduous woods or dense scrub, close to roost sites. Where habitat is fragmented, linear features such as hedgerows are important corridors between roosts and foraging areas.	
Marsh fritillary butterfly	2km	Carmarthenshire Local Biodiversity Action Plan. Butterfly Conservation.	• Increased fragmentation and isolation of habitats. • Inappropriate management of sites including changes • In grazing stock and practice leading to loss of food plant (devil's bit scabious *Succissa pratensis)* overgrazing, Burning and mowing. • Adults tend to be sedentary and remain in a series of linked metapopulations, forming numerous temporary sub-populations, which frequently die out and recolonise. Where unable to do this, populations do not seem to be able to persist in habitat fragments. It is therefore essential to conserve a cluster of sites in close proximity. • Afforestation and development on habitats.	Aberbargoed Grasslands SAC Blaen Cynon SAC
Allis shad	2km	JNCC Conserving Natura 2000 Rivers – Ecology series 3	• Pollution. • Overfishing. • River obstructions to migration. • Deposition of fine sediments reducing quality of spawning sites. • Disturbance through vibrations from development etc.	River Usk SAC

Twaite shad	2km	JNCC Conserving Natura 2000 Rivers – Ecology series 3	• Pollution. • Overfishing. • River obstructions to migration e.g. weirs or dams. • Deposition of fine sediments reducing quality of spawning sites. • Disturbance through vibrations from development etc.	River Usk SAC
River lamprey	2km	JNCC Conserving Natura 2000 Rivers – Ecology series 5	• Pollution. • River obstructions to migration e.g. weirs or dams. • Reduction in quality of spawning sites.	River Usk SAC
Brook lamprey	2km	JNCC Conserving Natura 2000 Rivers – Ecology series 5	• Pollution. • River obstructions to migration e.g. weirs or dams. • Reduction in quality of spawning sites.	River Usk SAC
Sea lamprey	2km	JNCC Conserving Natura 2000 Rivers – Ecology series 5	• Pollution. • River obstructions to migration e.g. weirs or dams. • Reduction in quality of spawning sites.	River Usk SAC
Atlantic salmon	2km	JNCC Conserving Natura 2000 Rivers – Ecology series 7	• Pollution. • River obstructions to migration e.g. weirs or dams. • Physical degradation of spawning and nursery habitat.	River Usk SAC

APPENDIX 5: NATURA 2000 SITE INFORMATION. SPECIAL AREAS OF CONSERVATION WITHIN 15KM OF MERTHYR TYDFIL CBC

1. Aberbargoed Grasslands
2. Blaen Cynon
3. Brecon Beacons
4. Cardiff Beech Woods
5. Coedydd Nedd a Mellte
6. Cwm Cadlan
7. Coedydd Cwm Clydach
8. Llangorse Lake
9. River Usk
10. Usk Bat Sites

All core site specific information unless otherwise stated has been referenced from the Natural Resources Wales (Sites protected by European and international law-designated site search - https://naturalresources.wales/conservation-biodiversity-and-wildlife/find-protected-areas-of-land-and-seas/designated-sites-search/?lang=en) and the Joint Nature Conservation Committee website (Protected Sites http://jncc.defra.gov.uk/ProtectedSites/SACselection/SAC_list.asp?Country=W) & http://jncc.defra.gov.uk/page-1403)

Site Name: Aberbargoed Grasslands ***Location Grid Ref: ST163992*** ***JNCC Site Code: UK0030071*** ***Size: 39.78 ha*** ***Designation: SAC***	***Habitats Regulations Assessment: Data Proforma***
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*.
Qualifying Features	**Annex II species that are a primary reason for selection of this site:** o *Marsh fritillary Butterfly Euphydryas (Eurodryas, Hypodryas) aurinia* **Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:** o *Molinia meadows on calcareous, peaty or clayey-siltladen soils (Molinion caeruleae)*
Conservation Objectives	**Vision for the site:** Walking through this site on a hot sunny day you are enveloped by butterflies, most notably orange and black coloured (these are the colours of the marsh fritillary). The population is viable long term with enough marshy grassland and, more importantly, the butterfly's foodplant devil's bit scabious present to support them. Marshy grassland is seen over half of the site, preferably increasing to cover a wider area. Established woodland /scrub and bracken on this site do not occupy more than 20% of the site. The remainder of the site is a mixture of neutral grassland, wet heath and mire. During the summer a walk over the site will show you the wide range of plants and insects that thrive here. There is a mixture of different grasses and flowers that add splashes of colour. The tallest common plants, standing at about knee-height, are grasses and sedges including purple moor-grass and carnation sedge. Growing amongst these plants you will also find Meadow-thistle, devil's-bit scabious and tormentil. Where the ground is particularly wet you see blunt-flowered rush, sharp flowered rush with common marsh bedstraw, greater bird's-foot trefoil and water mint. Where neutral grassland replaces marshy grassland the types of plants and animals that live there change. Here the tallest plant is black knapweed with common bird's-foot trefoil, red clover, oxeye daisy, devil's-bit scabious and

	autumn hawkbit growing amongst it. Species that show agricultural modification, such as perennial rye grass and white clover are uncommon. Scrub species such as willow and birch are also uncommon. **Annex II species that are a primary reason for selection of this site:** *Marsh fritillary Butterfly (Euphydryas (Eurodryas, Hypodryas) aurinia)* The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: 1. 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 2. The population will be viable in the long term, acknowledging the extreme population fluctuations of the species. 3. Habitats on the site will be in optimal condition to support the metapopulation. 4. 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. 5. 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. 6. All factors affecting the achievement of the foregoing conditions are under control. **Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:** *Molinia meadows on calcareous, peaty or clayey-siltladen soils (Molinion caeruleae)* The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ eu-Molinion marshy grassland will occupy at least 70% of the total site area. ▪ The remainder of the site will be other semi-natural habitat or areas of permanent pasture. ▪ The following plants will be common in the eu-Molinion marshy grassland: purple moor-grass Molinia caerulea; meadow thistle Cirsium dissectum; devil's bit scabious Succisa pratensis; carnation sedge Carex panicea; saw wort Serratula tinctoria; and lousewort Pedicularis sylvestris.

	▪ Cross-leaved heath Erica tetralix and common heather Calluna vulgaris will also be common in some areas. ▪ Rushes and species indicative of agricultural modification, such as perennial rye grass Lolium perenne and white clover Trifolium repens will be largely absent from the eu-Molinion marshy grassland. ▪ Scrub species such as willow Salix and birch Betula will also be largely absent from the eu-Molinion marshy grassland. ▪ All factors affecting the achievement of these conditions are under control.
Component SSSIs	The plan area has been divided into 2 management units to enable practical communication about features, objectives, and management. This will also allow us to differentiate between the different designations where necessary. In this plan the management units have been based on mainly tenure, but also with reference to status and land management requirements.
Key Environmental Conditions (factors that maintain site integrity)	<u>Management Requirements for both qualifying features:</u> 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. <u>Recent Management Actions</u> In 2005 Caerphilly were successful in gaining funding via the Heritage Lottery Fund, this along with money from CCW has led to a full- time officer being appointed to Aberbargoed Grasslands. There is also a part-time stock handler. Work has progressed well on the site in the past few years; the site is now stock-proof and a mixture of Welsh Black and Belted Galloways graze the land with a Limousin bull. Scrub clearance and bracken control has begun and flight lines have been cut to improve the connectivity for the butterflies. A programme has been set up to educate the local community to understand why this area is important. A newsletter has been created detailing activities on the grassland and difficulties the site is facing. This and the presence of staff and stock onsite seem to have halted the illegal burning and off-roading.
SAC Condition Assessment	*Marsh fritillary Butterfly Euphydryas (Eurodryas, Hypodryas) aurinia:* ***Unfavourable*** *Molinia meadows on calcareous, peaty or clayey-siltladen soils (Molinion caeruleae):* ***Unfavourable***

Vulnerabilities (includes existing pressures and trends)	Grazing The primary interest of this site is the population of marsh fritillary butterflies which are dependent upon habitats such as the *Molinia* meadows and the wet heath. The future of these habitats depends on traditional management of extensive grazing. Vandalism At present, the site is under-grazed and under-managed and is prone to vandalism such as burning. However, these problems are being addressed through liaison with the site owners and the local authority. A management plan has been drawn up and discussions are currently being undertaken towards securing a management agreement with the owners. This will secure consistent management on the site and will maintain or enhance the conservation value of the site.
Landowner/ Management Responsibility	In 2005 Caerphilly County Borough Council took over the management of the site and a site manager and stock handler are now in post. With this presence on the site and other measures, arson, fly-tipping and off-roading have become much less frequent.
HRA/AA Studies undertaken that address this site	HRA Screening of Caerphilly's Local Development Plan (2006-2021) Deposit, October 2008 http://www.caerphilly.gov.uk/pdf/Environment_Planning/LDP/SEA_SA-Part2-Doc5-Habitat-Regulations-Assessment.pdf

Site Name: Blaen Cynon ***Location Grid Ref: SN946066*** ***JNCC Site Code: UK0030092*** ***Size: 66.83 ha*** ***Designation: SAC***	***Habitats Regulations Assessment: Data Proforma***
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 re-colonise. 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.
Qualifying Features	**Annex II species that are a primary reason for the selection of this site:** *Marsh fritillary butterfly Euphydryas (Eurodryas, Hypodryas) aurinia*
Conservation Objectives	**Vision for the site:** The site is part of a wider area used by a metapopulation of marsh fritillary butterfly. Cors Bryn-y- Gaer SSSI and the nearby Woodland Park and Pontpren SSSI will contribute towards supporting the metapopulation of marsh fritillary in the Penderyn/Hirwaun area. These two sites comprise the Blaen Cynon Special Area of Conservation (SAC). The various habitats within the SAC will be managed for the benefit of this butterfly. Wet grassland covers at least 50% of the total site area. The wet grassland is comprised of acid flush and marshy grassland. Small areas of the site should consist of habitats associated with the wet grassland, including wet heath, bog pools and swamp.

	The following plants are common throughout most of the marshy grassland: purple moor-grass, sharpflowered rush, soft rush, tormentil and devil's-bit scabious. Grasses such as sweet vernal-grass and heath grass should be more prominent in some areas. The following plants are common in most of the acid flush vegetation: bog mosses, sharp-flowered rush, purple moor-grass, heath wood-rush and tormentil. Further areas of acid flush should include abundant carnation sedge and frequent bog asphodel. Lowland bog occupies a minimum of 15% of the total site area and is characterised by a carpet of bog moss species, with deergrass, hare's-tail cottongrass and round leaved sundew. In the wettest areas, common cottongrass is more frequent, whilst in slightly drier areas cross-leaved heath becomes more abundant and there is a wider range of bog moss species. Scrub species such as willow are largely absent from the lowland bog. Areas of particularly wet ground include small bog pools alongside patches of wet heath. The bog pools will be characterised by abundant common cottongrass and scattered bog moss. Species found in the areas of wet heath include cross-leaved heath, deergrass, bilberry and wavy hair-grass. Dry grassland occupies a minimum of 10% of the total site area. The dry grassland comprises both neutral and acid grassland. The remaining areas of the more free-draining land on the SSSI should be permanent pasture. Scattered scrub and existing field boundaries should be maintained at their current extent. The neutral grassland is characterised by a range of species including common bent, red fescue, common knapweed and common bird's-foot trefoil. In places, this grades into more acid grassland vegetation with species such as heath bedstraw, tormentil and devil's-bit scabious. Woodland and hedges at Woodland Park and Pontpren SSSI may provide some shelter for the marsh fritillary. However, scrub encroachment onto the wet grassland and bog habitats in particular is a continuing problem and scrub control will be necessary from time to time to ensure that there is no net loss of marsh fritillary habitat and other habitats of interest. The woodland cover of this SSSI is about 15% of the site area, consisting mainly of alder and willow in wetter areas, and oak and downy birch where the ground is drier. The drainage and hydrological conditions on the site should be maintained to favour the habitats that support the marsh fritillary and their management. **Annex II species that are a primary reason for the selection of this site:**

	Marsh fritillary butterfly Euphydryas (Eurodryas, Hypodryas) aurinia The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ 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. ▪ The population will be viable in the long term, acknowledging the extreme population fluctuations of the species. ▪ 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.) ▪ At least 40% of the suitable habitat (approximately 8 ha) must be in optimal condition for breeding marsh fritillary. ▪ 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 ▪ 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. (Fowles 20042)
Component SSSIs	The plan area has been divided into 13 management units over two SSSI areas to enable practical communication about features, objectives, and management. This will also allow us to differentiate between the different designations where necessary. In this plan the management units have been based primarily tenure, with reference to features and land management requirements.
Key Environmental Conditions (factors that maintain site integrity)	<u>Protection from development</u> The site lies within the South Wales Coalfield on the fringes of an urban area, designated as cSAC, which will help control threats from housing, opencast or other industrial development and pollution arising from such development in the immediate vicinity.

	Grazing Management Without an appropriate grazing regime, the grassland will become rank and eventually turn to scrub and woodland. Conversely, overgrazing, or grazing by inappropriate stock (particularly sheep) will also lead to unwanted changes in species composition, through selective grazing, increased nutrient inputs and poaching. Balancing grazing is the single most important issue in the management of this site. There is now considerable experience in managing sites for marsh fritillaries in Wales, and the needs of the species are now reasonably well understood. Scrub encroachment is an issue, particularly on some wet grassland areas. A programme of scrub control is currently (2008) being undertaken, but it is likely that even with the ideal grazing management, a more or less continuous programme of scrub control will be required at this site. It is clear from aerial photographs and from discussions with landowners, that many areas that are currently covered in alder and willow woodland were formerly wet pasture. Therefore a long-term aim would be to investigate returning some of this to wet pasture that would likely increase the availability of marsh fritillary habitat. Parts of Woodland Park and Pontpren, 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. Some drains have been blocked, to restore the hydrology of the site. There are no known off-site factors, such as pollution, that are affecting the marsh fritillary to any significant extent, although there is still much industry in the locality. The two overwhelming issues of grazing and scrub encroachment would probably obscure any off-site issues. As management of the site improves off-site factors may become more apparent. Owner/occupier objectives The owners/occupiers of the land typically have an interest in securing some financial/agricultural benefit from the land. This return could be optimised by the agricultural improvement of the land, e.g. by installing new drainage, fertiliser application, or re-seeding; however these operations would cause significant long-term damage to the marsh fritillary habitat, namely the marshy grassland. Additionally unimproved marshy grasslands that are waterlogged for much of the year are difficult to manage for

	many landowners, possibly resulting in a mixture of over and under grazing, with a tendency for scrub to spread. Because of the wet nature of some of the ground, some landowners may be reluctant to graze large stock. This factor will be controlled through management agreements and the SSSI legislation. An operational limit is not required. Weather conditions Weather conditions have an effect on the breeding success of the marsh fritillary. In particular, poor weather conditions during the adult flight period will reduce opportunities for mating, egg-laying and dispersal from core areas. Weather conditions during early spring influence the rate of larval development of the marsh fritillary and the effects of the parasitic wasp (see below). This site is situated in an area of relatively high rainfall, which will have a large influence on the population dynamics of the marsh fritillary. This factor is outside the influence of the site manager and an operational limit is not required.
SAC Condition Assessment	○ *Marsh fritillary butterfly Euphydryas (Eurodryas, Hypodryas) aurinia:* ***Unfavourable***
Vulnerabilities (includes existing pressures and trends)	Dependent on Management The plant communities of Blaen Cynon are dependent on maintenance of the hydrological regime and the continuation of traditional agricultural management. Agricultural Processes The owners/occupiers of the land typically have an interest in securing some financial/agricultural benefit from the land. This return could be optimised by the agricultural improvement of the land, e.g. by installing new drainage, fertiliser application, or re-seeding; however these operations would cause significant long-term damage to the marsh fritillary habitat, namely the marshy grassland.

	Grazing and Scrub encroachment The marsh fritillary butterfly population is threatened in some parts of the site by a lack of grazing, leading to scrub encroachment. Inappropriate tree planting The marsh fritillary butterfly population is threatened in some parts of the site by inappropriate tree planting. Burning Burning for agricultural purposes is also a major threat. Parasites The larvae of marsh fritillaries can be parasitised by species of braconid wasp of the*Cotesia* genus. The parasites can have good years and infect a large number of larval webs, causing a crash in the subsequent adult population of marsh fritillary. This factor is outside the influence of the site manager; and an operational limit is not required. Weather conditions Weather conditions have an effect on the breeding success of the marsh fritillary. In particular, poor weather conditions during the adult flight period will reduce opportunities for mating, egg-laying and dispersal from core areas.
Landowner/ Management Responsibility	**Cors Bryn y Gaer** Unit 1 of Cors Bryn-y-Gaer has been horse grazed in the past, with drier more agriculturally improved areas being cut for hay. Unit 2 has been horse grazed in the past, but ownership has recently changed (2007), and there is no grazing now. Unit 3 and 4 are managed as one, since there is no fence between them. In the past, they have been managed with sheep and cattle grazing. There was then a two year period of no grazing, before cattle returned to the site in 2006. Unit 5 has been horse grazed for some years, and this management continues. Unit 6 receives little management, although it has been horse grazed in the past.

	Woodland Park and Pontpren Unit 1 of Woodland Park and Pontpren was grazed mainly by sheep until about 2004. However ownership has recently changed. Unit 2 is managed under a s15 agreement with CCW that has involved reintroducing cattle grazing and the cutting of scrub. Unit 3 and 4 are owned and managed by CCW. In c.1995, they were ploughed, drained and planted with broadleaved trees and conifers. CCW now removed many of these trees, in-filled some ditches and reintroduced cattle grazing in order to restore the marsh fritillary habitat. It could take many decades before the habitat is restored to anything like what it would have been prior to the tree planting and therefore management of Units 3 & 4 will primarily be aimed at providing suitable habitat and, in particular, abundant devil's-bit scabious, for the breeding marsh fritillary, rather than aiming to maintain species-rich habitat (note: - for monitoring of SSSI features these previously damaged habitats will not be included in the marshy grassland feature etc. However, the long-term aim would be look at ways of restoring the marshy grassland and other damaged habitats to a more species-rich natural state. Unit 5 is grazed by sheep and cattle, but there is a problem with scrub encroachment and removal of some of this is planned for the near future. Units 6 and 7 have mostly been managed with pony grazing with some scrub clearance aimed at improving connectivity between the fields and creating more habitats for the marsh fritillary.
HRA/AA Studies undertaken that address this site	HRA Screening of the Rhondda Cynon Taff County Borough Council's Local Development Plan (2006-2021): January 2010 http://www.rhondda-cynon-taf.gov.uk/en/relateddocuments/publications/developmentplanning/evidencebase/eb18-habitatsregulationsassessmentappropriateass.pdf

Site Name: Brecon Beacons ***Location Grid Ref: SO024211*** ***JNCC Site Code: UK0030096*** ***Size: 269.67 ha*** ***Designation: SAC***	***Habitats Regulations Assessment: Data Proforma***
Site Description	The Brecon Beacons SAC is located to the south of the town of Brecon and the Old Red Sandstone cliffs and escarpment is typical of the upland scenery within the National Park. The site is comprised of 4 different units contained within Brecon Beacons SSSI. Pen y Fan is the highest peak in south Wales. The site is of particular interest for the arctic-alpine plants and plant communities growing on the sandstone rocks and ledges on its precipitous mostly north and east facing cliffs. The escarpments also support stands of dry heath vegetation. Within the SAC boundary the only significant areas of dry heath are found on the steep slopes of the NNR. The heath is largely dominated by single species stands of heather Calluna vulgaris and bilberry Vaccinium myrtillus; although some stands have crowberry Empetrum nigrum. Heather and biberry also grow on the cliff ledges and are sometimes joined by cowberry (Vaccinium vitis-idaea). Here, there is some gradation into the other Annex I habitat types for which this SAC is designated. On the lower slopes, where grazing levels are higher, heath species become less dominant and are replaced by acid grassland. Bracken is locally abundant both on the steeper slopes, where it grows where the soil is slightly deeper, and on the lower slopes where it is sometimes mixed with scrub. Trees, including endemic whitebeams (Sorbus) and shrubs are an important element of the crag vegetation.
Qualifying Features	**Annex I habitats that are a primary reason for selection of this site:** o *Calcareous rocky slopes with chasmophytic vegetation* o *Siliceous rocky slopes with chasmophytic vegetation* **Annex I habitats present as qualifying features, but not primary reasons for site Selection:** o *European dry heaths* o *Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels*

Conservation Objectives	**Vision for the Site:** The Old Red Sandstone cliffs and screes are composed of acidic and more base-rich sandstone. These rocks provide ideal habitat for a wide range of plants, including lichens, mosses, liverworts and flowering plants. The cliffs, ledges and rocky slopes also provide a grazing free refuge that allows plants like serrated wintergreen, purple saxifrage and endemic hawkweeds to thrive. On ledges evidence of tall, un-grazed vegetation with species like great wood-rush and lady's-mantle is easily visible and flowering during the summer months. Craig Cerrig-gleisiad and Fan Frynach and Y Gyrn support the main areas of dry heath. Mixtures of heather and bilberry are dominant here, along with crowberry, cowberry, mosses and lichens. The heathland has a varied age structure created by grazing, such that there is a mosaic young, mature and degenerate heath. Dense patches of bracken are generally absent from these areas and the dominance of purple moor-grass is under control. The area of other habitats of particular interest, such as blanket bog and flushes are stable in the long term, their quality and range of typical species are maintained and the factors that may affect them are under control. For each species of particular interest, the population is stable or increasing and is sustainable in the long term and the factors that affect the species or its habitat are under control. The special geological features and landforms are available for continuing study. **Annex I habitats that are a primary reason for selection of this site:** o *Calcareous rocky slopes with chasmophytic vegetation* <u>Vision for this feature:</u> ▪ The base-rich sandstone cliffs, including crevices, scree and associated patches of thin soil remains free from disturbance and support typical plants, including mosses and liverworts. ▪ A variety of rare and scarce plants thrive in these areas, including purple saxifrage, green spleenwort, Oeder's apple-moss, lesser rough earwort and several rare hawkweeds. ▪ Populations of these species are sufficiently large and widespread to be sustained into the future (currently some populations may be critically low). ▪ All factors affecting the achievement of the above conditions are under control.

	Annex I habitats that are a primary reason for selection of this site: o *Siliceous rocky slopes with chasmophytic vegetation* <u>Vision for this feature:</u> ▪ The acidic sandstone rocks, including crevices and scree, remain free from disturbance to and support typical plants, including mosses, ferns and lichens. ▪ A variety of rare and scarce plants thrive in these areas, including fir clubmoss, dwarf willow, and greater streak-moss. ▪ Populations of these species are sufficiently large and widespread to be sustained into the future. ▪ All factors affecting the achievement of the above conditions are under control. **Annex I habitats present as qualifying features, but not primary reasons for site Selection:** o *European dry heaths* <u>Vision for this feature:</u> ▪ The extent, quality and diversity of heath vegetation are maintained and, where possible, degraded heath is restored to good condition. ▪ The main heathland areas within the SAC and SSSI have a varied age structure with a mosaic of young heath, mature heath and degenerate heath. ▪ All factors affecting the achievement of these conditions are under control. **Annex I habitats present as qualifying features, but not primary reasons for site Selection:** o *Hydrophilous tall herb fringe communities of plains and montane to alpine levels* <u>Vision for this feature:</u> ▪ The cliff ledges with less acidic soil remain largely free from grazing, such that the typical flowering plants can flourish and flower freely.

	▪ Several uncommon plants thrive in these areas, including serrated wintergreen and rare hawkweeds. ▪ The populations of these plants are sufficiently large and widespread to be sustained into the future. ▪ All factors affecting the achievement of the above conditions are under control.
Component SSSIs	Brecon Beacons SSSI is composed of 10 management units of which numbers 1, 4, 8, and 9 comprise to form the Brecon Beacons SAC. ▪ **Unit 1** - Craig Cwm Du and Craig Cerrig ▪ **Unit 4** - SAC area within Great Forest Common ▪ **Unit 8** - SAC cliffs within Brecon Beacons Common ▪ **Unit 9** - SAC cliffs within Buckland Manor Common
Key Environmental Conditions (factors that maintain site integrity)	<u>Grazing</u> Some areas under-grazed while others are over-grazed. ▪ Upper limit: 0.2 livestock units/ha/year (One livestock unit is equivalent to 1 cow or horse. A sheep (with lamb) is equivalent to 0.15 livestock units). ▪ Lower limit: Sufficient to prevent the development of scrub within heathland/grassland of conservation interest and/ or spread of bracken and ivy. <u>Air Quality</u> Ensure that no critical loads for acidic and nitrogen deposition are exceeded. <u>Erosion</u> No noticeable impacts from human or livestock induced erosion in units 1, (2), 4, (7), 8, 9, (10). Walkers and livestock cause erosion of paths along the cliffs resulting in rock and soil being washed down from eroded areas on the cliffs above.

	Rock Climbing No rock climbing in units 1, (2), (3), 4, (7), 8, 9, (10) without agreement. Although most of the rocks at this site are too soft or unstable for climbing, intensive use can dislodge plants and disturb breeding birds. These impacts may be avoided if climbing is subject to specific agreements, which include a code of conduct.
SAC Condition Assessment	○ *Calcareous rocky slopes with chasmophytic vegetation.* ***Un-favourable*** ○ *Siliceous rocky slopes with chasmophytic vegetation.* ***Un-favourable*** ○ *European dry heaths* ***Un-favourable*** ○ *Hydrophilous tall herb fringe communities of plains and montane to alpine levels.* ***Un-favourable***
Vulnerabilities (includes existing pressures and trends)	**Craig Cerrig-gleisiad and Craig Cwm-du:** These areas are a National Nature Reserve (NNR); the management regime is light grazing. Almost all of the heathland is contained in these sections, and is in good condition. Public pressure from ramblers and climbers is not a significant problem. **Pen y Fan, Blaen Taf crags and Craig y Fro:** These areas are on common land where grazing has been at high levels for the past 30-40 years. The SAC interests here are largely confined to cliffs and crags inaccessible to sheep. The potential for loss of habitat to grazing is therefore small. If grazing were reduced, there would probably be a small extension in the extent of the chasmophytic vegetation of both calcareous and silicious rocky slopes, due to reducion in sheep dunging, grazing and rubbing of the smaller accessible outcrops. Due to the high palatability of the hydrophilous tall herb fringe communities, a very large reduction, or exclusion, of grazing would be required to obtain extensions in habitat area. The European dry heath is very limited in extent on this part of the site and unlikely to extend in area with reduced grazing. Erosion Grazing pressure, combined with human trampling, along the Pen y Fan ridge has caused localised soil erosion. In

	places, soil and rock debris are washing down the steeper faces and burying some colonies of arctic-alpine plants. Some progress has been made in recent years in laying a hard surface on the summit ridge path on Pen y Fan. Air pollution Acidification of rain and soils, due to atmospheric pollution, and nutrient enrichment (especially increased nitrogen and phosphorus), through a combination of atmospheric pollution, excessive dunging/urination in areas where stock preferentially graze and other inputs from diffuse sources. Mosses, liverworts and lichens are particularly vulnerable to pollution from atmospheric sources. Much of this atmospheric pollution comes from distant, diffuse sources, such as traffic and domestic emissions, but some can be attributed to large point sources, such as major power stations or industrial processes. The Environment Agency has reported that critical loads for air pollutants are still being exceeded, which is likely to be having an adverse impact on the vegetation. Grazing pressure Many of the interesting plants on the cliffs are intolerant of grazing and are confined to areas less accessible to stock. Reduced grazing levels on the main escarpment would allow these plants to spread out from their craggy refuges. Sheep tend to graze any lime-rich grassland preferentially at certain times of year and can cause localised damage in these areas, but there are some areas they will never be able to access on vertical or unstable slopes. However, some light grazing of slopes may help to prevent encroachment by coarse vegetation, trees and scrub. Those areas currently ungrazed are not likely to be accessible to stock types currently grazing the land; therefore core areas of the feature are currently safe. Potential changes in the type of grazing animals, such as goats, which would be better suited to climbing, will be monitored and appropriate action taken to remove them. Recreational pressure from walkers and rock climbers This along with livestock can cause erosion of paths along the cliffs resulting in rock and soil being washed down from eroded areas on the cliffs above.
Landowner/ Management Responsibility	▪ Unit 1 - SAC area within the CCW-owned land ▪ Unit 4 - SAC area within Great Forest common land (CL50 Brecknock) ▪ Unit 8 - SAC area within National Trust common land (Brecon Beacons CL56 Brecknock) ▪ Unit 9 - SAC area within Buckland Manor common (CL62 Brecknock)

HRA/AA Studies undertaken that address this site	HRA Screening of the Brecon Beacons National Park Local Development Plan (2007-2022) May 2009 http://www.breconbeacons.org/the-authority/planning/strategy-and-policy/npmp/hra-annexs/hra-main-document-2009/attachment_download/file

Site Name: Cardiff Beech Woodlands ***Location Grid Ref: ST118824*** ***JNCC Site Code: UK0030109*** ***Size: 115.62 ha*** ***Designation: SAC***	***Habitats Regulations Assessment: Data Proforma***
Site Description	Cardiff Beech Woods lies to the north east of Cardiff and is intersected by the A4054 and the A470. The site contains one of the largest concentrations of *Asperulo-Fagetum* beech forests in Wales, and represents the habitat close to the western limit of its past native range in both the UK and Europe. The woods show mosaics and transitions to other types, including more acidic beech woodland and oak Quercus and ash *Fraxinus excelsior* woodland. Characteristic and notable species in the ground flora include ramsons *Allium ursinum*, *sanicle Sanicula europaea*, bird's-nest orchid *Neottia nidus-avis* and yellow bird's-nest *Monotropa hypopitys*.
Qualifying Features	**Annex I Habitats primary reason for selection:** o *Asperulo-Fagetum beech forests* **Annex I Habitats qualifying feature:** o *Tilio-Acerion forests of slopes, screes and ravines* Priority feature*
Conservation Objectives	Conservation Objective for Feature 1: Aperulo-Fagetum beech forest

	Vision for feature 1: The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The existing *Asperulo-fagetum* beech forest will be maintained. ▪ At least 95% of canopy forming trees will be locally native species such as beech, ash and oak, with some areas dominated by beech. ▪ The tree canopy will not be completely closed; approximately 10% of the canopy will include a dynamic shifting pattern of gaps encouraging natural regeneration of tree species of all ages. ▪ Dead wood, standing and fallen, will be maintained where possible to provide habitat for invertebrates, fungi and other woodland species. ▪ There are pockets of ground flora across the site, comprising species typical of lime-rich beech wood, including indicators of ancient woodland such as wood anemone, ramsons and sanicle. ▪ There is little evidence of browsing or squirrel damage to trees. ▪ Recreational use of the site will continue to be managed so it does not damage the wildlife interest of the site. All factors affecting the achievement of these conditions are under control. Performance indicators for feature 1 The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators. The performance indicators can be found within the Cardiff Beech Woods SAC Management Plan. Conservation Objective for Feature 2: o Tilio-Acerion forest of slopes, screes and ravines Vision for feature 2: The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The existing *Tilio-acerion* forest will be maintained. ▪ At least 95% of canopy forming trees will be locally native species (sycamore included). ▪ The tree canopy will not be completely closed; approximately 10% of the canopy will include a dynamic shifting pattern of gaps encouraging natural regeneration of tree species of all ages. ▪ Dead wood, standing and fallen, will be maintained where possible to provide habitat for invertebrates, fungi and other woodland species.

	▪ There are pockets of ground flora across the site, comprising species typical of lime-rich beech wood, including indicators of ancient woodland such as wood anemone, ramsons and sanicle. ▪ There is little evidence of browsing or squirrel damage to trees. ▪ Recreational use of the site will continue to be managed so it does not damage the wildlife interest of the site. All factors affecting the achievement of these conditions are under control. Performance indicators for feature 2 (see performance indicators for feature 1)
Component SSSIs	▪ Fforestganol, Tongwynlais a Cwm Nofydd (units 1-5) ▪ Castell Coch Woodlands and Road Section (units 6-9) ▪ Garth Wood (units 10-12) There are 12 management units of which numbers 1, 2, 3, 4, 8, 9 and 10 comprise to form the Cardiff Beech Woods SAC. A map showing the management units can be viewed on the NRW website.
Key Environmental Conditions (factors that maintain site integrity)	<u>Maintain/manage the surrounding woodland</u> Commercial forestry in the vicinity of Castell Coch may have implications for surface water supply and quality. There are also a number of active and disused limestone quarries in the area. Garth Wood surrounds Taff's Well Quarry but there are other, smaller quarries in and around all component SSSIs. Quarrying can lead to direct loss of the feature together with indirect impacts from issues such as access. There are also a number of impacts arising from restoration at the end of a quarry's working life. <u>Manage public access</u> Management of the recreational use of the woodlands should focus on maintaining the network of public footpaths and access routes. Regular maintenance of the footpaths and bridleways is essential to stop them spreading onto the adjacent woodland habitat. By restricting recreational use of the woodlands to certain areas and paths, natural woodland processes can be left to occur away from these areas of recreational use and without the need for intervention from a public health and safety perspective.

SAC Condition Assessment	Conservation Status of Feature 1: Aperulo-Fagetum beech forest The sites were monitored in March 2004 to gather the extent or condition of the habitat. The current feature status for the Asperulo-fagetum beech forest is Unfavourable - Unclassified (March 2004). The justification for the above feature status (March 2004) is as follows: CCW view is that the site is still recovering from undesirable effects of past management. Although most if not all aspects of the component sites are heading in the right direction the status is still short of favourable. Implementation of appropriate management will be addressed but in our view there is no urgent or immediate need for action. The Garth Wood component is thought to be 'unfavourable recovering' although a management plan has not been prepared to date so its status has not been fully assessed. The management is mostly limited intervention and for most of the site there is good age structure and gap regeneration. Natural processes could be enhanced by localised intervention and this will be addressed through management recommendations. Fforestganol a Chwm Nofydd is thought to be 'unfavourable recovering'; although a management plan has not been prepared to date so its status has not been fully assessed. Although there are small areas of even age structure there is generally a diverse age structure. This, together with concerns at the percentage of beech at some locations, will be addressed through management recommendations. Castell Coch Woodlands and Road Section is thought to be 'unfavourable recovering'. A full management plan has not been prepared to date so its status has not been fully assessed. There is generally an even age structure with low canopy cover. However, there is evidence of natural woodland processes, with good regeneration within the pattern of gaps. Recovery is expected over time and this could be hastened with increased localised intervention. This, together with concerns over the species composition (particularly ash and sycamore) at some locations will be addressed through management recommendations. Conservation Status of Feature 2: Tilio-Acerion forest of slopes, screes and ravines. The sites were monitored in February 2004 to gather the extent or condition of the habitats and the species. The current feature status for the Tilio-Acerion forest of slopes, screes and ravines is Unfavourable - Recovering (February 2004). The justification for the above feature status (February 2004) is as follows: CCW view is that the site is still recovering from undesirable effects of past management. Although most if not all

	aspects of the component sites are heading in the right direction the status is still short of favourable. Implementation of appropriate management will be addressed but in our view there is no urgent or immediate need for action. The Garth Wood component is thought to be 'unfavourable recovering' although a management plan has not been prepared to date so its status has not been fully assessed. The management is mostly limited intervention and for most of the site there is good age structure and gap regeneration. Natural processes could be enhanced by localised intervention and this will be addressed through management recommendations. Fforestganol a Chwm Nofydd is thought to be 'unfavourable recovering'; although a management plan has not been prepared to date so its status has not been fully assessed. Although there are small areas of even age structure there is generally a diverse age structure. This, together with concerns at the percentage of beech at some locations, will be addressed through management recommendations.
Vulnerabilities (includes existing pressures and trends)	<u>Atmospheric Pollution</u> Its location in industrialised South Wales, together with the presence of nearby quarrying and associated activities, means that there is the potential for localised atmospheric pollution. Quarry dust deposition is an issue that occasionally comes up. ▪ Nitrogen deposition. ▪ Photochemical oxidants (ozone). ▪ Acidification. ▪ Recreational pressure All component SSSIs are used to a greater or lesser extent for recreation purposes. Castell Coch Woodlands and Fforestganol a Chwm Nofydd experience the most recreation pressure, and are popular for walking, climbing and mountain biking. The Taff train runs through part of the Castell Coch Woodlands site and the historic building of Castell Coch attracts many visitors, which increases the access pressure on the woodlands. The road section is becoming increasingly popular for climbing, and this is unlikely to be a problem for the geological interest of the site. However, climbing could be potentially damaging to trees at the top of the crag and needs to be kept under review. Management of access is nominally through the individual site owners but there are potential conflicts between different users which to date have been addressed through the Local Authority Access Forum. Recreation within the areas supporting this habitat feature is restricted due to the steep and rocky nature of the terrain. Therefore the recreational pressure on areas of Tilio-acerion is less than on areas of Asperulo-fagetum habitat. Nonetheless, given

	the high recreation pressure experienced by Fforestganol a Chwm Nofydd, which supports areas of Tilio-acerion habitat; aspects of recreational management still apply to this feature. Mineral extraction and related activities There are a number of active and disused limestone quarries in the area. Garth Wood surrounds Taff's Well Quarry but there are other, smaller quarries in and around all component SSSIs. Quarrying can lead to direct loss of the feature together with indirect impacts from issues such as access. There are also a number of impacts arising from restoration at the end of a quarry's working life. Development Its location in the populated South Wales area means that there is considerable development pressure in the vicinity including associated infrastructure on land adjacent to the site. There is the potential for a range of impacts arising from increasing urbanisation. Commercial Forestry Commercial forestry in the vicinity of Castell Coch may have implications for surface water supply and quality. Non-native species The presence of a number of species considered to be non-native e.g. sycamore and Japanese knotweed, is currently under review to determine any detrimental effects on the woodland communities of special interest.
Landowner/ Management Responsibility	The majority of the woodlands are owned, or in the guardianship of government agencies, with most of the remainder of the woodland covered by a Section 106 agreement. Cardiff County Council, Cadw and Forestry Commission carry out woodland management for conservation purposes and occasionally health and safety purposes.
HRA/AA Studies undertaken that address this site	Cardiff LDP 2006 – 2026 https://www.cardiff.gov.uk/ENG/resident/Planning/Local-Development-Plan/Examination/Documents/Approval/HRA%20-

	%20European%20Sites%20Descriptions%20and%20Characterisation.pdf

Site Name: Coedydd Nedd a Mellte ***Location Grid Ref: SN919093*** ***JNCC Site Code: UK0030141*** ***Size: 378.18 ha*** ***Designation: SAC***	***Habitats Regulations Assessment: Data Proforma***
Site Description	Dyffrynoedd Nedd a Mellte, a Moel Penderyn SSSI This site includes the wooded valleys of the rivers Nedd, Mellte, Pyrddin and Sychryd, and their tributaries above Pontneddfechan, as they pass through a Millstone Grit and limestone plateau, and Moel Penderyn, which lie to the east. The plateau lies at about 300 m, the rivers having eroded deep, narrow valleys with gorges, cliffs, block screes and waterfalls. There is an extensive and diverse range of semi-natural woodland types, important populations of flowering plants and outstanding assemblages of mosses, liverworts and lichens. The site includes a range of geological features. These include exposures at Moel Penderyn, Craig y Ddinas and Bwa Maen and geomorphological features within parts of the valleys of the Hepste and Mellte. Blaen Nedd SSSI Blaen Nedd is situated in the upper valley of the Nedd Fechan, approximately 1km west of the village of Ystradfellte. It consists of a series of contiguous enclosures rising eastwards and north-eastwards from the river towards the lower flanks of Fan Nedd. The site supports a wide variety of habitat types including oak and ash woodland, neutral grassland, calcareous grassland, limestone pavement, marshy grassland and wet dwarf-shrub heath. Geological features include a cave

	system and associated karst (classic limestone landscape) surface features. The SAC habitats are spread across both the above SSSI. The SAC oak woodland habitat is mostly confined to the river valleys where the underlying geology is mainly carboniferous sandstones and coal measures. The SAC ash woodland is less widespread, occurring mainly on the more base rich sandstones, particularly along tops of crags, and on limestone in the north and south.
Qualifying Features	**Annex I habitats that are a primary reason for selection for this site:** o *Old sessile oak woods with Ilex and Blechnum in the British Isles* **Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:** o *Tilio-Acerion forests of slopes, screes and ravines*
Conservation Objectives	<u>Vision for the Site:</u> <u>Dyffrynoedd Nedd a Mellte, a Moel Penderyn SSSI</u> Three quarters of the site is covered by woodland, which includes areas of scrub and glades. Large parts of the canopy are dominated by oak and birch, with ash woodland in lime-rich areas and alder on damper soils. The woodland has trees of all ages, with a scattering of standing and fallen deadwood. Regeneration of these tree species is sufficient to maintain the woodland cover in the long term. Gaps in the canopy collectively occupy a significant but small proportion of the total site area. In most areas of oak woodland there is an under-storey of hazel, hawthorn and rowan. The ground flora is diverse, with a wide range of plants, reflecting the varying soil conditions. Large areas are dominated by wavy hair-grass, bilberry and mosses and sometimes by purple moor-grass. Ferns are frequent through most of the woodland and wood sorrel and bluebell are common in some areas. On lime-rich soils, ash is the dominant tree species and in places there is also small-leaved lime. Hazel is generally abundant in the shrub layer, with false brome, dog's mercury, enchanter's-nightshade and hart's-tongue fern common on the woodland floor. Alder woodland occurs on flatter areas of valley floor and some has a ground layer of sphagnum moss. Marsh hawk's-beard is found in wet flushes on the valley sides. The river valleys and waterfalls are generally well shaded and constantly humid. These areas support a rich plant flora

	that clothes riverside rocks and cliffs and trunks of trees. Species include wood fescue, a wide variety of ferns such as hay-scented buckler-fern, beech fern, royal fern, green spleenwort, Tunbridge filmy-fern and Wilson's filmy-fern. There is a great variety of mosses and liverworts. The ground layer often has a mossy mat with greater fork-moss, little shaggy-moss and straggling pouch wort and, in the most humid places, scarce turf-moss. Boulders and oak trunks are covered in western earwort, wood-rust plasters fallen tree trunks and the diminutive Heller's notch wort and autumn flap wort grow on oak bark and decaying logs. Brown's four-tooth moss and horsehair threadworm occur in damp crevices in sandstone rock and patches of rock-bristle mosses can be found with a suite of other lime-loving species on damp limestone rocks. Mosses and liverworts are also prominent in rivers and streams, with boulders and waterfalls covered in species like rusty feather-moss and fox-tail feather-moss, and sometimes Hartmann's grimier, river pocket-moss, beck pocket-moss and Hitchin's holly wort. Some crags have a powdering of the bright yellow lichen Chrysothrix chlorina, with lichens generally draping branches and trunks of less shaded trees. Trees and dead wood in these humid areas provide a specialised habitat for many plants and insects. The riverbanks are largely unmanaged and human disturbance is minimal. The network of footpaths is well maintained and recreational activities well managed. There are no invasive alien plants such as rhododendron, Himalayan balsam and Japanese knotweed and conifer saplings spreading from nearby plantations are regularly removed. Open areas are variously dominated by rushes, purple moor-grass, sheep's-fescue, deergrass and cross-leaved heath. In terms of its geomorphological interest, the site demonstrates the natural processes that have affected the evolution of the landscape. Sections of the Afon Mellte and Afon Hepste show the effects of faulting on the evolution of waterfalls. Important rock exposures illustrate whole sequences of the Namurian including Basal Grits and Middle Shales and rocks of the oldest Coal Measures. Carboniferous rocks at Moel Penderyn, Craig Y Ddinas and along the Afon Sychryd show folds and fractures associated with the Variscan mountain chain (which includes the hills of Devon and Cornwall and mountains of eastern Europe). <u>Blaen Nedd SSSI</u> The habitat features listed should in general not decrease in area and should not decline in quality. Ash woodland along the Nedd Fechan has associated trees and shrubs such as hazel and rowan and the ground flora includes typical woodland species such as false brome, creeping soft-grass, herb-Robert, enchanter's nightshade and lady-fern. Wooded areas of limestone pavement continue to be actively managed, with some coppicing in places.

	Oak-dominated woodland along the Nedd Fechan has associated trees and shrubs such as downy birch, hawthorn and hazel, with a ground flora of grasses such as common bent, creeping soft-grass, sweet vernal-grass and wavy hair-grass and herbs including bluebell and wood-sorrel. Small stands of trees and scrub away from the main woodland blocks are maintained as these habitats. The dry neutral grassland (hay-meadow and pasture) has a range of grasses such as common bent, sweet vernal-grass and crested dog's-tail and herbs including common knapweed, yellow-rattle, great burnet, rough hawkbit, greater butterfly orchid and common spotted-orchid. Plants indicative of disturbance and nutrient enrichment, such as perennial rye-grass, white clover, docks and creeping thistle, and coarse grasses, such as cock's-foot, are not prominent in the sward. Calcareous grassland has a range of typical species such as sheep's-fescue, wild thyme, salad burnet, common rock-rose, limestone bedstraw, mountain everlasting and moonwort. Where the grassland is more open and rocky, species such as carline thistle and soft-leaved sedge occur. Species indicative of disturbance or enrichment, such as creeping thistle, perennial rye-grass and white clover are not prominent in the sward. Areas of open limestone pavement and screes, rock outcrops and quarries should be maintained, mainly in association with the calcareous grassland. These areas support species such as lily-of-the valley, globe-flower, limestone fern, mossy saxifrage, small scabious and narrow-leaved bitter-cress. The marshy grassland in general has a high cover of purple moor-grass or rushes. Some of this is species-rich with a prominence of plants such as meadow thistle, tawny sedge, flea sedge, devil's-bit scabious and bog pimpernel. Purple moor-grass and rushes are not overwhelmingly dominant at the expense of other grasses, sedges, herbs and bryophytes. Species indicative of disturbance and nutrient enrichment, such as creeping buttercup and white clover are uncommon, invasive trees and shrubs should are rare or absent and bare ground is kept to a minimum. Wet heath has a range of typical species including cross-leaved heath, heather, deer-grass, bilberry and lichens. Purple moor-grass or rushes are not dominant at the expense of other heathland species and poaching is kept to a minimum. Other habitats occupy about 30% of the site. Within this mixture, the best quality acid grassland, dry heath and flush are of good floristic quality. The main remaining habitats are bracken, mat-grass dominated acid grassland and semi-improved acid grassland, together with some semi-improved neutral grassland that is mainly associated with the more species-rich hay-meadows.

	There is no diminution of the geological evidence for the formation of the caves, provided underground by the cave passage morphology or included sediments and cave decorations. There is no blocking or in-filling of surface features, such as springs, sink holes, dolines or emergences or leakage into the cave system of materials likely to damage the interests. **Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:** o *Tilio-Acerion forests of slopes, screes and ravines* The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ Upland ash woodland will occupy at least 18 ha of the total site area. ▪ The canopy should be predominantly ash and the following trees will be common in the Woodland ▪ Ferns will be common ground flora species. ▪ Although they may be present in the canopy in small quantities, sycamore and beech should not become dominant at the expense of ash. ▪ Introduced invasive species will be absent and any conifers seeding in from adjoining plantations will be removed whilst at the seedling/sapling stage. ▪ Damage to the ground flora and soil erosion due to public pressure will be at a minimum. ▪ All factors affecting the achievement of these conditions are under control **Annex I habitats that are a primary reason for selection for this site:** o *Old sessile oak woods with Ilex and Blechnum in the British Isles* The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ Sessile oak woodland will occupy at least 175 ha of the total site area. ▪ The canopy should be predominantly oak and locally native trees will be common in the woodland. ▪ Ferns will be common ground flora species. ▪ Bryophytes will continue to be abundant and the bryophyte flora will continue to include those western/Atlantic species that mark out this woodland type. A suite of rarer species and species at the edge of their geographical range will continue to be present.

	▪ Heath species such as bilberry and common heather Calluna vulgaris will be common in some areas. ▪ Introduced invasive species such as rhododendron will be absent and any conifers seeding in from adjoining plantations will be removed whilst at the seedling/sapling stage. ▪ Damage to the ground flora and soil erosion due to public pressure will be at a minimum. ▪ All factors affecting the achievement of these conditions are under control. ▪
Component SSSIs	The plan area has been divided into management units to enable practical communication about features, objectives, and management. This will also allow us to differentiate between the different designations where necessary. In this plan the management units have been based on mainly on tenure and the presence of habitat and or geological interest The Component SSSI's have been divided into two areas, the Blaen Nedd SSSI which contains 13 management units and the Dyffrynoedd Nedd a Mellte, a Moel Penderyn SSSI which makes up the remaining 15 management units.
Key Environmental Conditions (factors that maintain site integrity)	**Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:** o *Tilio-Acerion forests of slopes, screes and ravines* <u>General Maintenance</u> Much of Unit DNM16 has now been fenced under a management agreement, however a sufficient under-storey will take time to develop and some thinning may be necessary to remove some of the non-native species. Similar fencing has occurred in Units BN7 & BN9, with some thinning and coppicing initiated to reduce the frequency of sycamore. A management plan covering the wider 'waterfalls area' is being progressed (2008) by the BBNPA, FC and CCW, which amongst other things will be addressing issues arising from increasing numbers of visitors in the SAC and supporting SSSI. **Annex I habitats that are a primary reason for selection for this site:** o *Old sessile oak woods with Ilex and Blechnum in the British Isles*

	<u>General Maintenance</u> Units DNM2, DNM11, DNM16 are currently (2008) under management agreement but a sufficient under-storey will take time to develop. Some thinning may be necessary to remove some of the non-native species in Unit DNM2. Units DNM14 & DNM15 are largely unmanaged and ungrazed and an under-storey should develop in time. Some thinning of non-native trees may be necessary. Units DNM4 & DNM8 are largely fenced from grazing, although trespassing sheep do enter the wood from time to time, and an under-storey should develop in time. Some thinning of non-native trees may be required. A combination of agri-environment schemes and management agreements offer the best mechanism for securing favourable management in these areas.
SAC Condition Assessment	○ *Tilio-Acerion forests of slopes, screes and ravines: Unfavourable* ○ *<u>Old sessile oak woods with Ilex and Blechnum in the British Isles: **Unfavourable**</u>*
Vulnerabilities (includes existing pressures and trends)	<u>Grazing</u> The majority of the woodland is owned by the Forestry Commission and is ungrazed. However, stray livestock still gain access in places and could pose a threat to tree and shrub regeneration. Fencing against livestock would certainly be desirable in the areas currently subject to agricultural use <u>Competition</u> Stands of planted conifers, beech and sycamore within and adjacent to the site are seeding into semi-natural woodland communities in places. The Forestry Commission has agreed to remove most of these species from the site itself, but seedlings may still invade from other areas and an ongoing control programme should be considered. <u>Tourism and Recreation</u> The area contains waterfalls which are a great attraction to the public and significant erosion damage has been

	caused by pedestrians, horses and bicycles. An on-going path repair programme has only been partially successful in addressing this problem and further restrictions on public access should be considered. Given the level of access to the site and surrounding plantations, there could be significant fire risk in prolonged dry periods. Pollution Airborne acid and nutrient deposition may also be a problem, particularly for epiphytic lichens.
Landowner/ Management Responsibility	Over the past 10 years many small privately owned areas have been fenced and grazing excluded under S15 or Tir Gofal agreements. A large proportion of the site is owned by the Forestry Commission (FC), with significant areas owned by the Brecon Beacons National Park Authority (BBNPA) and National Trust (NT). Most of the woodland is subject to non-intervention management, but some small areas of ash and hazel are coppiced. The FC has declared their land as Open Access land. **Blaen Nedd SSSI** ▪ Unit BN1 - geological interest only (non-SAC) ▪ Unit BN2 - geological interest only (non-SAC) ▪ Unit BN3 - geological interest only (non-SAC) ▪ Unit BN4 - road - apart from a wide verge with habitat this unit is of geological interest only (non-SAC) ▪ Unit BN5 - sinkhole with trees (non-SAC) ▪ Unit BN6 - common land with above ground non-SAC habitats and geology ▪ Unit BN7 - supports geological and biological features and lies within SAC ▪ Unit BN8 - supports geological and biological features and lies within SAC ▪ Unit BN9 - supports geological and biological features and lies within SAC ▪ Unit BN10 - supports non-SAC habitats ▪ Unit BN11 - supports non-SAC habitats and geology ▪ Unit BN12 - supports non-SAC habitats and geology ▪ Unit BN13 - supports non-SAC habitats and geology **Dyffrynoedd Nedd a Mellte, a Moel Penderyn SSSI** All units apart from Unit DNM1 lie within the SAC. Units DNM2, DNM6, DNM7, DNM9, DNM10, DNM11, DNM12, and

	DNM14 are privately owned and some are covered by management agreements. ▪ Unit DNM1 - Moel Penderyn part of the SSSI - mainly of geological interest but some grassland and species of note (non-SAC). ▪ Unit DNM3 - lies within Neath Port Talbot and in CCWs West Region. ▪ Unit DNM4 - Forestry Commission land - the main landowners at this SSSI. ▪ Unit DNM5 - lies within Neath Port Talbot and in CCWs West Region. ▪ Unit DNM8 - BBNPA owned land. ▪ Unit DNM13 - Powys CC ▪ Unit DNM15 - various other small parcels of land.
HRA/AA Studies undertaken that address this site	HRA Screening of the Rhondda Cynon Taff County Borough Council"s Local Development Plan (2006-2021): January 2010 http://www.rhondda-cynon-taf.gov.uk/en/relateddocuments/publications/developmentplanning/evidencebase/eb18-habitatsregulationsassessmentappropriateass.pdf

Site Name: Cwm Cadlan ***Location Grid Ref: SN961098*** ***JNCC Site Code: UK0013585*** ***Size: 83.93 ha*** ***Designation: SAC***	***Habitats Regulations Assessment: Data Proforma***
Site Description	Cwm Cadlan is situated approximately 1km north-east of the village of Penderyn and about 4km north of Hirwaun, near Aberdare. The site was notified in 2000 and incorporates the former Cwm Cadlan Grasslands SSSI and Glyn-Perfedd Meadow SSSI. The SAC interests are: Cwm Cadlan has the largest recorded example of 'Molinia meadows' (or fen-meadow) in Wales. The typical form of purple moor-grass–meadow thistle (*Molinia caerulea- Cirsium dissectum)* fen-meadow (NVC type M24b) is

	extensively developed, and there are clearly displayed transitions to a range of associated habitats, including base-rich flush and neutral grassland. Cwm Cadlan supports an outstanding suite of flushed short-sedge mire communities on glacial drift overlying Carboniferous limestone within the valley of the Nant Cadlan on the southern fringe of Brecon Beacons National Park. Communities referable to National Vegetation Classification (NVC) type M10 dioecious sedge–common butterwort *(Carex dioica-Pinguicula vulgaris)* mire occur widely, often in close association with flushed examples of M24 fen-meadow. Characteristic species include common butterwort *Pinguicula vulgaris*, bog pimpernel *Anagallis tenella*, marsh arrowgrass *Triglochin palustris* and the moss *Campylium stellatum*. Other sedge-rich swards are also present which display floristic affinities to both M10 and M24; basiphilous elements of this vegetation include tawny sedge *Carex hostiana*, flea sedge *Carex pulicaris* and quaking-grass *Briza media*. Both these habitats are considered to be 'best areas in the United Kingdom'. Part of the site is owned by CCW and was declared NNR in 2006. The grassland communities, which constitute the SAC features are scattered across the site and occur in most of the management units. Some of the communities present, namely M10, M24 and base-rich sedge community are very close in their floristics, and it is possible that the latter vegetation is derived from one or both of M10 and M24 through some form of agricultural modification (possibly drainage or heavy grazing in the past). It is also possible that some of the fen-meadow is derived from alkaline fen through past drainage. Additional SSSI features include: ▪ Marshy Grassland – this includes all the SAC fen-meadow marshy grassland and other forms of marshy grassland not included in the SAC habitat description. ▪ Unimproved neutral grassland (NVC MG5). ▪ Population of globeflower Trollius europaeus The stands of neutral and acidic grassland, which are normally regarded as dry grassland types, generally have constant purple moor-grass, and often grade into wet grassland types. Similarly, at the head of the valley, marshy grassland grades into heathland, thus the site provides fine examples of transition zones between communities.

	The globeflower population is possibly the largest in south Wales. Globeflower is found scattered across the site, mainly in stands on fen-meadow, alkaline fen and neutral grassland.
Qualifying Features	**Annex I habitats that are a primary reason for selection of this site:** o *Molinia meadows on calcareous, peaty or clayey-siltladen soils (Molinion caeruleae)* o *Alkaline Fen*
Conservation Objectives	**Vision for the site:** Around half of the site is covered by marshy grassland. The majority of this is species rich fen-meadow with a range of typical plants, including purple moor-grass, sharpflowered rush, quaking-grass, flea sedge, tawny sedge, meadow thistle, devil's-bit scabious, marsh valerian, bog pimpernel and orchids. The remainder of the marshy grassland has a high cover of rushes, purple moor-grass, or tall herbs, such as meadowsweet. Plants indicating disturbance or nutrient enrichment, such as docks, nettles, creeping buttercup and white clover are uncommon or present at low cover, trees and shrubs are no more than scattered, and where bare ground occurs, it is present only in small patches, such as occasional hoof prints. Purple moor-grass and rushes are not overwhelmingly dominant within the fen-meadow areas. About a sixth of the site supports alkaline fen associated with springs and flushes, with a high cover of small sedges, such as carnation sedge, tawny sedge and flea sedges and liverworts and mosses, including greasewort, intermediate hook-moss, yellow starry feather-moss and claw-leaved hook-moss, with a variety of other typical plants including butterwort, marsh arrowgrass, bogbean and marsh lousewort. This habitat is particularly important for populations of many uncommon plant species, including broad-leaved cottongrass, dioecious sedge, long-stalked yellow-sedge, knotted pearlwort and marsh helleborine. Plants indicating disturbance or nutrient enrichment, such as creeping buttercup and white clover are uncommon and there is minimal build-up of dead vegetation. Scattered across the site, on better-drained soils, are small stands of unimproved neutral grassland with grasses such as common bent, red fescue, crested dog's-tail and sweet vernal-grass, and a variety of typical herbs including common bird's- oottrefoil, common knapweed, red clover, rough hawkbit, lady's-mantle and great burnet.

The majority of this grassland supports plants adapted to mildly acid or leached soils, including tormentil, devil's-bit scabious and heath-grass, but plants more typical of alkaline soils, such as salad burnet and lady's-mantle species, are locally prominent
in places. Plants indicating nutrient enrichment, such as perennial rye-grass) are rare. Scrub and bracken are absent.

Other habitats present include acid grassland, dominated by bent grasses, sheep'sfescue and heath bedstraw, acidic flushes with frequent soft-rush, small sedges and bog-moss, and wet heath with deer-grass, cross-leaved heath, heather and bilberry.
The wet heath mainly occurs at the head of the valley.

Annex I habitats that are a primary reason for selection of this site:

- *Molinia meadows on calcareous, peaty or clayey-siltladen soils (Molinion caeruleae)*

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

- Fen-meadow will occupy at least 26 ha of a total area of marshy grassland habitat which itself will cover at least 42 ha.
- The remainder of the site will mainly consist of other semi-natural habitat, including alkaline fen.
- Typical fen-meadow plants will be common.
- Plants indicating agricultural modification or alteration to hydrology and drying of soils will be absent or present at only low cover.
- Although rushes are frequent, the more bulky species will not exceed 33% cover.
- Bare ground will generally not exceed 5% cover and vegetation litter 25%.
- Dense scrub will be largely absent from the fen-meadow, but it is probably desirable for invertebrates and birds to have a sparse scattering of shrubs or trees.
- All factors affecting the achievement of these conditions are under control.

Annex I habitats that are a primary reason for selection of this site:

- *Alkaline Fen*

	The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ Alkaline Fen will occupy about 11 ha or more. ▪ The remainder of the site will mainly consist of other semi-natural habitat including fenmeadow. ▪ Typical alkaline fen plants will be common. ▪ Plants indicating agricultural modification or alteration of hydrology and drying of soils will be absent or present only at low cover. ▪ Although rushes are frequent, the more bulky species will not exceed 33% cover. ▪ Bare ground will generally not exceed 5% cover and vegetation litter 10 %. ▪ Scrub species will be largely absent from the alkaline fen. ▪ At selected springheads, water should flow in all but the most severe drought conditions. ▪ All factors affecting the achievement of these conditions are under control.
Component SSSIs	The plan area has been divided into 10 management units to enable practical communication about features, objectives, and management. This will also allow us to differentiate between the different designations where necessary. In this plan the management units have largely been based on tenure and management.
Key Environmental Conditions (factors that maintain site integrity)	**Annex I habitats that are a primary reason for selection of this site:** o *Molinia meadows on calcareous, peaty or clayey-siltladen soils (Molinion caeruleae)* Grazing The fen-meadow is mixed in with other marshy grassland and mire types, but each management unit is subjected to one prescription (excepting those areas that are mown for hay). Management should focus on maintaining or restoring the condition of the fen-meadow and therefore the condition of the remaining areas of marshy grassland will be of secondary importance, but it is likely that if management is suitable for the fen-meadow it should also benefit most other forms of marshy grassland/ Maintaining or restoring the marshy grassland should be attainable through the implementation of the present grazing regime and scrub control, with cattle producing the best sward structure. The site has been managed under a relatively light grazing regime in recent years. The present management is considered to be generally acceptable for recovery of modified stands in the long term, and site management will be reviewed periodically.

	Stocking rates should be guided by the values listed in the Lowland Grassland Handbook. Some grazing earlier in the year and mowing to remove the ranker vegetation should help to encourage grazing in those areas of ranker grassland, control scrub development and reduce the buildup of any litter. Grazing levels need monitoring and management agreements adjusted if required. Monitoring structural elements (bare ground, litter) will identify any problems with the intensity of grazing management. Any excessive grazing pressure would be expected to increase the frequency and cover of bare ground and agricultural species. These are all covered by attributes in the feature objectives. Stocking levels are dependent on the growth of vegetation, which may vary from year to year, but the agreed management policy allows for this. Cessation of cattle farming could affect the vegetation, as sheep are more selective grazers. <u>Control of nutrient inputs</u> There has been concern about fertilizer run-off from some adjacent improved fields causing localised nutrient enrichment. Any effects from agricultural run-off from adjacent fields will be identified through monitoring the quality of the vegetation under the feature objectives, looking for increases in the cover of perennial ryegrass and white clover and other indicator plants and reductions in the frequency of sedges and other plants of value. Management agreements on adjacent land will partly address this problem. <u>Scrub encroachment</u> Scrub developing within the areas of marshy grassland will on the whole be controlled, although the presence of a few scattered scrub and trees will benefit invertebrates and birds. The marshy grassland areas could be increased beyond the current extent by cutting back the scrub edges and is something that needs to be kept under review, should opportunities arise. The established stands of alder and willow woodland should not be viewed unfavourably as they lend structure to the site and also provides habitat for invertebrates and birds, with the ground vegetation also containing plant species of note (e.g. meadow saxifrage) and the trees themselves supporting good moss and liverwort communities and uncommon lichens. In addition, some stands afford a refuge for colonies of globeflower. However, woodland and scrub should not encroach further into the unimproved grassland, in particular the

	communities of highest conservation value (alkaline fen, fen meadow and neutral grassland). Drainage The networks of ditches throughout the SSSI have obviously affected the hydrology and vegetation. These ditches should be allowed to infill naturally (as some have already). Where possible, active restoration of the hydrology should be considered, although this may be difficult in some areas as there would be conflict with the monitoring associated with the quarrying activities. Should dewatering of Penderyn quarry affect the hydrology of the SSSI and/or if the recent run of very dry summers in which watercourses have dried-up continue, then floristic changes are likely to occur. Other marshy grassland Non-SAC marshy grassland mainly comprises rush and purple moor-grass dominated vegetation and tall-herb fen. Management the SAC features should ensure that the non-SAC marshy grassland is kept in favourable condition. There may be a need from time to time to cut rushes where they have thickened up. **Annex I habitats that are a primary reason for selection of this site:** o *Alkaline Fen* Grazing These areas will be subject to the same grazing regime as the marshy grassland (see 5.1 above) because they occur together in the same management units. Therefore it is considered inappropriate to specify specific grazing regimes for this habitat. Structural attributes will help to ensure that this habitat is grazed appropriately, so long as this is compatible with achieving the required condition for the marshy grassland. As the alkaline fen is some of the wettest habitat at the site, damage by overgrazing, e.g. excessive poaching is likely to be readily observed. Scrub encroachment Scrub can be monitored by a simple inspection of the site; in most cases the limits should not be exceeded before those limits for other attributes. This and compliance with the management agreement can be determined while

	monitoring other attributes. See also 5.1 above. Drainage See above. Atmospheric deposition N deposition emanates from point and diffuses sources. Reductions in N emissions from the latter require on-going policy reform and advice at national (Wales and UK) levels. Point source impacts need to be evaluated and minimised through RoC and the planning system. Dust deposition from the quarry should be minimised by standard good working practice. Dust deposition should be monitored by the quarry, and appropriate thresholds sought from the literature. Comparison of the two may reveal the need for modifications to working practice.
SAC Condition Assessment	*Molinia meadows on calcareous, peaty or clayey-siltladen soils (Molinion caeruleae):* ***Unfavourable. No change*** *Alkaline Fen:* ***Unfavourable Recovering.***
Vulnerabilities (includes existing pressures and trends)	Grazing These grasslands are dependent on the continuance of low intensity agricultural management with no, or minimal, use of agro-chemicals. Where necessary, agreements secure appropriate grazing levels and management. Quarrying Base enrichment and moisture content are also important factors influencing the ecological character of the vegetation. This enrichment appears to derive from rising groundwater. Quarrying or other operations within the groundwater catchment may influence groundwater movements. The operation of an adjoining quarry is subject to a conditioned planning permission, site investigation and monitoring that will constrain operations in order to safeguard the grassland vegetation. Nutrient inputs

	There has been concern about fertilizer run-off from some adjacent improved fields causing localised nutrient enrichment. Any effects from agricultural run-off from adjacent fields will be identified through monitoring the quality of the vegetation under the feature objectives Drainage The networks of ditches throughout the SSSI have obviously affected the hydrology and vegetation. These ditches should be allowed to infill naturally (as some have already). Where possible, active restoration of the hydrology should be considered. Atmospheric Pollution Dust deposition from the quarry should be minimised by standard good working practice.
Landowner/ Management Responsibility	These fields were traditionally managed as pasture and some as hay-meadow but there has long been a liver fluke problem in this area and there have been past attempts to drain many fields within the SAC - there is an extensive network of drainage ditches within the site. Some of these are slowly infilling, but some vegetation is likely to have been permanently modified by these drains. An extensive system of deep ditches was dug over most of the wet pasture in the National Nature Reserve (Unit 1 - see map below) in 1980/81 under a farm improvement scheme. Over the past 50 years much of the land has been grazed by a mixture of cattle and sheep, although between 1997 and 2003, grazing was mainly by sheep. Under CCW's management, the land has been returned to mainly cattle grazing. The south western-most enclosure (formerly Glynperfydd Meadow SSSI) was in the past cut, on average, every three years using horses, with the last cut in 1976. CCW intend to resume the hay-management in this field in an attempt to encourage the populations of some plant species, which appear to have become scarcer over the past 20 years. The south western-most part of the site (Unit 2) is mainly wet pasture and is currently (2007) grazed by cattle and sheep, with a small area cut for hay. The small area near the quarry (Unit 3) currently (2007) receives little grazing, with scrub encroachment a problem. Some scrub and trees were removed by CCW c.2003. The field was part of a larger enclosure that existed before quarry tipping and the re-routing of a farm access track. These changes

	appeared to have occurred in 1980 or thereabout, being completed by 1983 when a fence was erected against the track. Unit 4 (see below) receives only occasional grazing by sheep and ponies, currently (2007) some of the vegetation is rather rank. Part of the field was burned c. 2003. A hay crop used to be taken in Unit 5 (see below) but this has not occurred for many years. Currently (2007), this field is managed with an adjoining improved hay field (outside the SSSI), therefore, the SSSI field tends to be grazed in autumn, winter and spring and rested in the summer months. The notified field is not treated with fertilizer, although some is applied to the adjoining field. Winter stock-feeding occurs in the adjoining field and this may be affecting the SSSI habitat. A spring in the field appears to be the main water supply to the farm house. The central part of the site (Units 6 & 7) to the east of the NNR is currently (2007) under sympathetic management but, in the past, lime and basic slag were applied to the eastern-most enclosures (last in c.1985). The hay meadows, including the field supporting mainly dry grassland in the south-east of the site, were ploughed during the 1939-45 War. The drainage ditches were dug by POWs around this time and were last cleaned out c. 1985. The hay meadows tend to be cut towards the end of July. Some winter stock feeding occurs on drier ground within the SSSI. Unit 8 was planted with alder trees by the Brecon Beacons National Park Authority c.1988. Some of these trees were removed by CCW in 2003 and eventually all will be removed. The eastern-most fields (Unit 9) are grazed throughout the summer mainly by cattle, with varying numbers of sheep at periods throughout the grazing season. There appears to be little or no grazing in winter. According to the owner, the wet pasture used to consist of large tussocks of purple moor-grass, but grazing by cattle over many years has reduced the tussocks. Unit 10 is a small area of wet pasture land crossed by an access track and with a pool that provides water for farm stock. In general, the alkaline fen and fen-meadow are considered to be the main focus of management in all the units. Globeflower (the key species on the site) is strongly associated with these habitats and also a field (unit 5) largely comprising a damp form of neutral grassland. Other (non-SAC) forms of marshy grassland, together with neutral grassland and a variety of other habitats types occur as a patchwork across the site and management of the SAC habitats is generally compatible. Globeflower is declining nationally and the population at Cwm Cadlan also seems to have declined since it was notified in 2000. Management in the units where it occurs should aim to maintain or increase the population. Parts of units 5 & 7 are managed for hay and these appear to be the main areas where the species flowers regularly. Until relatively recently, one of the fields in unit 1 supported a reasonable population of globeflower, but this seems to have declined rapidly – formerly this field was periodically cut for hay and the intention is to return to this

	management regime. Most of the neutral grassland occurs as small areas associated with damper pasture such as fen-meadow, where it occupies areas with more freely draining soils.
HRA/AA Studies undertaken that address this site	HRA Screening of the Rhondda Cynon Taff County Borough Council"s Local Development Plan (2006-2021): January 2010 http://www.rhondda-cynon-taf.gov.uk/en/relateddocuments/publications/developmentplanning/evidencebase/eb18-habitatsregulationsassessmentappropriateass.pdf

Site Name: Coedydd Cwm Clydach ***Location Grid Ref: SO207123*** ***JNCC Site Code: UK0030127*** ***Size: 28.81 ha*** ***Designation: SAC***	***Habitats Regulations Assessment: Data Proforma***
Site Description	The site is situated on the southern side of the River Clydach valley, approximately 2km east, north east of Brynmawr. The underlying geology varies across the site, consisting of sedimentary rocks that range from Old Red Sandstone through Carboniferous Limestone into shales and sandstones of the Millstone Grit and Coal Measures. Soils mainly consist of typical brown earths and humo-ferric podsols. Altitude ranges from 170m by the River Clydach to 350m in Cwm Llammarch. Cwm Clydach is of special interest for its stands of broadleaved woodland dominated by beech, intergrading with more open habitats, which together support a number of rare and scarce vascular plants including whitebeams *Sorbus* spp. and soft-leaved sedge *Carex montana*. There are important woodland and grassland fungi assemblages with rare species such as *Squamanita paradoxa*. The site also includes two localities of national geological importance.

Qualifying Features	**Annex I feature and the primary reason for selection of this site**: o *Beech forests (Asperulo-Fagetum)* **Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:** o *Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)*
Conservation Objectives	**Vision for the site:** Around two thirds of the site is covered by predominantly beech woodland (including temporary canopy gaps and glades), with mature sessile and hybrid oaks common in the canopy in the west of the site. The beech woodland has trees of all age classes with a scattering of standing and fallen deadwood. Regeneration of trees is sufficient to maintain the woodland cover in the long term. Whitebeam and yew trees are locally prominent. Ash and birch trees may also be present, but rarely dominate the canopy. The shrub layer and ground flora can be quite sparse in the beech woodland, but where present consist of locally native plants such as hazel and hawthorn, bramble, dog's mercury, enchanter's-nightshade, lords-and-ladies, woodruff, male fern, sanicle, wood melick, ivy, false brome, violets, herb robert, wood avens, and tufted hair-grass. On more acidic soils where oak is prominent, the ground flora is often more heathy with bilberry and wavy hair-grass and in places mosses such as greater fork moss and swan's-neck thyme-moss are abundant. Scarcer plants, such as soft-leaved sedge and bird's-nest orchid are locally frequent and, more rarely, yellow bird's-nest orchid and oak fern can be found. Rare whitebeam trees grow on steeper slopes and on limestone outcrops within and outside the woodland and on old railway cuttings. Their populations are stable or increasing. A wide range of fungi is present, with rose spindles, rosy pinkgill, olive earthtongue and waxcaps in the grassland habitats, which includes the unsurfaced parts of the disused railway trackbed, and giant club, powdercap strangler and coral fungi in the woodland. The important geological rock exposures need to be kept in a condition, which will enable researchers to re-

	examine the evidence available to previous workers and use them as a teaching resource. **Annex I feature and the primary reason for selection of this site**: o *Asperulo-Fagetum beech forests* The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ At least 50% of the canopy-forming trees are beech. ▪ The canopy cover is at least 80% (excluding areas of crag) and composed of locally native trees. ▪ The woodland has trees of all age classes with a scattering of standing and fallen dead wood. ▪ Regeneration of trees is sufficient to maintain the woodland cover in the long term. ▪ The shrub layer and ground flora can be quite sparse, but where present consist of locally native plants such as yew, hawthorn, wych elm, ash, hazel, field maple and elder, bramble, dog's mercury, enchanter's-nightshade, lords-and-ladies, woodruff, male fern, sanicle, wood melick, ivy, false brome, violets, herb robert, wood avens, and tufted hair-grass. ▪ Scarcer plants, such as soft-leaved sedge and bird's-nest orchid are locally frequent and, more rarely, yellow bird's-nest orchid can be found. ▪ All factors affecting the achievement of the above conditions are under control. **Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:** o *Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)* The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ At least 75% of the woodland vegetation meets the criteria for intact acid beech wood, where: ▪ At least 10% of the canopy-forming trees are beech. ▪ The canopy cover is at least 80% and composed of locally native species. ▪ The woodland has trees of all age classes with a scattering of standing and fallen dead wood.

	▪ Regeneration of trees is sufficient to maintain the woodland cover in the long term. ▪ The shrub layer and ground flora can be quite sparse, but where present consist of locally native plants. ▪ All factors affecting the achievement of the above conditions are under control.
Component SSSIs	The plan area has been divided into 5 management units to enable practical communication about features, objectives, and management. This will also allow us to differentiate between the different designations where necessary. In this plan the management units have been based on tenure.
Key Environmental Conditions (factors that maintain site integrity)	**Annex I feature and the primary reason for selection of this site**: o *Asperulo-Fagetum beech forests* <u>Woodland management</u> Most of the woodland at the site is mature and appears to require little active management. Many of the beech trees, however, are old and of a rather even age and in recent years a significant number of these have fallen. In some areas there is good regeneration of beech, and in time, these should grow and fill gaps. Most management, apart from the removal of a small area of larch, would likely be aimed at aiding the spread and growth of beech, possibly by actively moving saplings into gaps where there is little or no natural regeneration and also by selectively thinning species such as ash or sycamore, which might become dominant and displace beech. Dead and fallen trees should in general be left in situ to provide habitat for species such as birds, insects and fungi. <u>Scrub management</u> Some areas with the woodland should be retained as permanent open glades to benefit butterflies and other invertebrates and scrub encroachment should be controlled in these areas. Tree branches overhanging parts of the railway track with important grassland habitat will need cutting back from time-to-time to enable more light to reach the ground. <u>Grazing</u> Past grazing has influenced the structure of the woodland, such as the dominance of beech in the canopy. It is therefore likely that occasional light grazing would be beneficial for the woodland habitat, although any increase

	in grazing pressure could prevent all tree and shrub regeneration and suppress the woodland ground flora. Some land within the site, mainly in the Llanelly quarry and Llam-march dingle areas, is common land. Small numbers of sheep graze the area and also graze adjoining open land along the old railway trackbed and adjacent vegetated spoil heaps. Dumping Due to roads passing through the site, parts are accessible to vehicles and the illegal dumping of domestic and commercial waste and abandoned vehicles can be a problem. Barriers put in place several years ago have been successful in preventing vehicles (some of which have been later burnt) being driven along the railway track. It is essential that these barriers be maintained to prevent any future occurrences. Landowners and occupiers should co-operate with the statutory authorities in relation to enforcement action and the removal of waste and abandoned vehicles and measures designed to minimise the impact of fly-tipping or the ingress of any pollutants into watercourses and caves. Invasive alien plants Japanese knotweed is also a problem in parts of the site, usually having been introduced by illegal dumping of waste material, and this species will be controlled as necessary. **Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:** o *Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)* Woodland management Mostly minimum intervention (see 5.1 above). In the western part of the site, oak is common in the canopy and regeneration of this species should be accepted there. It might also be beneficial to encourage the spread of woodland into small areas of dense bracken on the edges of the main woodland blocks. Bracken management Bracken in canopy gaps or at the woodland edge may assist the establishment of new trees, providing that the

	bracken is not too dense and does not have deep litter. Cutting dense bracken and breaking up the litter can help with tree and woodland generation. Grazing See above. Dumping See above.
SAC Condition Assessment	○ *Asperulo-Fagetum beech forests:* ***Favourable, maintained***. ○ *Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)* ***Favourable, maintained***.
Vulnerabilities (includes existing pressures and trends)	Grazing The woodland was formerly grazed by sheep from the nearby common land, but better fencing here has reduced livestock trespass to a level that does not prevent regeneration of trees and shrubs or damage the woodland ground flora. However, the impact of grazing needs to be monitored and fencing against livestock considered if necessary. Dumping and vandalism (via urban areas and cars) Due to roads passing through the site, parts are accessible to vehicles and the illegal dumping of domestic and commercial waste and abandoned vehicles can be a problem. Also, due to the close proximity to urban areas, fly-tipping and vandalism are a particular problem in these woodlands. Rubbish is regularly cleared but an increased wardening effort would be needed to bring these problems under control. The woodlands may be threatened by road improvement plans and associated development but these proposals will be subject to appropriate assessment under the Habitats Regulations 1994.

Landowner/ Management Responsibility	▪ Unit 1 is owned by CCW and comprises the bulk of the SAC beech woodland. Most of the acidiophilous beech woodland is found towards the western part of Unit 1. ▪ Unit 2 is owned by CCW but supports non-SAC habitats and geology. ▪ Unit 3 is the old railway track, where the main interest on the track bed itself is the fungi assemblage. The trackbed habitats also support some vascular plant interest. ▪ Unit 4 - the bulk is included within the SSSI for its geological interest and much is also common land. There is some biological interest, mainly grassland habitats supporting fungi, non-SAC broadleaved woodland and a variety of scarce and rare plants - the most notable being whitebeams and hawkweeds that mainly grow on the railway cuttings and low crags, which are also tend to be of geological note. There is therefore potential for some management conflict between the need to keep the geology exposed and a natural tendency for the areas to scrub over (sometimes with rare species), but exposures are generally extensive enough for management conflicts not to be a significant issue. ▪ Unit 5 is other land within the SAC not owned by CCW.
HRA/AA Studies undertaken that address this site	HRA Screening of Monmouthshire's Local Development Plan (2011-2026) Deposit, June 2011 http://www.planningpolicy.monmouthshire.gov.uk/download/downloads/id/552/habitats_regulations_assessment_report

Site Name: Llangorse Lake ***Location Grid Ref: SO131262*** ***JNCC Site Code: UK0012985*** ***Size: 215.64 ha*** ***Designation: SAC***	***Habitats Regulations Assessment: Data Proforma***

Site Description	Llangorse Lake is a large shallow lake with a mean depth 2-3 metres lying in a natural depression of the Old Red Sandstone drift formed during the last glacial period. It is the largest natural lowland water in south Wales. It is one of the few natural eutrophic lakes in Britain and is of European importance in this context. The combination of the mineral-rich geology and size and shape of the lake encourages the growth of a wide range of aquatic and marginal plants, including several that are rare in this part of Wales. The site also demonstrates a gradation from open water, with submerged and floating plant beds, through marginal swamp and fen vegetation, marshy grassland to drier unimproved grassland, with patches of willow scrub and wet woodland. The lake also has a diverse plankton community and supports a wide variety of invertebrates, including rare and scarce species.
Qualifying Features	**Annex I habitats that are a primary reason for selection of this site:** o *Natural Eutrophic Lakes with Magnopotamion or Hydrochariton – type vegetation.*
Conservation Objectives	**Vision for the site:** Llangorse Lake is an outstanding natural feature situated towards the head of the Afon Llynfi between the hills of Mynydd Llangorse and Allt yr Esgair. On average, the lake itself covers around 70% of the site and the water levels are allowed to change naturally with changes in rainfall patterns and season. During wetter periods, surrounding land is flooded, which maintains the rich array of habitats transitional between open water and drier ground. These habitats, which include reed beds, sedge fen, wet woodland and wet and dry grasslands, sit sympathetically at the edge of the lake, adding both shelter and diversity. In times of heavy rain the lake also acts as a temporary store for floodwater, slowly releasing it as rain subsides. Water quality is high, inputs of nitrates and other nutrients and sediments from agricultural and domestic sources are under control and the quality and clarity of the water is generally good. The fish population consists of native species such as pike, perch and eels, with populations of bottom-feeding species such as bream at levels that do not affect the aquatic flora. Non-native plant species or fish, such as grass-carp, are absent. The growth of pondweeds is dependent on a variety of factors such as water temperature and turbidity and may vary each year, but in most years there is good growth, with pondweeds with both thin and wide leaves mixing with the delicate leaves of water-milfoils, hornworts and water-crowfoots. Closer still to the lake's edge the water surface is covered in the floating leaves and flowers of water lilies.

Large parts of the lake margin are fringed by dense beds of common reed and tall sedges and here and there are patches of lesser reedmace, bur-reeds and club-rush. Scattered amongst these beds are uncommon plants such as flowering rush, tubular water dropwort and meadow rue. In mid-summer the striking flowers of purple loosestrife, bog bean and the sweet aroma of water mint add extra interest to the marginal vegetation. Wet woodland dominated by alder and willow and coloured by marsh marigold in the spring extends into the reed beds in many places and forms a bridge between the lake and the land. In a few areas there is damp oak and ash woodland with magnificent veteran trees on the drier fringes of the lake. In other places, marshy grasslands display an array of colourful flowers such as ragged-robin, marsh bedstraw, meadowsweet, greater birds-foot trefoil and orchids. Further up the slopes the land slowly dries and drier neutral grassland becomes the dominant habitat, with common knapweed, bird's-foot trefoil and red clover adding a further dash of colour to the landscape.

In the summer, reed and sedge warbler and sometimes Cetti's warbler can be heard singing from the tall marginal vegetation, while hobbies hunt dragonflies and damselflies above. Several pairs of great crested grebes nest amongst the reed beds and on the quieter margins of the lake, waders such as lapwing and curlew display and breed. Towards mid-summer large numbers of mute swans arrive to moult. Insects and other invertebrates abound, and the quiet observer may catch a glimpse of the rare two-tone reed beetle before it drops from the vegetation in an attempt to escape predation. In winter, large rafts of wildfowl such as pochard, tufted duck, goldeneye and coot can be seen drifting on the lake, with more rarely the occasional smew and the pig-like squeals of the secretive water rail may sometimes be heard in the reed beds. During spring, late summer and autumn, migrating birds including terns and waders, and rarities such as the aquatic warbler, stop over to rest and feed. Large numbers of swallows roost in the reed beds.

Annex I habitats that are a primary reason for selection of this site:

- *Natural Eutrophic Lakes with Magnopotamion or Hydrocharition – type vegetation.*

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

- There is no loss of lake area, as defined in 2006 aerial photographs for summer levels.
- The aquatic plant community is typical of this lake type in terms of composition and structure, including species such as water-starworts, stoneworts, duckweeds, broad-leaved and fineleaved pondweeds, water lilies,

	amphibious bistort, water-crowfoots, rigid hornwort, spiked water-milfoil, mare's-tail and horned pondweed. ▪ Plants indicating very high nutrient levels and excessive silt loads are not dominant and invasive non-native water plants do not threaten to out-compete the native flora. ▪ The nutrient, pH and dissolved oxygen levels are typical for a lake of this type and there is no excessive growth of cyanobacteria or green algae. ▪ There is a natural hydrological regime. ▪ The natural shoreline is maintained. ▪ The natural and characteristic substrate is maintained. ▪ The natural sediment load maintained. ▪ All factors affecting the achievement of these conditions are under control.
Component SSSIs	The plan area has been divided into management units to enable practical communication about features, objectives, and management. This will also allow us to differentiate between the different designations where necessary. In this plan the management units have been divided into 13 units based on tenure, but also with reference to features and land management requirements.
Key Environmental Conditions (factors that maintain site integrity)	The full restoration of the lake to favourable condition may be difficult to achieve in the short term because of residual nutrients stored within the lake's sediments. However, every effort should be made to restore the structure and functioning of the lake to a favourable, sustainable status, with particular attention being paid to the management of environmental factors which could cause the lake to switch from the plant-dominated to phytoplankton-dominated stable state. The following environmental conditions will be key to achieve this: Water Quality and sedimentation The quality of the water at Llangorse Lake is very important to the maintenance of its very special plants and animals. The lake sits within a small, predominantly lowland catchment and so receives its water from a very limited area. Water quality is of primary importance to the aquatic macrophyte flora. This naturally eutrophic lake entered an algal-dominated hyper-eutrophic state in the late 1970s, following high nutrient loadings from sewage effluent. These inputs were diverted and the aquatic macrophyte recovery monitored. Recovery has been substantial but there is still the potential for a return to an algal-dominated state. Surveillance of the ecosystem continues. The lake has been slowly recovering from a polluted state and it is vital that this recovery continues. The lake is

	surrounded by land that is agriculturally productive, with much used as arable or grass ley. It is important that any application of fertilizer (including manure) within the SSSI or lake catchment should be compliant with good agricultural practice, and it is of equal importance to control other inputs from agricultural and domestic sources, so as to avoid excessive levels of nutrients entering watercourses and eventually the lake. It is essential that land in the catchment be carefully managed to avoid sediment run-off, which could cause rapid siltation of the lake. It is therefore important that any land management practices such as ploughing and stock feeding within the SSSI or lake catchment should be compliant with good agricultural practice. Avoiding any exposed soil or mud where it can wash into watercourses entering the lake and keeping a buffer zone of permanent grassland in the lake's flood zone and next to water courses. Any ditches feeding into the lake need to be carefully managed to enable sediments to be trapped rather than enter the lake. CCW will continue to work with partners including the local authority, landowners in the catchment of the lake and the Environment Agency and the Welsh Assembly Government to further the recovery of the lake's water quality. <u>Habitat management</u> The many other habitats around the lake, such as the fen, woodlands and grassland are very important in their own right and often require management. The grasslands should be managed sympathetically, being either cut for hay in early summer and the aftermath grazed by sheep or cattle or lightly grazed throughout the growing season from spring into the early autumn. However, this would need to be carefully managed, so that the marginal vegetation is not damaged and marginal sediments not disturbed by excessive trampling. It may be desirable in places to fence out margins to allow recovery. Much of the woodland surrounding the fringes of the lake adds greatly to the lake's diversity and provides further sheltering opportunities for its wildlife and requires little management. However, should the wet woodlands continue their expansion into the reed beds, non-chemical measures to control it should be employed to prevent losses of the other important habitats. The winter cutting of some reed beds could also be employed to aid the continuation of this fragile habitat and CCW will continue to monitor the situation and instigate management should it be needed.
SAC Condition Assessment	o *Natural Eutrophic Lakes with Magnopotamion or Hydrochariton – type vegetation* - ***Unfavourable***

Vulnerabilities (includes existing pressures and trends)	<u>Leisure and Recreation</u> Recreational activities on the lake, fisheries operations and agricultural practice within the catchment are potentially influential. The need for further measures to aid the recovery is being kept under review. <u>Eutrophication</u> As the small Afon Llynfi is the main outlet for water from the lake, the water flows through the lake very slowly and any pollutants entering the lake will potentially remain there for long periods. Much of the current pollution is in the form of nutrients from the air and the many small watercourses entering the lake. Extra nutrients in a naturally nutrient rich lake dramatically change the types of plants growing in the lake and the number and type of insects that are able to live among the plants. This has a knock-on effect on the fish, birds and mammals of the lake. <u>Increase in sediments</u> Llangorse Lake sits in a shallow natural basin; the average depth of the lake is only 2-3 metres. The natural processes of erosion from the surrounding hills will naturally reduce the depth of the lake, albeit at a very slow rate, over time, but because of the shallowness of the lake it is exceptionally vulnerable to any extra sediments that may enter the lake from sources other than the natural inputs <u>Impact of wildlife</u> Possible effects from increasing numbers of Canada geese at the site, which may move nutrients from surrounding land to the water-body, need further investigation.
Landowner/ Management Responsibility	Some units contain quite large areas of semi-improved grassland. These areas have been included to provide a buffer against sediment run-off and nutrient enrichment. ▪ Unit 1 is owned or leased by the BBNPA. ▪ Unit 9 is the crannog - a man-made island and a Scheduled Ancient Monument (SAM). The island supports a few trees and there is a little marginal aquatic vegetation, but the main interest is archaeological. The boundary of the SAM extends beyond the island to include part of the water body and aquatic vegetation.

	▪ Unit 11 is common land, which has been developed in connection with recreational use. This is where the main jetties for launching boats are situated. There are also buildings, car parks, tracks and amenity grassland. ▪ Unit 13 is the main body of water, which is a common in its own right. The size of the water body fluctuates and the lake is generally more extensive in the wetter winter months. The lake margin as illustrated on the accompanying map shows the boundary of Unit 13, and represents mean summer level. ▪ In Units 1-8 & 10-12, which are mainly small fields, the SAC habitat is largely confined to the inundation zones (consisting of marginal fen and related habitats) which are flooded during the winter months and during high rainfall periods in summer months. Most of these units also contain habitats including marshy grassland, neutral grassland and woodland, which are not submerged by winter water levels.
HRA/AA Studies undertaken that address this site	HRA Screening of the Brecon Beacons National park Local Development Plan (2007-2022) May 2009 http://www.breconbeacons.org/the-authority/planning/strategy-and-policy/npmp/hra-annexs/hra-main-document-2009/attachment_download/file

Site Name: River Usk Location Grid Ref: SO301113 JNCC Site Code: UK0013007 Size: 1007.71 ha Designation: SAC	***Habitats Regulations Assessment: Data Proforma***
Site Description	The River Usk SAC rises in the Black Mountain range in the west of the Brecon Beacons National Park and flows east and then south, to enter the Severn Estuary at Newport. The overall form of the catchment is long and narrow, with short, generally steep tributaries flowing north from the Black Mountain, Fforest Fawr and Brecon Beacons, and south from Mynydd Epynt and the Black Mountains. The underlying geology consists predominantly of Devonian Old Red Sandstone

	with a moderate base status, resulting in waters that are generally well buffered against acidity. This geology also produces a generally low to moderate nutrient status, and a moderate base-flow index, intermediate between base-flow dominated rivers and more flashy rivers on less permeable geology. The run-off characteristics and nutrient status are significantly modified by land use in the catchment, which is predominantly pastoral with some woodland and commercial forestry in the headwaters and arable in the lower catchment. The Usk catchment is entirely within Wales. The ecological structure and functions of the site are dependent on hydrological and geomorphological processes (often referred to as hydromorphological processes), as well as the quality of riparian habitats and connectivity of habitats. Animals that move around and sometimes leave the site, such as migratory fish and otters, may also be affected by factors operating outside the site. **Hydrological processes**, in particular river flow (level and variability) and water chemistry, determine a range of habitat factors of critical importance to the SAC features, including current velocity, water depth, wetted area, substrate quality, dissolved oxygen levels and water temperature. Maintenance of both high 'spate' flows and base-flows is essential. Reduction in flows may reduce the ability of the adults of migratory fish to reach spawning sites. Watercrowfoot vegetation thrives in relatively stable, moderate flows and clean water. The flow regime should be characteristic of the river in order to support the functioning of the river ecosystem. **Geomorphological processes** of erosion by water and subsequent deposition of eroded sediments downstream create the physical structure of the river habitats. Whilst some sections of the river are naturally stable, especially where they flow over bedrock, others undergo constant and at times rapid change through the erosion and deposition of bed and bank sediments as is typical of meandering sections within floodplains (called 'alluvial' rivers). These processes help to sustain the river ecosystem by allowing a continued supply of clean gravels and other important substrates to be transported downstream. In addition, the freshly deposited and eroded surfaces, such as shingle banks and earth cliffs, enable processes of ecological succession to begin again, providing an essential habitat for specialist, early successional species. Processes at the wider catchment scale generally govern processes of erosion and deposition occurring at the reach scale, although locally, factors such as the effect of grazing levels on riparian vegetation structure may contribute to enhanced erosion rates. In general, management that interferes with natural geomorphological processes, for example preventing bank erosion through the use of hard revetments or removing large amounts of gravel, are likely to be damaging to the coherence of the ecosystem structure and functions. **Riparian habitats**, including bank sides and habitats on adjacent land, are an integral part of the river ecosystem. Diverse and high quality riparian habitats have a vital role in maintaining the SAC features in a favourable condition. The

	type and condition of riparian vegetation influences shade and water temperature, nutrient run-off from adjacent land, the availability of woody debris to the channel and inputs of leaf litter and invertebrates to support in-steam consumers. Light, temperature and nutrient levels influence in-stream plant production and habitat suitability for the SAC features. Woody debris is very important as it provides refuge areas from predators, traps sediment to create spawning and juvenile habitat and forms the base of an important aquatic food chain. Otters require sufficient undisturbed riparian habitats as breeding and resting sites. It is important that appropriate amounts of tree cover, in general at least 50% high canopy cover, tall vegetation and other semi-natural habitats are maintained on the riverbanks and in adjacent areas, and that they are properly managed to support the SAC features. This may be achieved, for example, through managing grazing levels, selective coppicing of riparian trees and restoring adjacent wetlands. In the urban sections the focus may be on maintaining the river as a communication corridor but this will still require that sufficient riparian habitat is present and managed to enable the river corridor to function effectively. **Habitat connectivity** is an important property of river ecosystem structure and function. Many of the fish that spawn in the river are migratory, depending on the maintenance of suitable conditions on their migration routes to allow the adults to reach available spawning habitat and juvenile fish to migrate downstream. For resident species, dispersal to new areas, or the prevention of dispersal causing isolated populations to become genetically distinct, may be important factors. Naturally isolated feature populations that are identified as having important genetic distinctiveness should be maintained. Artificial obstructions including weirs and bridge sills can reduce connectivity for some species. In addition, reaches subject to depleted flow levels, pollution, or disturbance due to noise, vibration or light, can all inhibit the movement of sensitive species. The dispersal of semi-terrestrial species, such as the otter, can be adversely affected by structures such as bridges under certain flow conditions; therefore, these must be designed to allow safe passage. The continuity of riparian habitats enables a wide range of terrestrial species, for example lesser horseshoe bats, to migrate and disperse through the landscape. Connectivity should be maintained or restored where necessary as a means to ensure access for the features to sufficient habitat within the SAC. **External factors**, operating outside the SAC, may also be influential, particularly for the migratory fish and otters. For example, salmon may be affected by barriers to migration in the Severn Estuary, inshore fishing and environmental conditions prevailing in their north Atlantic feeding grounds. Otters may be affected by developments that affect resting and breeding sites outside the SAC boundary.
Qualifying Features	**Annex II species that are a primary reason for selection of this site:** o *Sea lamprey (Petromyzon marinus)*

	○ *Brook lamprey (Lampetra planeri)* ○ *River Lamprey (Lampetra fluviatilis)* ○ *Twaite shad (Alosa fallax)* ○ *Atlantic salmon (Salmo salar)* ○ *Bullhead (Cottus gobio)* ○ *European otter (Lutra lutra)* **Annex I habitats and Annex II species present as qualifying features, but not primary reasons for site Selection** ○ *Allis shad (Alosa alosa)* ○ *Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation*
Conservation Objectives	**Vision for the site:** Our vision for the River Usk SAC is to maintain, or where necessary restore the river to high ecological status, including its largely unmodified and undisturbed physical character, so that all of its special features are able to sustain themselves in the long-term as part of a naturally functioning ecosystem. Allowing the natural processes of erosion and deposition to operate without undue interference and maintaining or restoring connectivity maintains the physical river habitat, which forms the foundation for this ecosystem. The quality and quantity of water, including natural flow variability, and the quality of adjacent habitats, are maintained or restored to a level necessary to maintain the features in favourable condition for the foreseeable future. In places such as urban environments where natural processes are likely to cause significant damage to the public interest, artificial control measures are likely to be required. The aquatic plant communities that characterise parts of the river are not only attractive but also give a good indication of the overall quality of the environment. They contain the variety and abundance of species expected for this type of river, in conditions of suitably clean water and bed substrate combined with a relatively stable flow regime. Locally, there are patches of white-flowered water-crowfoots. In the more shaded reaches, aquatic plants may be scarce, consisting mainly of mosses and liverworts. The special fish species found in the river, both residents such as the bullhead and brook lamprey, and migratory species such as the Atlantic salmon, sea lamprey and shad, which swim up river to spawn and go through their juvenile stages in the river, are present in numbers that reflect a healthy and sustainable population supported by well-distributed good quality habitat. The migratory fish are able to complete their migrations and life cycles largely unhindered by artificial

	barriers such as weirs, pollution, or depleted flows. The abundance of prey and widespread availability of undisturbed resting and breeding sites, allows a large otter population to thrive. They are found along the entire length of the river and its main tributaries. The presence of the River Usk SAC and its special wildlife enhances the economic and social values of the area, by providing a high quality environment for ecotourism, outdoor activities and peaceful enjoyment by local people and visitors. The river catchment's functions of controlling flooding and supplying clean water are recognised and promoted through appropriate land management. The river is a focus for education to promote increased understanding of its biodiversity and the essential life support functions of its ecosystems. The ecological status of the water course is a major determinant of FCS for all features. The required conservation objective for the water course is defined below. <u>Conservation Objective for the water course</u> ▪ The capacity of the habitats in the SAC to support each feature at near-natural population levels, as determined by predominantly unmodified ecological and hydromorphological processes and characteristics, should be maintained as far as possible, or restored where necessary. ▪ The ecological status of the water environment should be sufficient to maintain a stable or increasing population of each feature. This will include elements of water quantity and quality, physical habitat and community composition and structure. It is anticipated that these limits will concur with the relevant standards used by the Review of Consents process given in Annexes 1-3. ▪ Flow regime, water quality and physical habitat should be maintained in, or restored as far as possible to, a near-natural state, in order to support the coherence of ecosystem structure and function across the whole area of the SAC. ▪ All known breeding, spawning and nursery sites of species features should be maintained as suitable habitat as far as possible, except where natural processes cause them to change. ▪ Flows, water quality, substrate quality and quantity at fish spawning sites and nursery areas will not be depleted by abstraction, discharges, engineering or gravel extraction activities or other impacts to the extent that these sites are damaged or destroyed. ▪ The river planform and profile should be predominantly unmodified. Physical modifications having an adverse effect on the integrity of the SAC, including, but not limited to, revetments on active alluvial river banks using stone, concrete or waste materials, unsustainable extraction of gravel, addition or release of excessive quantities

	of fine sediment, will be avoided. ▪ River habitat SSSI features should be in favourable condition. In the case of the Usk Tributaries SSSI, the SAC habitat is not underpinned by a river habitat SSSI feature. In this case, the target is to maintain the characteristic physical features of the river channel, banks and riparian zone. ▪ Artificial factors impacting on the capability of each species feature to occupy the full extent of its natural range should be modified where necessary to allow passage, e.g. weirs, bridge sills, acoustic barriers. ▪ Natural factors such as waterfalls, which may limit the natural range of a species feature or dispersal between naturally isolated populations, should not be modified. ▪ Flows during the normal migration periods of each migratory fish species feature will not be depleted by abstraction to the extent that passage upstream to spawning sites is hindered. ▪ Flow objectives for assessment points in the Usk Catchment Abstraction Management Strategy will be agreed between EA and CCW as necessary. It is anticipated that these limits will concur with the standards used by the Review of Consents process given in Annex 1 of this document. ▪ Levels of nutrients, in particular phosphate, will be agreed between EA and CCW for each Water Framework Directive water body in the Usk SAC, and measures taken to maintain nutrients below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process given in Annex 2 of this document. ▪ Levels of water quality parameters that are known to affect the distribution and abundance of SAC features will be agreed between EA and CCW for each Water Framework Directive water body in the Usk SAC, and measures taken to maintain pollution below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process given in Annex 3 of this document. ▪ Potential sources of pollution not addressed in the Review of Consents, such as contaminated land, will be considered in assessing plans and projects. ▪ Levels of suspended solids will be agreed between EA and CCW for each Water Framework Directive water body in the Usk SAC. Measures including, but not limited to, the control of suspended sediment generated by agriculture, forestry and engineering works, will be taken to maintain suspended solids below these levels.
Component SSSIs	The plan area has been divided into 10 management units to enable practical communication about features, objectives, and management. This will also allow us to differentiate between the different designations where necessary. In this plan the management units have been based on the following: ▪ SSSI boundaries ▪ Artificial barriers, where they significantly affect one or more of the features' range

	▪ Major impacts, in particular major water abstractions ▪ Natural hydromorphology, where there are significant differences in management issues/key features between reaches ▪ Estuaries: the reach below the tidal limit is treated as a separate unit ▪ The units include one or more of EA's River Basin Management Plan water bodies; as far as is practicable, unit boundaries coincide with these water body boundaries.
Key Environmental Conditions (factors that maintain site integrity)	**Annex II species that are a primary reason for selection of this site:** o *Sea lamprey (Petromyzon marinus)* The impacts of barriers to migration and flow depletion are highlighted in the assessment of conservation status for this feature. The impact of barriers should be assessed on a case-by-case basis. <u>Reduce barriers</u> Physical modification of barriers is required where depth/velocity/duration of flows is unsuitable to allow passage. Crickhowell Bridge is considered to be the most significant barrier to fish migration in the Usk. Management to reduce or remove the effect of this barrier is a high priority for the River Usk SAC. An assessment of options will be carried out in conjunction with the other relevant competent authorities. The impact of acoustic (i.e. noise/vibration) and sediment/chemical barriers arising from plans or projects should also be assessed. When arising from construction or other development related activities it may be necessary to restrict the timing of such activities. <u>Targets to reduce the impact of flow depletion</u> The impact of flow depletion resulting from a small number of major abstractions was highlighted in the Review of Consents process. As a result of this process, flow targets have been set which are considered likely to significantly reduce or remove the impacts on SAC features. These targets are expressed as, 1) a flow duration curve using recent daily mean flow data, used to set abstraction licence conditions including 'hands-off flows', 2) hourly maximum abstraction rates for certain licences to reduce or remove the effect of diurnal flow variations. There are also requirements for screening of intakes to reduce or remove the impact of impingement and entrainment on juvenile fish migrating downstream.

	Effect of water entrainment Entrainment in water abstractions directly impacts on population dynamics through reduced recruitment and survival rates. Information on likely rates of entrainment of lamprey ammocoetes is required before acceptable levels can be assessed. The extent and quality of suitable sea lamprey habitat must be maintained. Elevated levels of fines (particles <0.83mm) within spawning substrates can interfere with egg survival. Spawning habitat consists of well-oxygenated gravel/pebble substrate of >10cm depth in a range of water depths (0.2 to 1.5m). Sea and river lamprey tend to spawn in deeper water than brook lamprey. Nursery habitat consists of open-structured, aerated, silty and sandy substrates between 2 and 40cm depth generally in shallow (<0.5m) slack-water channel margins. **Annex II species that are a primary reason for selection of this site:** o *Brook lamprey (Lampetra planeri)* o *River Lamprey (Lampetra fluviatilis)* Habitat management The extent and quality of suitable habitat for brook and river lamprey must be maintained. Elevated levels of fines (particles <0.83mm) within spawning substrates can interfere with egg survival. Spawning habitat consists of well-oxygenated gravel/pebble substrate of >10cm depth in a range of water depths (0.2 to 1.5m). Sea and river lamprey tend to spawn in deeper water than brook lamprey. Nursery habitat consists of open-structured, aerated, silty and sandy substrates between 2 and 40cm depth generally in shallow (<0.5m) slack-water channel margins. Effect of water entrainment Entrainment in water abstractions directly impacts on population dynamics through reduced recruitment and survival rates. Information on likely rates of entrainment of lamprey ammocoetes is required before acceptable levels can be assessed.

	The currently favourable condition assessment suggests that there are no strongly adverse factors influencing these species. However, the species are likely to benefit from positive management for the other SAC features, and may see further improvement in condition as a result. On-going monitoring will allow a better understanding of population fluctuations, distributional changes etc. **Annex II species that are a primary reason for selection of this site:** o *Twaite shad (Alosa fallax)* The impacts of barriers to migration and flow depletion are highlighted in the assessment of conservation status for these features. Any new provisions need to take their requirements into account. The impact of existing barriers in the Usk should be assessed on a case-by case basis. <u>Reduce barriers</u> Physical modification of barriers is required where depth/velocity/duration of flows is unsuitable to allow passage. Crickhowell Bridge is considered to be the most significant barrier to fish migration in the Usk. Management to reduce or remove the effect of this barrier is a high priority for the River Usk SAC. Other barriers that may be significant include Trostrey Weir and Radyr Weir. An assessment of options will be carried out in conjunction with the other relevant competent authorities. <u>Targets to reduce the impact of flow depletion</u> The impact of flow depletion resulting from a small number of major abstractions was highlighted in the Review of Consents process. As a result of this process, flow targets have been set which are considered likely to significantly reduce or remove the impacts on SAC features. These targets (given in Annex 1) are expressed as, 1) a flow duration curve using recent daily mean flow data, which is used to set abstraction licence conditions including 'hands-off flows', 2) hourly maximum abstraction rates for certain licences to reduce or remove the effect of diurnal flow variations. There are also requirements for screening of intakes to reduce or remove the impact of impingement and entrainment on juvenile shad drifting downstream and post-spawning adult shad. The extent and quality of suitable shad habitat must be maintained. Spawning habitat is defined as stable, clean gravel/pebble-dominated (approximately 70%) substrate without an armoured layer and with <10% fines in the top 30

cm. Water depth during the spawning and incubation periods should be 50-75 cm. Holding areas are defined as pools of at least 200 cm depth, with cover from features such as undercut banks, vegetation, submerged objects and surface turbulence.

Sustainable Fishing

Anglers occasionally fish for shad, and they are sometimes taken in quite large numbers. Further research is necessary to define sustainable levels of angling. If this shows there is cause for concern, a temporary cessation of fishing activity in the vicinity of known spawning grounds during the spawning period should be considered, particularly where shad are known to be taken regularly. Exploitation of shad is currently unregulated and controls are being considered through the review of freshwater fisheries legislation. Commercial fishermen also take shad as a by-catch, with whitebait and shrimp fishing being of particular concern. Changes in fishing methods need to be promoted to minimize captures, whilst both anglers and trawler men should be encouraged to return alive any individuals caught.

Annex II species that are a primary reason for selection of this site:

- *Atlantic salmon (Salmo salar)*

The Atlantic salmon is the focus for much of the management activity carried out on the Usk. The relatively demanding water quality and spawning substrate quality requirements of this feature mean that reduction in diffuse pollution and siltation impacts is a high priority. Measures to address these problems include the establishment of buffer zones on reaches adjacent to intensively managed livestock grazing or arable land. Tree management, especially coppicing and pollarding to increase light levels to the channel, is also often carried out. The Wye and Usk Foundation through their Usk Project have carried out much of this work in recent years. Other work has included removal of weirs and construction of fish passes to ease artificial barriers to salmon migration, and reduction in exploitation pressure through buying out net fisheries in the estuary.
Elevated levels of fines (particles <0.83mm) within spawning substrates can interfere with egg and fry survival. Clean substrate free from excessive siltation should predominate at suitable spawning sites.

Spawning habitat is defined as stable coarse substrate without an armoured layer, in the pebble to cobble size range (16-256 mm) but with the majority being <150 mm. Water depth during the spawning and incubation periods should be 15-75 cm. Fry habitat is indicated by water of <20 cm deep and a gravel/pebble/cobble substrate. Parr habitat is indicated by water 20-40 cm deep and similar substrate. Holding areas are defined as pools of at least 1.5 m depth, with cover from features such as undercut banks, vegetation, submerged objects and surface turbulence. Coarse woody

	debris should not be removed from rivers as it plays a significant role in the formation of new gravel beds, and provides cover for fish and a source of food for invertebrates. Prevent further pollution and soil erosion In the Usk catchment, the most significant sources of diffuse pollution and siltation are from agriculture, including fertiliser run-off, livestock manure, silage effluent and soil erosion from ploughed land. The most intensively used areas such as heavily trampled gateways and tracks can be especially significant sources of polluting run-off. Preventative measures can include surfacing of tracks and gateways, moving feeding areas, and separating clean and dirty water in farmyards. Farm operations should avoid ploughing land which is vulnerable to soil erosion or leaving such areas without crop cover during the winter. Among toxic pollutants, sheep dip and silage effluent present a particular threat to aquatic animals in this predominantly rural area. Contamination by synthetic pyrethroid sheep dips, which are extremely toxic to aquatic invertebrates, has a devastating impact on crayfish populations and can deprive fish populations of food over large stretches of river. These impacts can arise if recently dipped sheep are allowed access to a stream or hard standing area, which drains into a watercourse. Pollution from organophosphate sheep dips and silage effluent can be very damaging locally. Pollution from slurry and other agricultural and industrial chemicals, including fuels, can kill all forms of aquatic life. All sheep dips and silage, fuel and chemical storage areas should be sited away from watercourses or bunded to contain leakage. Recently dipped sheep should be kept off stream banks. Used dip should be disposed of strictly in accordance with Environment Agency Regulations and guidelines. Statutory and voluntary agencies should work closely with landowners and occupiers to minimise the risk of any pollution incidents and enforce existing regulations. Measures to control diffuse pollution in the water environment, including 'Catchment Sensitive Farming', may be implemented as a result of the Water Framework Directive and, along with existing agri-environment schemes, will help to achieve the conservation objectives for the SAC. Discharges from sewage treatment works, urban drainage, engineering works such as road improvement schemes, contaminated land, and other domestic and industrial sources can also be significant causes of pollution, and must be managed appropriately. Current consents for discharges entering or likely to impact upon the site should be monitored, reviewed and altered if necessary. Habitat management

	Overhanging trees provide valuable shade and food sources, whilst tree root systems provide important cover and flow refuges for juveniles. At least 50% high canopy cover to the water course/banks should be maintained, where appropriate. Some reaches may naturally have lower tree cover. Cover may also be lower in urban reaches. Reduce barriers In all river types, artificial barriers should be made passable. The impact of existing barriers in the Usk should be assessed on a case-by-case basis. Physical modification of barriers is required where depth/velocity/duration of flows is unsuitable to allow passage. Complete or partial natural barriers to potentially suitable spawning areas should not be modified or circumvented. Reduce/Restrict Salmon Stocking There is currently no stocking of salmon into the Usk. The management objectives for SAC salmon populations are to attain naturally self-sustaining populations. Salmon stocking should not be routinely used as a management measure. Salmon stocking represents a loss of naturalness and, if successful, obscures the underlying causes of poor performance (potentially allowing these risks to perpetuate). It carries various ecological risks, including the loss of natural spawning from broodstock, competition between stocked and naturally produced individuals, disease introduction and genetic alterations to the population. Therefore, there is a presumption against salmon stocking in the Usk SAC. Controlling Competition The presence of artificially high densities of other fish can create unacceptably high levels of predatory and competitive pressure on juvenile salmon and the aim should be to minimise these risks in considering any proposals for stocking. Escapes from fish farms are a form of uncontrolled introduction and should be prevented by effective screening on all intakes and discharges. Controls on exploitation should include migratory passage to the SAC within territorial waters, including estuarine and coastal net fisheries, as well as exploitation within the SAC from rod fisheries. Net Limitation Orders are used to control the estuarine fishery. Exploitation of salmon by rod fisheries is regulated by EA licensing and byelaws controlling the fishing season and allowable methods. Entrainment in water abstractions directly impacts on population dynamics through reduced recruitment and survival

	rates. Intake screens must meet statutory requirements under the Salmon & Freshwater Fisheries Act. **Annex II species that are a primary reason for selection of this site:** o *Bullhead (Cottus gobio)* Vertical drops of >18-20 cm are sufficient to prevent upstream movement of adult bullheads. They will therefore prevent re-colonisation of upper reaches affected by lethal pollution episodes, and will also lead to constraints on genetic interactions that may have adverse consequences. New instream structures should be avoided, whilst the impact of existing artificial structures needs to be evaluated. <u>Provide suitable habitats</u> The extent and quality of suitable bullhead habitat must be maintained. Elevated levels of fines can interfere with egg and fry survival. Spawning habitat is defined as unsilted coarse (gravel/pebble/cobble) dominated substrate: males guard sticky eggs on the underside of stones. Larger stones on a hard substrate providing clear spaces between the stream bed and the underside of pebbles/cobbles are therefore important. The importance of submerged higher plants to bullhead survival is unclear, but it is likely that where such vegetation occurs it is used by the species for cover against predators. Weed cutting should be limited to no more than half of the channel width in a pattern of cutting creating a mosaic of bare substrate and beds of submerged plants. Slack-water areas provide important refuges against high flow conditions. Suitable refuges include pools, submerged tree root systems and marginal vegetation with >5 cm water depth. Bullheads are particularly associated with woody debris in lowland reaches, where it is likely that it provides an alternative source of cover from predators and floods. It may also be used as an alternative spawning substrate. Debris dams and woody debris should be retained where characteristic of the river/reach. Woody debris removal should be minimised, and restricted to essential activities such as flood defence. Maintenance of intermittent tree cover in conjunction with retention of woody debris helps to ensure that habitat conditions are suitable. At least 50% high canopy cover to the water course/banks should be maintained, where appropriate. Some reaches may naturally have lower tree cover. Cover may also be lower in urban reaches. <u>Control fish numbers and introduction</u>

	Bullheads are relatively sedentary and interactions between populations in different parts of the catchment and in different catchments are likely to be limited, suggesting the existence of genetically discrete populations. Since they are of no angling interest, deliberate transfers between sites are unlikely to have been undertaken in the past, such that the genetic integrity of populations is likely to be intact. There should be no stocking/transfers of bullhead unless agreed to be in the best interests of the population. In general, management for other SAC features is expected to result in favourable habitat for bullhead, through improvements in water quality and flow regime and maintenance of suitable physical habitat. **Annex II species that are a primary reason for selection of this site:** o *European otter (Lutra lutra)* The catchment should be capable of supporting at least 18 breeding females, based on one breeding female per 20km stretch of river. It is possible that if all the breeding sites achieve optimal habitat conditions and fish and amphibian stocks are secured that the catchment may then support further breeding animals. However, the amount of compression of home ranges that otters will accept cannot as yet be determined. <u>Provide suitable habitats</u> Management should aim to ensure that there is sufficient undisturbed breeding habitat to support an otter population of a size determined by natural prey availability and associated territorial behaviour. Food availability is an important factor. Fish biomass should stay within expected natural fluctuations. The involvement of river users and land managers will be important in improving potential breeding habitat near to the river. Agri-environment schemes and the Better Woodlands for Wales's scheme provide possible mechanisms for maintaining suitable sites, such as lightly grazed woodlands, areas of dense scrub, and tussocky fens with purple moor-grass. <u>Measures to Increase Safety</u> Measures to ensure the safe movement of otters around the catchment will be promoted, in particular the provision of ledges, tunnels and fencing on new road bridge schemes. Where bridges are being repaired or replaced, or at especially bad locations for otter road deaths, such features may be retrofitted.

	Certain areas of the SAC are critical to the movement of otters both within the system and to adjacent sites. The Usk SAC provides a key movement corridor for otters passing between the relatively high densities in mid Wales and the south-east Wales coastal strip (Seven Estuary and Gwent Levels). The function of this aspect of the site should be protected through the maintenance of suitable resting sites (in terms of size, quality and levels of disturbance) through the major urban centre of Newport.
SAC Condition Assessment	*Sea lamprey (Petromyzon marinus): Unfavourable:* ***Unclassified.*** *Brook lamprey (Lampetra planeri) and River Lamprey (Lampetra fluviatilis)* ***Favourable.*** *Twaite shad (Alosa fallax)* ***Unfavourable: Unclassified.*** *Atlantic salmon (Salmo salar)* ***Unfavourable: Unclassified.*** *Bullhead (Cottus gobio):* ***Unfavourable: Unclassified.*** *European otter (Lutra lutra)* ***Favourable****.*
Vulnerabilities (includes existing pressures and trends)	The River Usk is an excellent habitat for six Annex II freshwater fish. There are some concerns over longterm aquatic and riparian habitat degradation but these are being addressed in the Usk Catchment Management Plan, the Conservation Strategy, the River SSSI Management Plan, and by the Countryside Council for Wales and environment Agency encouraging owners and occupiers to carry out positive habitat management through agreements and agri-environment schemes. <u>Barriers restricting migration</u> There are few barriers to migration for the anadromous species and where barriers exist which restrict migration for some of the SAC species. Artificial physical barriers are probably the single most important factor in the decline of shad in Europe. Impassable obstacles between suitable spawning areas and the sea can eliminate breeding populations of shad. Both species (but particularly allis shad) can make migrations of hundreds of kilometres from the estuary to spawning grounds in the absence of artificial barriers. Existing fish passes designed for salmon are often not effective for shad.

	Pollution In the Usk catchment, the most significant sources of diffuse pollution and siltation are from agriculture, including fertiliser run-off, livestock manure, silage effluent and soil erosion from ploughed land. Discharges from sewage treatment works, urban drainage, engineering works such as road improvement schemes, contaminated land, and other domestic and industrial sources can also be significant causes of pollution, and must be managed appropriately. Pollution of rivers with toxic chemicals, such as PCBs, was one of the major factors identified in the widespread decline of otters during the last century. There should be no increase in pollutants potentially toxic to otters. Recreation and Leisure Exploitation of shad is currently unregulated and controls are being considered through the review of freshwater fisheries legislation. Commercial fishermen also take shad as a by-catch, with whitebait and shrimp fishing being of particular concern. Non-native species Bullhead densities have been found to be negatively correlated with densities of non-native crayfish, suggesting competitive and/or predator-prey interactions. Non-native crayfish should be absent from the SAC. The presence of artificially high densities of salmonids and other fish will create unacceptably high levels of predatory and competitive pressure on juvenile and adult bullhead. Stocking of fish should be avoided in the SAC. Escapes from fish farms are a form of uncontrolled introduction and should be prevented by effective screening on all intakes and discharges. Competition Artificially enhanced densities of other fish may introduce unacceptable competition or predation pressure and the aim should be to minimise these risks in considering any proposals for stocking.

	Contamination and Development Development pressure in the lower catchment can cause temporary physical, acoustic, chemical and sediment barrier effects that need to be addressed in the assessment of specific plans and projects. Noise/vibration e.g. due to impact piling, drilling, salmon fish counters present within or in close proximity to the river can create a barrier to shad migration. Land on both sides of the river in Newport is potentially highly contaminated. Contamination of the river can arise when this is disturbed e.g. as a result of development. Contamination can also arise from pollution events (which could be shipping or industry related). Decline in species A potential problem appears to be the decline in eel populations, and similar concerns are apparent with respect to amphibian numbers.
Landowner/ Management Responsibility	Lower Usk ▪ Twaite shad and sea lamprey spawn within Units 2 & 3 and migrate through Unit 1, where they may be subject to disturbance impacts, so are selected as key features in all units. ▪ Management for twaite shad and sea lamprey should also be sympathetic for Atlantic salmon, river/brook lamprey (spawning habitat) and bullhead. ▪ Specific management measures for otter relating to adjacent habitats and disturbance require its selection as a key feature in all units. ▪ The feature 'Rivers with floating vegetation often dominated by water-crowfoot' occurs in Units 2 & 3 in this SSSI and is selected as a key habitat. ▪ The status of allis shad is uncertain in River Usk (Lower Usk) SSSI. It is assumed to be present in the same units as twaite shad. Upper Usk ▪ Atlantic salmon is a key feature in Unit 6 due to the presence of spawning sites, although salmon may occasionally also spawn within Units 4 & 5. ▪ Twaite shad is recorded only infrequently in Unit 5 as their distribution is constrained by the barrier created by Crickhowell Bridge footings. ▪ Sea lamprey is recorded more frequently than shad within Unit 5 but may also be affected to an extent by

	Crickhowell Bridge. The natural range of sea lamprey may extend upstream into Unit 6; however the degree to which their distribution may be constrained by Brecon weir is poorly understood. Sea lamprey is assumed to be generally absent from Unit 6 due to natural range limits. ▪ Management for Atlantic salmon, twaite shad and sea lamprey is expected to be sympathetic for river/brook lamprey (spawning habitat) and bullhead. ▪ Specific management measures for otter relating to adjacent habitats and disturbance require its selection as a key feature in all units. ▪ The status of the features Allis shad and 'Rivers with floating vegetation often dominated by water-crowfoot' is uncertain in River Usk (Upper Usk) SSSI. Allis shad is assumed to be present in the same units as twaite shad. <u>Tributaries</u> ▪ Atlantic salmon spawns in all tributaries within this SSSI and so is selected as a key feature in all units. ▪ Twaite shad, allis shad and sea lamprey are thought not to occur within this SSSI. ▪ River/brook lamprey are selected as key features within Units 9 & 10, which are thought to contain a higher proportion of suitable ammocoete habitat compared to other units so are expected to hold important populations of these features. Monitoring confirms this to an extent. ▪ Unit 10 is the only unit within this SSSI known to contain the feature 'Rivers with floating vegetation often dominated by water-crowfoot'. The good stands of water-crowfoot dominated vegetation justify its selection as a key feature in this unit.
HRA/AA Studies undertaken that address this site	HRA Screening of the Brecon Beacons National park Local Development Plan (2007-2022) May 2009 http://www.breconbeacons.org/the-authority/planning/strategy-and-policy/npmp/hra-annexs/hra-main-document-2009/attachment_download/file HRA Screening of Monmouthshire's Local Development Plan (2011-2026) Deposit, June 2011 http://www.planningpolicy.monmouthshire.gov.uk/download/downloads/id/552/habitats_regulations_assessment_report

Site Name: Usk Bat Sites ***Location Grid Ref: SO190145*** ***JNCC Site Code: UK0014784*** ***Size: 1868.4 ha*** ***Designation: SAC***	***Habitats Regulations Assessment: Data Proforma***
Site Description	The site encompasses a series of lesser horseshoe bat roosts, upland habitats, woodlands and cave systems located around the valley of the River Usk near to Abergavenny. Mynydd Llangatwg is an area of open moorland and bog, with an impressive limestone escarpment along the northeastern edge, and is one of the largest exposures of upland limestone crag in south Wales. The Craig y Cilau National Nature Reserve (NNR) covers a large proportion of this escarpment area, including most of the unquarried scarp, with areas of limestone grassland, scree and quarry spoil, woodland and scrub. A small raised bog (Waun Ddu) bordered by two small streams has developed below the escarpment. An extensive system of caves lies beneath Mynydd Llangatwg and the plateau is peppered with sinkholes. The main reason for the presence of the NNR is to help control and manage access to the cave system to protect the bat roosts and the underground geology and also the surface habitats, which support an outstanding assemblage of plants. Species include large and small-leaved lime, several species of whitebeam (including least whitebeam *(Sorbus minima)* which is unique to this area of Brecknock), limestone fern, endemic hawkweeds and alpine enchanter's-nightshade. The chasmophytic vegetation encompasses the various crevices, nooks and crannies on the cliffs, boulders and partially vegetated unstable slopes of the limestone escarpment. It supports a typical range of ferns, bryophytes and calcareous lichens; these include ferns such as maidenhair spleenwort, mosses like (Tortella tortuosa), and liverworts like Scapania aspera. This site is known to support a number of notable lichen species and provides some of the best examples in the area of calcicolous lichen communities, which include the jelly lichen *(Collema cristatum)* and examples of lichen communities like the *(Leproplacetum chrysodetae)* and *(Aspicilion calcarea)*. Patches of Tileo-Acerion forest are also scattered along the length of the cliffs on Mynydd Llangatwg and

	intermixed with beechwood in the Clydach gorge. These areas also support a number of rare whitebeams *(Sorbus spp.)*.
Qualifying Features	**Annex II species present as a primary reason for site selection:** Lesser Horseshoe Bat (Rhinolophus hipposideros) **Annex I habitats that present but that are not a primary reason for selection of this site:** o *Blanket Bog* o *Tilio-Acerion forests of slopes, screes and ravines* o *Calcareous rocky slopes with chasmophytic vegetation* o *Caves not open to the public* o *Degraded raised bogs still capable of natural regeneration* o *European dry heaths*
Conservation Objectives	**Vision for the site:** Mynydd Llangatwg SSSI The cave system provides a winter hibernation site for large numbers of lesser horseshoe bats and other bat species, including Brandt's, whiskered, Daubenton's, Natterer's, brown longeared and, occasionally, greater horseshoe bats. Numbers of roosting bats, particularly lesser horseshoes, are stable or increasing in the system as a whole. The special underground features are accessible to allow study of the cave system and its many structures of interest, with both scientific and recreational use and cave exploration managed to safeguard the important sediments and cave features, and to prevent harmful disturbance of hibernating bats and other cave life. There are large funnel-shaped depressions (shake-holes) on the moorland plateau, caused by the collapse of caverns in the limestone below and some of these form swallow-holes allowing surface water to descend underground to feed into the cave system. Some of these are naturally blocked and form peaty pools and bog-filled hollows. Cave-related surface features are protected from physical disturbance or infilling. In places there are

	crags, pavements and large boulder fields of the acidic quartz-sandstones. A mixture of blanket bog, wet heath and dry heath habitats cover most of the upland plateau. Most of the bog and heathland is dominated by small shrubs like heather, bilberry, crossleaved heath and crowberry, which flower freely. Wetter areas have a carpet of bog-mosses, where bog rosemary, a plant more typical of northern Britain, is found. Round-fruited collarmoss is locally abundant on cattle and sheep dung, which decays slowly in the damp acidic, peaty conditions. In early summer the white 'cotton tufts' of hare's-tail cottongrass are prominent in boggy areas, although it is never overwhelmingly dominant. The red and golden yellow hues of common cottongrass and deer-grass leave mark out areas of bog and wet heath in the autumn. The raised bog at Waun Ddu exhibits a well-marked peat dome and is actively growing and covered with an abundance of peat-forming bog mosses. There may be a scattering of taller rushes and purple moor-grass in the bog and wet heath areas, but their growth is not so thick as to smother other plants. The heathland areas have a varied age structure with a mosaic of young heath, mature heath and degenerate heath. Grasses may be present between the dwarf-shrub bushes or on open areas, but they do not make up more than a quarter of the sward in these areas. The bog, heathland and the associated rock and grassland areas form a valuable habitat mixture for nesting and feeding by upland birds including waders, red grouse and skylarks. The shaggy tops of the moorland, developed on the acid quartz-sandstone, contrast sharply with the short-grazed, sweet grasslands of sheep's-fescue and bent grasses around the limestone cliffs, where small sedges, the pink of flowers of thyme and variety of colourful grassland fungi are common. Plants indicating disturbance and nutrient enrichment, such as thistles, perennial ryegrass, white clover and creeping buttercup, and those indicating of under-grazing, such as coarse grasses, and tree and shrub seedlings and saplings, are not prominent in the grassland sward. Hawthorn and bramble scrub occurs in places and it provides valuable habitat for birds and insects but it is not encroaching onto the more open grassland. The cliffs and rock screes also support patches of open woodland and scrub. Ash is the main canopy tree but there is also small-leaved lime, with some scattered beech and large-leaved lime, with hawthorn and hazel scrub common in places. Several types of rare whitebeam trees thrive on the cliffs. The ungrazed cliffs also provide a refuge for rare hawkweeds. Regeneration of young trees is sporadic as much of the area is common grazing land. As well as living trees with

	holes, hollows and rotten branches, there are also dead and dying trees providing the essential balance between decay and new growth and creating vital habitat for other wildlife like birds, insects and fungi. The flora on the cliffs, screes and woodland floor sometimes appears sparse, consisting of mainly grasses, ferns, mosses and liverworts, but it includes uncommon plants like mountain melick, alpine enchanter's-nightshade, angular Solomon's-seal and rare hawkweeds. The scarce limestone fern grows abundantly through some of the limestone screes. Sparsely vegetated soil around the cliffs also supports a number of interesting plants that are adapted to summer drought conditions, including the scarce Hutchinsia. The limestone rocks themselves also have a well-developed lichen and moss flora, including many scarce and rare species. Vigorous plants, such as nettles, bramble and ivy, are nowhere dominant within the woodland and the rock faces, crevices and scattered boulders are free from disturbance. Wooded habitat is readily accessible to foraging bats, particularly the more flight-line dependant lesser horseshoe, with roost sites being connected to scrub and woodland via strong interconnecting linear habitat features such as hedges and wooded streams. For each habitat or species of particular interest, the area or population is stable or increasing and its quality is maintained. The factors that may affect these habitats and species are all under control. <u>Siambre Ddu SSSI</u> The cave is maintained in a near natural state, which benefits both wildlife and geological interests. The peak winter counts in Siambre Ddu cave is 50 or more, lesser horseshoe bats and when combined with concurrent counts at other caves in the vicinity, this indicates a stable or rising population trend. Scientific, recreational use and cave exploration are managed to safeguard the important cave features and to prevent harmful disturbance of hibernating bats and other cave life. Scattered scrub provides bat feeding habitat within the site and also a connection, or flight-line along which the bats can navigate, between the roost and foraging habitat outside the SSSI. <u>Buckland Coach House & Ice House SSSI</u> <u>The coach house is home to a breeding population of at least 400 adult lesser horseshoe bats.</u>

	The Ice house provides a winter hibernation site, with 300 or more, lesser horseshoes using it in most years, although many of these bats may relocate to other associated winter roosts during particularly cold weather. The Ice house also continues to serve as a day time roost and a night time roost by smaller numbers of bats at other times of the year. Numbers of roosting bats should be stable or increasing in both buildings. Both the coach house and Ice house are maintained in a suitable condition for use by the bats. They are in good repair and the roosting spaces are undisturbed. The correct temperatures and humidity are maintained in both roosting areas. The bats have unhindered access to both structures, with uninterrupted scrubby or wooded flight corridors between the roost entrances and away to foraging areas at Buckland Plantation and elsewhere. All other factors (see issues below) that affect the species are under control. <u>Foxwood SSSI</u> The fissures/cavities within the site provide undisturbed day and night-time roosts throughout the year for the lesser horseshoe population. The peak winter count is around 140 or more and indicates a stable or rising population trend. The surrounding woodland is continuous and composed of mixed species native to the site and provides good undisturbed foraging opportunities with flight routes out to other roosts and foraging areas. **Annex II species present as a primary reason for site selection:** o *Lesser Horseshoe Bat (Rhinolophus hipposideros)* The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The site will support a sustainable population of lesser horseshoe bats in the River Usk area. ▪ The population will viable in the long term, acknowledging the population fluctuations of the species. ▪ Buildings, structures and habitats on the site will be in optimal condition to support the populations. ▪ Sufficient foraging habitat is available, in which factors such as disturbance, interruption to flight lines, and mortality from predation or vehicle collision, changes in habitat management that would reduce the available food source are not at levels which could cause any decline in population size or range. ▪ Management of the surrounding habitats is of the appropriate type and sufficiently secure to ensure there is likely to be neither reduction in population size or range, nor any decline in the extent or quality of breeding, foraging or hibernating habitat.

	▪ There will be no loss or decline in quality of linear features (such as hedgerows and tree lines) which the bats use as flight lines - there will be no loss of foraging habitat use by the bats or decline in its quality, such as due to over-intensive woodland management. ▪ All factors affecting the achievement of the above conditions are under control. **Annex I habitats that present but that are not a primary reason for selection of this site:** o *Blanket Bog* The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The extent, quality and species richness of the blanket bog vegetation is maintained and, where possible, degraded bog is restored to good condition so that this habitat occupies its full potential range within the site. ▪ The bog vegetation is largely a mixture of dwarf shrubs, hare's-tail cottongrass and mosses, including bog-mosses. ▪ Extensive areas of purple moor-grass or hare's-tail cottongrass show signs of recovery towards a more mixed dwarf shrub sward. ▪ The natural hydrological regime is maintained and there is continued peat formation and thus carbon storage. ▪ Areas of bare peat are not extensive and most areas show signs of recovery. ▪ Peat profiles containing important pollen records are maintained. ▪ All factors affecting the achievement of the above conditions are under control. **Annex I habitats that present but that are not a primary reason for selection of this site:** o *Tilio-Acerion forests of slopes, screes and ravines* The vision for this feature is for it to be in favourable conservation status within the site, as a functioning and regenerating ash woodland, where all of the following conditions are satisfied: ▪ There are extensive patches of semi-natural woodland on the cliffs of the Llangatwg escarpment and

	hillsides in the Clydach gorge. ▪ The woodland canopy is dominated by locally native species, including lime ash *Fraxinus excelsior, Tilia* spp., pedunculate oak *Quercus robur*, hazel *Corylus avellana,* birch *Betula* spp., whitebeams *Sorbus* spp. and, in the Clydach gorge, beech *Fagus sylvatica*. Rare whitebeams are a significant component of the canopy. ▪ Saplings of locally native species dominate the tree regeneration and there is evidence of sufficient regeneration to maintain the canopy in the long term. ▪ There is an accumulation of standing and fallen deadwood as the woodland develops. ▪ The woodland ground flora is composed of a range of typical native plants including enchanters-nightshade *Circaea lutetiana,* dog's-mercury *Mercurialis perennis,* wood-sorrel *Oxalis acetosella,* hart's-tongue *Phyllitis scolopendrium* and wood sage *Teucrium scorodonia.* ▪ The populations of rare whitebeams are stable or increasing. ▪ Young sycamore *Acer pseudoplatanus* trees are rare, as are beech *Fagus sylvatica* in areas away from the Clydach gorge. ▪ Plants indicating disturbance and nutrient enrichment, such as nettles, cleavers and weeds, are not dominant in the ground flora of the woodland. ▪ All factors affecting the achievement of the above conditions are under control. **Annex I habitats that present but that are not a primary reason for selection of this site:** o *Calcareous rocky slopes with chasmophytic vegetation* The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ Sufficient vegetation within crevices remains free from disturbance to support typical plants, including mosses, ferns and rare hawkweeds (*Hieracium* spp.) and allow them to sustain their populations into the future. ▪ Areas accessible to grazing animals should free from being smothered by ivy or heavily shaded by trees. ▪ All factors affecting the achievement of the above conditions are under control. **Annex I habitats that present but that are not a primary reason for selection of this site:** o *Caves not open to the public*

	The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The cave system provides a winter hibernation site for large numbers of lesser horseshoe bats and other bat species, including Brandt's, whiskered, Daubenton's, Natterer's, brown long-eared and, occasionally, greater horseshoe bats. ▪ Numbers of roosting bats are stable or increasing in the system as a whole. ▪ All factors affecting the achievement of the above conditions are under control. **Annex I habitats that present but that are not a primary reason for selection of this site:** o *Degraded raised bogs still capable of natural regeneration* The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The extent, quality and diversity of raised bog vegetation is maintained and, where possible, restored to good condition, with active moss and peat growth across the raised bog surface. ▪ The vegetation consists of a mixture of dwarf shrubs, hare's-tail cottongrass, deergrass and bog mosses, grading at the edges into acid and alkaline flushes influenced by acidic water draining from the bog and springs rising in the limestone catchment. ▪ All factors affecting the achievement of the above conditions are under control. **Annex I habitats that present but that are not a primary reason for selection of this site:** o *European dry heaths* The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The extent, quality and diversity of heath vegetation within the constituent sites are maintained and, where possible, degraded heath is restored to good condition. ▪ The main heathland areas have a varied age structure with a mosaic of young heath, mature heath and degenerate heath.

	▪ All factors affecting the achievement of these conditions are under control.
Component SSSIs	The plan area has been divided into 21 management units to enable practical communication about features, objectives, and management. This will also allow us to differentiate between the different designations where necessary. In this plan the management units have been based on land tenure.
Key Environmental Conditions (factors that maintain site integrity)	**Annex II species present as a primary reason for site selection:** o *Lesser Horseshoe Bat (Rhinolophus hipposideros)* <u>Buildings or structures used by bats</u> The nursery roost sites need to be maintained in a suitable condition. This entails ensuring that bats have continued access to the buildings, and that the buildings themselves good repair, for example, by ensuring that the roofs are weather-proof. Alterations/neglect to the structure of the buildings could result in the site becoming unsuitable as a nursery roost by causing changes to the internal conditions of the roost. A vital element of the bats' behaviour involves extensive flight within a roost prior to emergence, which occurs shortly after dusk. Therefore the bats require fairly large open areas within the coach house roof and first floor voids to fly before they emerge. It is important that these areas are unobstructed and that the flying space (volume) is not significantly reduced. Areas used for pre-emergence flight should not be used for storage. There should be no likelihood of the icehouse at Buckland collapsing due to instability of material or damage from tree roots. Vegetation close to entrances should be maintained, but should not obstruct them. The grill on the icehouse should be maintained to control the risk of disturbance. Any Forestry or other work near the icehouse must be assessed to ensure there is no risk of damage to the Ice House. Usage by machinery of the track in the forestry above the Ice House should be discouraged. Lesser horseshoe bats prefer to enter roosts through holes large enough for unimpeded flight. It is important that bat access points into the roost sites remain open and unaltered. If access holes are too small or become blocked it could result in the abandonment of the site by the colony. Ideally access holes should be 30 cm high by 40-50 cm wide. Vegetation close to entrances should be maintained, but should not obstruct them.

	If any works are required to the maternity roosts, or Buckland icehouse, the methods and timing of works will need to minimise disturbance to the bats. January and February are likely to be the best months for such works at the coach house, whilst at the icehouse any essential repairs will be best carried out during the May to September period. At both roosts the exact method and timing will need to be assessed carefully based on the detail. In areas where bats roost the materials used, any treatments and any fumes created or residues left will need to be non-toxic to bats. Likewise operations outside the roost will also need to avoid the creation of fumes that may enter the roost areas or persist in areas that the bats use. <u>Cave structures used by bats</u> Lesser horseshoe bats prefer to enter roosts through holes large enough for unimpeded flight. It is important that bat access points into the roost sites remain open and of suitable size. Vegetation close to entrances should be maintained, but should not obstruct them. Any structures placed at cave entrances to prevent unauthorized access should not hinder the passage of bats. Cave management should involve and build on existing measures which are principally voluntary mechanisms implemented by cavers, such as marking through routes, use of agreed codes of practice and provision of information on key areas used by bats. Occasionally excavation may be required to maintain cave entrances and clear debris that has fallen in the caverns and passages. Any excavation or clearance work needs to be carefully controlled. Early July is likely to be the best time for any works are required to the cave itself, with a higher chance of no bats being resident in day time hours. Any materials or treatments used and any fumes created or residues left will need to be non-toxic to bats. Likewise operations outside the roost will also need to avoid the creation of fumes that may enter the roost areas or persist in areas that the bats use. Underground hibernation roosts should be dark, cool and humid with stable temperature (8 -120C) beyond the entrance zone. However, the boulder roof of the Foxwood cave is punctuated and internal temperatures are dependent on external temperatures, unlike the situation in many true caves. The consequence is that declining winter ambient temperature leads to a decline in roost temperature and in the colder winter months roost temperature falls below the required temperature range, triggering departures of bats to other unknown roosts. These may be within deeper unknown cave within the SSSI or elsewhere. By reducing the amount of airflow through the roof at Foxwood, it should be possible to increase temperature stability and winter temperatures. This is potentially of benefit to winter survival rates. As with any changes to the roost, works should only occur after careful consideration of the risks involved and with certainty of no adverse effect.

	Habitat management Connectivity of woodland, hedgerows, linear habitat and field boundary features should be maintained as lesser horseshoe bats tend to feed in wooded areas and use linear features to navigate their way between roosts and foraging habitat. Some management of woodlands and hedgerows and trees will be necessary to preserve these features in the landscape but such work should be carried out in a sensitive manner, particularly within the SAC itself, so as not to disrupt habitat continuity. The nursery roost areas require a range of temperatures, with a mean temperature of greater than 20 °C in July and trees nearby may need to be managed to avoid shade to the roofs of the of the buildings used, or because of a risk of falling on the roosts. Lesser horseshoe bats feed on flies (mainly midges), small moths, caddis flies, lacewings, beetles, small wasps and spiders. Suitable foraging habitat includes open broadleaved woodland, scrub, parkland, scrubby wetland and permanent pasture. Lesser horseshoe bats do not normally fly across open land and when foraging, remain close to wooded canopy. The insects they eat, though, may be derived from other unimproved insect rich habitat nearby. Management of foraging habitat should aim to maximise the amount of insect food as well as provide sufficient canopy cover to maximise opportunities for the bats to find their prey. **Annex I habitats that present but that are not a primary reason for selection of this site:** o *Blanket Bog* Grazing Grazing levels at present (2008) may permit a gradual recovery of the vegetation, if other negative factors can be brought under control. Drainage No new drainage ditches should be dug, and wherever possible old drainage ditches should be allowed to infill naturally. Sluices could also be considered on bog outlet channels that may be a causing drainage or erosion problems. There needs to be investigation of the possibility of blocking up at least some of the drains within the bog that feed into Pwll Gwy-rhoc. Burning

	Blanket bog should not normally be burnt, as burning is likely to damage important plant and animal species, especially bog mosses and invertebrates, and encourage the growth of rank species, like hare's-tail cottongrass; it can also result in erosion of the peat which can then cause water quality problems in cave system and adjacent reservoirs. Past unplanned or uncontrolled burning is likely to be at least partly responsible for the scarcity of bog-mosses in some areas. Air Pollution The impacts of air pollution on the vegetation need further investigation. If particularly damaging, point sources (or groups of point sources) can be identified, then emissions should be regulated to reduce the impacts. However, it will also be very important for wider measures to be taken, at Government and international levels, to reduce air pollution. Recreational activities Unauthorised vehicle use is a threat to the moorland areas. Bog vegetation is easily damaged and may take a long time to recover. Ground nesting birds may be disturbed during the breeding season. Owners and occupiers should co-operate with the police and other statutory bodies to undertake enforcement action where possible and discourage vehicle use by off-road vehicles. Although the common land within the site is subject to a right of public access on foot, such use does not appear to be so intensive as to cause habitat damage or significant disturbance to birdlife. However, the impact of this use needs to be monitored. Development The ground along the existing pipeline routes, which cross the Llangatwg hill, has been disturbed during the engineering phase. Some habitats naturally recover better than others, whilst some will require specific management to restore it to its natural state. If the vegetation along the existing pipeline routes does not naturally recover, restoration may be required to return the vegetation to its original character and quality. Generally, further pipeline construction or other engineering works affecting sensitive habitats within the site should be avoided. Any future engineering or pipeline works would need to show that the SAC features would not be

	adversely affected and if any licence was approved then there would be a requirement to restore the vegetation to its original character and quality. **Annex I habitats that present but that are not a primary reason for selection of this site:** o *Tilio-Acerion forests of slopes, screes and ravines* <u>Grazing</u> In the cliff and woodland areas any more than light grazing may prevent tree regeneration and damage the populations of rare and scarce plants that may be accessible to grazing stock. On the common (units 1 & 2), maintain grazing at or below the current (2007) levels. Un-grazed areas (unit 5, 12, 13) should remain un-grazed. <u>Woodland Management</u> Most of the woodland occupies cliffs and steeply sloping ground, such that active woodland management is not a practical or desirable option and many of the cliff ledges are not accessible to grazing stock. As far as possible, natural ecological processes will be allowed to operate. Dead wood should ideally be left where it falls and standing dead trees should be allowed to fall naturally. Movement and cutting/tidying of dead wood should be avoided and/or limited, unless essential for public safety. **Annex I habitats that present but that are not a primary reason for selection of this site:** o *Calcareous rocky slopes with chasmophytic vegetation* The management requirements of this feature need to be balanced against achieving more favourable management for the other features of common. <u>Grazing</u> Grazing needs to be maintained on the more accessible rocky areas in units 1 & 2 in order to prevent colonisation by tall vegetation and scrub. Heathland and woodland areas nearby may benefit from a reduction of grazing

	pressure but the presence of more palatable limestone grassland along the escarpment will always draw stock towards these rocky areas. Recreational activities Rare plants, and plants in general, on the cliffs and ledges, may be dislodged by climbers and some breeding birds are particularly sensitive to disturbance during the nesting season. Rock climbing at this site should be restricted to suitable areas and be subject to a suitable code of conduct in order to minimise such damage and disturbance. **Annex I habitats that present but that are not a primary reason for selection of this site:** o *Caves not open to the public* Cave structures used by bats See Lesser Horseshoe Bat **Annex I habitats that present but that are not a primary reason for selection of this site:** o *Degraded raised bogs still capable of natural regeneration* Grazing A way of reducing the grazing to acceptable levels must be found. A period without grazing will promote recovery, although some light grazing, ideally by cattle or ponies, will be required in the longer term to prevent the development of scrub or the dominating growth of dwarf shrubs or purple moor-grass. Stock feeding Supplementary stock feeding can lead to damage of the sward and cause poaching and gradual nutrient enrichment. Feeding should not occur on this habitat. Drainage No new drainage ditches should be dug within the bog and outlet and inflow channels must not be deepened or

	altered in any way. Air Pollution See Blanket Bog **Annex I habitats that present but that are not a primary reason for selection of this site:** o *European dry heaths* Grazing Grazing levels are believed to be lower than they have been historically but they may still be too high in some parts of the common to enable the heathland to re-generate. It may not be possible to address this problem in unit 1 because the adjoining limestone grassland and rocky habitats require a relatively high stocking rate to maintain their interest but elsewhere, a mechanism needs to be found for reducing grazing pressure on the dry heathland, especially in autumn and winter. Stock feeding Supplementary stock feeding can lead to localised damage of the sward and cause poaching and gradual nutrient enrichment. Feeding should be confined to acceptable areas off the common, such as agriculturally improved land. Burning This can be a useful management tool on the heathlands, provided that it forms part of an appropriate and controlled cycle of management. It is important to ensure that such management does not encourage the spread of bracken. Burning in combination with intense grazing can also result in the loss of those heathland shrub species that give this habitat its characteristic appearance, and which are so important to the value of these moorland habitats. A carefully planned burning programme should be considered in appropriate areas. However, Owners and occupiers should co-operate with the fire service, police and other statutory bodies to undertake enforcement

	action where possible and discourage illegal burning. <u>Bracken and scrub encroachment</u> Scrub invasion in the open moorland areas can be controlled by the correct combination of grazing and burning. Bracken however can be more problematical. Grazing may not prevent bracken invasion particularly if sheep rather than heavier animals are the main stock-type and burning can encourage the spread of bracken. Bracken control will be considered if there is significant spread within the drier heath areas. Due to the abundance of scarce ferns and other species at the site, which are equally sensitive to the chemicals used to control the bracken, aerial spraying may not be an option over much of the SSSI, and other methods would have to be considered. <u>Dumping</u> The plateau areas at Mynydd Llangatwg are easily accessible from nearby population centres, so the illegal dumping of domestic and commercial waste and abandoned vehicles is a problem. Landowners and occupiers should co-operate with the statutory authorities in relation to enforcement action, removal of waste and abandoned vehicles and other measures designed to minimise the impact of fly-tipping. <u>Air Pollution</u> See Blanket Bog <u>Development</u> See Blanket Bog
SAC Condition Assessment	o *Lesser Horseshoe Bat (Rhinolophus hipposideros)* ***Favourable*** o *Blanket Bog:* ***Unfavourable*** o *Tilio-Acerion forests of slopes, screes and ravines:* ***Favourable, maintained***. o *Calcareous rocky slopes with chasmophytic vegetation:* ***Favourable, maintained***.

	○ *Caves not open to the public:* ***Favourable, maintained***. ○ *Degraded raised bogs still capable of natural regeneration:* ***Unfavourable, declining***. ○ *European dry heaths:* ***Unfavourable, no change***.
Vulnerabilities (includes existing pressures and trends)	<u>Human Disturbance</u> Minimal disturbance is required within the lesser horseshoe bat cave hibernacula. The population has been satisfactorily safeguarded from disturbance for many years, where necessary by gating cave entrances, providing access by permit only and promoting a code of conduct. The Annex I feature Caves not open to the public is also supported, all species being subject to the safeguards above. It is important that access to the cave systems is managed to protect the bats. Lesser horseshoe bats are very sensitive to disturbance and even the presence of a single person in close proximity can cause problems. Cavers and geologists should avoid areas where bats are likely to be disturbed during the winter months. Where there is a risk of disturbance by unauthorised persons, grilling the cave entrances should be considered. <u>Habitat management</u> Connectivity of woodland, hedgerows, linear habitat and field boundary features should be maintained as lesser horseshoe bats tend to feed in wooded areas and use linear features to navigate their way between roosts and foraging habitat. Lesser horseshoe bats feed on flies (mainly midges), small moths, caddis flies, lacewings, beetles, small wasps and spiders. Suitable foraging habitat includes open broadleaved woodland, scrub, parkland, scrubby wetland and permanent pasture. Lesser horseshoe bats do not normally fly across open land and when foraging, remain close to wooded canopy. <u>Grazing</u> <u>Grazing levels are believed to be lower than they have been historically but they may still be too high in some parts</u>

	of the common to enable the heathland to re-generate. The remaining SAC features are almost entirely located on common land with grazing rights. Control of grazing levels is presently difficult to achieve on common land and some reduction in grazing levels and/or change of grazing patterns appears desirable. Invasive plants Introduced and invasive species such as cotoneaster can smother large areas of grassland and cliff habitats, displacing native species and would need to be controlled. Cotoneaster has spread on the south side of Mynydd Llangatwg above the Clydach gorge and some control is desirable to stop it spreading into feature habitats. As cotoneaster often grows in inaccessible places, specialists would need to be involved, as some climbing would be necessary, and the work required will be expensive in both time and money. Drainage No new drainage ditches should be dug, and wherever possible old drainage ditches should be allowed to infill naturally. Sluices could also be considered on bog outlet channels that may be a causing drainage or erosion problems. Burning Blanket bog should not normally be burnt, as burning is likely to damage important plant and animal species, especially bog mosses and invertebrates, and encourage the growth of rank species, like hare's-tail cottongrass; it can also result in erosion of the peat which can then cause water quality problems in cave system and adjacent reservoirs. Past unplanned or uncontrolled burning is likely to be at least partly responsible for the scarcity of bog-mosses in some areas. Development Generally, further pipeline construction or other engineering works affecting sensitive habitats within the site should be avoided. Any future engineering or pipeline works would need to show that the SAC features would not be adversely affected and if any licence was approved then there would be a requirement to restore the vegetation to its original character and quality.

	Recreational activities Unauthorised vehicle use is a threat to the moorland areas. Bog vegetation is easily damaged and may take a long time to recover. Ground nesting birds may be disturbed during the breeding season. Rare plants, and plants in general, on the cliffs and ledges, may be dislodged by climbers and some breeding birds are particularly sensitive to disturbance during the nesting season. Rock climbing at this site should be restricted to suitable areas and be subject to a suitable code of conduct in order to minimise such damage and disturbance. Dumping The plateau areas at Mynydd Llangatwg are easily accessible from nearby population centres, so the illegal dumping of domestic and commercial waste and abandoned vehicles is a problem.
Landowner/ Management Responsibility	As lesser horseshoe bat is the primary reason for the selection of the SAC, it is a key species in all units in which it is found. It is possible that the species roosts in cave system beneath some of the other units, but the units indicated here are mainly those with cave entrance at the surface. Habitats are key habitats when they are present in sufficient proportion to drive management in units, but are otherwise considered as being in sympathetic management.
HRA/AA Studies undertaken that address this site	HRA Screening of Monmouthshire's Local Development Plan (2011-2026) Deposit, June 2011 http://www.planningpolicy.monmouthshire.gov.uk/download/downloads/id/552/habitats_regulations_assessment_report

BIBLIOGRAPHY

(2009 revised 2010). *Draft Guidance for Plan Making Authorities in Wales: The Appraisal of Plans under the Habitats Directive for CCW.* Bangor: Countrysdie Council for Wales.

Cardiff Council. (2012). *Background Technical Paper No.4 Habitat Regulations Report.* Cardiff : Cardiff Council.

Commission of the European Communities. (2003). *Judgement of the court C-75/01.* Luxembourg: Commission of the European Communities.

Consultancy, J. M. (2007). *Merthyr Common wind Farm Proposal .* Brecon: Just Mammals Consultancy.

DEFRA. (n.d.).

DEFRA. (2015). *2010 to 2015 government policy:environmental quality.* London: DEFRA.

Efusion. (2010). *HABITATS REGULATIONS (APPROPRIATE ASSESSMENT) REPORT.* Pontypridd: Rhondda Cynon Taf County Borough Council.

Efusion. (2014). *Habitats Regulations Assessment (Appropriate Assessment) Addendum Report.* Monmouth: Monmouthshire County Council.

Enfusion. (2008). *Habitats Regulations Assessment Report (Incorporating Appropriate Assessment).* Caerphilly: Caerphilly CountyBborough Council.

European Commission. (2009). *DIRECTIVE 2009/147/EC .* Brussels: EUROPEAN PARLIAMENT .

European Commission. (2011). *The EU Biodiversity Strategy to 2020.* Luxembourg: European Union.

European Economic Community. (1979). *Directive 79/409/EEC.* Brussels: European Commission.

European Economic Community. (1992). *Council Directive 92/43/EEC.* Brussels: European Commission.

European Union. (2000). *Natura Network Viewer.* BING.

Group, Ffos-y-Fran Health Impact Asessment Steering. (2007). *A Report of a Health Impact Assessment Study of an Opencast Scheme at Ffos-Y-Fran, Merthyr Tydfil.* Cardiff: Ffos-Y-Fran Health Impact Assessment Steering Group.

Joint Nature Conservation Committee. (2010). *Uk Priorities species pages - Euphydryas aurinia version 2.* Peterborough: DEFRA.

Neath Port Talbot County Borough Council. (2011). *Habitats Regulations Appraisal Note: Pre-Deposit LDP.* Neath : Neath Port Talbot County Borough Council.

Powys County Council. (2015). *HABITATS REGULATIONS ASSESSMENT SCREENING REPORT.* Brecon: Powys County Council.

Ramsar Convention Secretariat. (1971). *Convention on Wetlands of international Importance.* Ramsar: Ramsar Convention Secretariat.

Rhondda Cynon Taff County Borough Council. (2011). *Local Development Plan 2006-2021 Rhondda Cynon Taff County Borough Council.* Pontypridd: Rhondda Cynon Taff County BoroughCcouncil.

UK Government. (2010). *Conservation of Habitats and Species Regulations .* London: UK Government.

Welsh Government . (2009). *TAN 5: Nature Conservation and Planning.* Cardiff: Welsh Government.