ANNEX 2

Natura 2000 Site Information Proforma

To go to a specific Natura 2000 Site Information Proforma - Hold Ctrl and Left Click on site name.

Special Areas of Conservation within BBNP

1. Blaen Cynon
2. Brecon Beacons
3. Coed Y Cerrig
4. Coedydd Nedd a Mellte
5. Cwm Cadlan
6. Cym Clydach Woodlands
7. Llangorse Lake/ Lyn Syfaddan
8. River Usk
9. River Wye
10. Sugar Loaf Woodlands
11. Usk Bat Sites

Special Areas of Conservation outside BBNP

1. River Tywi

All core site specific information unless otherwise stated has been referenced from the Countryside Council for Wales website (Natura 2000 Management Plans) and the Joint Nature Conservation Committee website (Protected Sites).

ANNEX 2

Special Areas of Conservation within BBNP

Site Name: Blaen Cynon **Location Grid Ref: SN946066** **JNCC Site Code: UK0030092** **Size: 66.83** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Site Description	This site lies adjacent to a housing estate, approximately 1 km south of the village of Penderyn, at an altitude of 220-265 m. Blaen Cynon contains an extensive complex of damp pastures and heaths supporting the largest metapopulation of marsh fritillary *Euphydryas aurinia* on the southern edge of the Brecon Beacons National Park. The marsh fritillary butterfly *Euphydryas aurinia* is found in a range of habitats in which its larval food plant, devil's-bit scabious *Succisa pratensis*, occurs. Marsh fritillaries are essentially grassland butterflies in the UK, and although populations may occur occasionally on wet heath, bog margins and woodland clearings, most colonies are found in damp acidic or dry calcareous grasslands. Populations of marsh fritillary vary greatly in size from year to year, and, at least in part, this is related to cycles of attack from parasitic wasps. Adults tend to be sedentary and remain in a series of linked metapopulations, forming numerous temporary sub-populations, which frequently die out and recolonise. Blaen Cynon also supports a range of habitats. Marshy grassland, and flush and spring are of particular importance as they provide habitat for the marsh fritillary. Also present are areas of raised bog, species-rich neutral grassland, acid grassland and semi-natural broadleaved woodland.
Qualifying Features	Annex II Species primary reason for selection: ▪ Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*
Conservation Objectives	**Conservation Objective for Feature 1:** **Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*** 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:

ANNEX 2

Site Name: Blaen Cynon **Location Grid Ref: SN946066** **JNCC Site Code: UK0030092** **Size: 66.83** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	▪ 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. 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 Blaen Cynon Management Plan.
Component SSSIs	▪ Cors Bryn-y-Gaer ▪ Woodland Park and Pontpren The SAC is composed of 13 management units with Cors Bryn-y-Gaer containing units 1 to 6 and Woodland Park and Pontpren containing units 7 to 13. A map of the management units can be viewed on the CCW

ANNEX 2

Site Name: Blaen Cynon **Location Grid Ref: SN946066** **JNCC Site Code: UK0030092** **Size: 66.83** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	website.
Key Environmental Conditions (factors that maintain site integrity	▪ **Grazing** - 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. ▪ **Extent and quality of the marshy grassland** as habitat for marsh fritillary. Approximately 50ha of habitat is required to maintain the population in the long-term, with at least 10ha is good condition. Not all is expected to be within the SAC. The operational limits reflect the minimum contribution of the Blaen Cynon SAC towards the favourable conservation status of the species in the Hirwaun/Penderyn area. Operational Limits: 20 hectares of Available marshy grassland, including: 8 hectares of Good Condition marsh fritillary habitat Within Areas 1, 2, 3 and 4 50% of the vegetation meets the following criteria: Within a 50cm radius: *Molinia* is present. AND The cover of *Succisa* is 10% or greater. AND The vegetation height is between 10-20cm when measured using a Boorman's disc. AND The cover of *Juncus* spp. does not exceed 50%.

ANNEX 2

Site Name: Blaen Cynon **Location Grid Ref: SN946066** **JNCC Site Code: UK0030092** **Size: 66.83** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Definition of Good Condition marsh fritillary habitat Grassland, with *Molinia* abundant where, for at least 80% of sampling points, the vegetation height is within the range of 10 to 20 cm (when measured using a Boorman's disc) and *Succisa pratensis* is present within a 1 m radius. Scrub (>0.5 metres tall) covers no more than 10% of area. ▪ **Maintain population of devil's-bit scabious** *Succisa pratensis* - Marsh Fritillary Buttefly's larval food plant. ▪ **Hydrological Regime** - the drainage and hydrological conditions on the site should be maintained to favour the habitats that support the marsh fritillary and their management. Devil's-bit scabious prefers moist soils. ▪ **Conserve a cluster of sites in close proximity** - existing SAC boundary does not take in all areas of suitable habitat in the surrounding area.
SAC Condition Assessment	**Conservation Status of Feature 1** **Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*** Counts of marsh fritillary larval webs have been undertaken regularly since 1999. Numbers of webs have not achieved the levels required by the performance indicators. Monitoring has also concluded that there is insufficient good and available habitat. The assessment for both component SSSIs was that they were in **unfavourable** condition, and in this case we can give condition information at the unit level. Cors Bryn-y-Gaer SSSI failed due to insufficient good quality marsh fritillary habitat. In addition, counts of marsh fritillary larval webs have not reached the required 200 per hectare of available habitat. Balancing grazing across the site with the right livestock is the key to successful management for this species. It involves using cattle or horses, and avoiding sheep. It also needs the level of grazing right to create the tussocky structure the butterfly requires, whilst avoiding over or under-grazing. Current assessments are:

ANNEX 2

Site Name: Blaen Cynon **Location Grid Ref: SN946066** **JNCC Site Code: UK0030092** **Size: 66.83** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	MU1 Unfavourable MU2 Unfavourable MU3 Unfavourable MU4 Unfavourable MU5 Unfavourable MU6 Unfavourable Woodland Park and Pontpren SSSI failed due to insufficient good quality marsh fritillary habitat. In addition, counts of marsh fritillary larval webs have not reached the required 200 per hectare of available habitat. Balancing grazing across the site with the right livestock is the key to successful management for this species. It involves using cattle or horses, and avoiding sheep. It also needs the level of grazing right to create the tussocky structure the butterfly requires, whilst avoiding over or under-grazing. Scrub encroachment is also a factor at this SSSI. Current assessments are: MU1 Unfavourable MU2 Unfavourable MU3 Unfavourable MU4 Unfavourable MU5 Unfavourable MU6 Unfavourable MU7 Unfavourable
Vulnerabilities (includes existing pressures and trends)	▪ **Scrub encroachment** - 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.

ANNEX 2

Site Name: Blaen Cynon Location Grid Ref: SN946066 JNCC Site Code: UK0030092 Size: 66.83 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ **Grazing** - suitable areas of grassland are overgrazed while others are undergrazed. ▪ **Inappropriate tree planting** - 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. ▪ **Eutrophication** ▪ **Reduced air quality** ▪ **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. Weather conditions during early spring influence the rate of larval development of the marsh fritillary and the effects of the parasitic wasp. This site is situated in an area of relatively high rainfall, which will has 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. ▪ **Management of surrounding habitats** - The SAC only includes the core of the marsh fritillary habitat (and hence core of the metapopulation). There are likely to be other small areas of habitat outside the SAC boundary which are used by the butterfly only occasionally, but which likely contribute to the long-term success of the metapopulation. Efforts should be made to encourage better management of these areas of land through schemes such as Tir Gofal or through specific grazing projects.

ANNEX 2

Site Name: Blaen Cynon **Location Grid Ref: SN946066** **JNCC Site Code: UK0030092** **Size: 66.83** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	▪ **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. 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.
Landowner/ Management Responsibility	▪ N/A
HRA/AA Studies undertaken that address this site	AA Screening of the Rhondda Cynon Taff County Borough Council's Local Development Plan (2006-2021): Preferred Strategy January 2007 (http://www.rhondda-cynon-taff.gov.uk/stellent/groups/Public/documents/RelatedDocuments/012830.pdf) ▪ The residential development proposed to the south and west of Blaen Cynon is identified as a potential source of adverse impacts on the Blaen Cynon SAC. Taken in conjunction with the plan to upgrade the A465 Abergavenny / Hirwaun to a dual carriageway, there is potential for significant adverse effects on this SAC.

ANNEX 2

Site Name: Brecon Beacons **Location Grid Ref: SO024211** **JNCC Site Code: UK0030096** **Size: 269.67** **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 primary reason for selection: ▪ Calcareous rocky slopes with chasmophytic vegetation ▪ Siliceous rocky slopes with chasmophytic vegetation Annex I Habitats qualifying feature: ▪ European dry heaths ▪ Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
Conservation Objectives	**Conservation Objective for Feature 1:** **Calcareous rocky slopes with chasmophytic vegetation**

ANNEX 2

Site Name: Brecon Beacons **Location Grid Ref: SO024211** **JNCC Site Code: UK0030096** **Size: 269.67** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Vision for Feature 1 ▪ 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. 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 Brecon Beacons Management Plan. **Conservation Objective for Feature 2:** **Siliceous rocky slopes with chasmophytic vegetation** Vision for feature 2 ▪ 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 2

Site Name: Brecon Beacons Location Grid Ref: SO024211 JNCC Site Code: UK0030096 Size: 269.67 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	Performance indicators for Feature 2 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 Brecon Beacons Management Plan. **Conservation Objective for Feature 3:** **European dry heaths** Vision for Feature 3 ▪ 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. Performance indicators for Feature 3 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 Brecon Beacons Management Plan. **Conservation Objective for Feature 4:** **Hydrophilous tall herb fringe communities of plains and montane to alpine levels** Vision for feature 4 ▪ The cliff ledges with less acidic soil remain largely free from grazing, such that the typical flowering plants

Site Name: Brecon Beacons Location Grid Ref: SO024211 JNCC Site Code: UK0030096 Size: 269.67 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	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. Performance indicators for Feature 4 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 Brecon Beacons Management Plan.
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. A map of the management units can be viewed on the CCW website.
Key Environmental Conditions (factors that maintain site integrity	▪ **Grazing** - Some areas under-grazed while others are over-grazed. o 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). o Lower limit: Sufficient to prevent the development of scrub within heathland/grassland of conservation interest and/ or spread of bracken and ivy. ▪ **Air Quality** - Ensure that no critical loads for acidic and nitrogen deposition are exceeded. ▪ **Erosion** - 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

Site Name: Brecon Beacons Location Grid Ref: SO024211 JNCC Site Code: UK0030096 Size: 269.67 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	breeding birds. These impacts may be avoided if climbing is subject to specific agreements, which include a code of conduct.
SAC Condition Assessment	**Conservation Status of Feature 1:** Calcareous rocky slopes with chasmophytic vegetation The conservation status of the feature within the site is **Un-favourable** (2005). The extent and quality of this type of vegetation was being adversely affected by sheep grazing, this probably applies to units 4, (7), 9, (10) as well. With reduced grazing, or less sheep grazing, this community would be more widespread. There are still some problems with rock and soil being washed down from eroded areas on the cliffs above in units 8 & 9. The feature in Units 1 and (2) is subject to lower grazing levels, particularly by sheep, and there may be less public access to the cliffs here. Therefore, the habitat in these units is likely to be in favourable, maintained condition. **Conservation Status of Feature 2:** Siliceous rocky slopes with chasmophytic vegetation The conservation status of the feature within the site is **Un-favourable** (2005). The siliceous chasmophytic vegetation appeared to be in reasonable condition but 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. **Conservation Status of Feature 3:** European dry heaths The conservation status of the feature within the site is **Un-favourable** (2006).

ANNEX 2

Site Name: Brecon Beacons **Location Grid Ref: SO024211** **JNCC Site Code: UK0030096** **Size: 269.67** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	The European dry heath feature is considered to be in un-favourable (no change) condition within the SSSI and SAC as a whole, largely because grazing levels in units 4, 8, 9, are suppressing the development of heath on the slightly deeper acidic soils. Within the NNR (units 1 & 2) stocking rates are lower and the slopes are generally steep, with a bias towards cattle, which ensures grazing levels are low. The condition attributes are satisfied in both units 1 & 2 (November 2006). Within the remainder of the SSSI, feature condition is thought to be favourable, maintained in unit 5 but un-favourable, no-change in units 3, 7, 10 as result of grazing pressure. **Conservation Status of Feature 4:** Hydrophilous tall herb fringe communities of plains and montane to alpine levels The conservation status of the feature within the site is **Un-favourable** (2005). Although the vegetation appeared to be thriving in areas that are naturally in-accessible to grazing stock, it is likely that the feature would be more widespread in some of the units within commonland (units 4, 7?, 10) if the grazing pressure was reduced. The part of this feature in Unit 1 is subject to lower grazing levels and there is considered to be in a favourable, maintained condition.
Vulnerabilities (includes existing pressures and trends)	▪ **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

ANNEX 2

Site Name: Brecon Beacons **Location Grid Ref: SO024211** **JNCC Site Code: UK0030096** **Size: 269.67** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	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	▪ N/A

ANNEX 2

Site Name: Coed Y Cerrig **Location Grid Ref: SO291210** **JNCC Site Code: UK0012766** **Size: 9.1ha** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Site Description	Coed y Cerrig is situated approximately 4.8km to the North of Abergavenny and is a good example of alluvial forest in southern Wales. The valley-bottom woodland has a canopy dominated by alder *Alnus glutinosa* with ash *Fraxinus excelsior*, and a rich understorey that includes guelder-rose *Viburnum opulus* and bird cherry *Prunus padus*. The ground flora is characterised by abundant large sedges *Carex spp.*, and a wide diversity of wet woodland species. The woodland is continuous with diverse ash-elm *Fraxinus-Ulmus* and oak *Quercus spp.* woodland on the valley sides.
Qualifying Features	Annex I Habitats primary reason for selection: ▪ Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)* Priority feature
Conservation Objectives	**Conservation Objective for Feature 2: Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incarnae, Salicion albae*)** 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: ▪ Around a third of the site is covered by wet alder and willow woodland. ▪ This wet woodland grades into areas of permanent open swamp dominated by lesser pond-sedge or other typical wetland plants, where the hydrological conditions are suitable. Adjacent areas of marshy grassland and spring-fed mire are intimately linked to the wet woodland and swamp. ▪ The remainder of the site supports mainly dry semi-natural woodland. ▪ The wet woodland has a variable canopy structure, based on a small-scale patchwork, with alder of different ages and some standing as well as fallen dead wood. Ash does not make up more than 25% of the canopy.

ANNEX 2

Site Name: Coed Y Cerrig **Location Grid Ref: SO291210** **JNCC Site Code: UK0012766** **Size: 9.1ha** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	▪ Young trees/saplings and/or vegetative re-growth of the above species are present. ▪ The understorey includes locally native shrubs typical of this habitat and the ground flora consists of a variety of typical wetland plants, such as lesser pond-sedge, common marsh-bedstraw, meadowsweet, yellow pimpernel, opposite-leaved golden-saxifrage, marsh-marigold, hemlock water-dropwort, water mint, lady fern and rushes. ▪ Plants associated with nutrient enrichment, such as stinging nettle and cleavers, are not dominant over large areas and invasive alien plants like Japanese knotweed and Indian balsam are absent. ▪ This wet woodland grades into areas of permanent open swamp dominated by lesser pond-sedge or other typical wetland plants, where the hydrological conditions are suitable. Adjacent areas of marshy grassland and spring-fed mire are intimately linked to the wet woodland and swamp. ▪ There is no significant input of nutrient-rich water from ditches and surrounding land. ▪ All factors affecting the achievement of these conditions are under control. Performance indicators for Feature 2 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 Coed Y Cerrig Management Plan.
Component SSSIs	▪ Coed Y Cerrig SSSI Coed Y Cerrig SSSI is divided into 10 management units of which numbers 2, 4, 5 and 9 comprise to form the Coed Y Cerrig SAC. The management units can be viewed on a map that is available on the CCW website.
Key Environmental Conditions (factors that maintain site integrity	▪ **Livestock grazing** - In units 2 & 4 there should be no deliberate grazing but light grazing, preferably by cattle or ponies, is desirable in unit 5 to maintain the fen-meadow vegetation. o Lower limits: Unit 5 should be subject to light summer grazing by cattle and/or ponies at least 4 in every 5 years. o Upper limits: No significant grazing in units 2 and 4;

ANNEX 2

Site Name: Coed Y Cerrig Location Grid Ref: SO291210 JNCC Site Code: UK0012766 Size: 9.1ha Designation: SAC	Habitats Regulations Assessment: Data Proforma
	o AND: No significant grazing outside the growing season in unit 5 or heavy grazing at any time during the summer. Light summer grazing is defined as - cattle and/or ponies at a rate of 0.4 LSU/ha/year for the period April to October. Heavy grazing is defined as greater than 1 LSU/ha/year (1 LSU is equivalent to a cow/horse, plus calf/foal). ▪ **Woodland Management** - Small-scale coppicing over a long cycle is desirable to maintain the dominance of alder and create a varied canopy structure in the wet woodland. More frequent coppicing is required to maintain the open glades that are dominated by sedge swamp. Standing and fallen dead timber provides an important habitat for a variety of wildlife, including fungi, invertebrates and birds and is also essential for nutrient recycling and restoring soil nutrients. Therefore dead and decaying trees should normally be retained. Wherever possible, standing dead trees should be allowed to decay and fall naturally. Movement and cutting/tidying of fallen trees and dead wood should be avoided unless essential for legal obligations or public safety. ▪ **Drainage** - hydrology is important in maintaining wet woodland. The alder woodland and associated swamp, marshy grassland and spring-fed mire, as well as the marsh fern, are found in areas of impeded drainage in the valley bottom. There should be no drainage works that could interfere with the springs and the generally waterlogged ground. o No new drainage ditches to be installed within units 2, 4 & 5. ▪ **Public Access** - Maintain boardwalks and footpaths to minimise trampling damage within the wet woodland. In theory, public access to the Nature Reserve area could cause a lot trampling damage but in practice the ground is so wet that visitors tend to keep to the boardwalks provided. o Upper limits: No more that 30% bare ground with signs of trampling within 10m radius of a sample point; o AND: No net loss of habitat to provide additional boardwalks.

ANNEX 2

Site Name: Coed Y Cerrig **Location Grid Ref: SO291210** **JNCC Site Code: UK0012766** **Size: 9.1ha** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
SAC Condition Assessment	**Conservation Status of Feature 1: Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incarnae, Salicion albae*)** Conservation Status of Feature 1 The conservation status of this feature within the site is considered to be **Favourable** (2005). Monitoring carried out in June 2005 indicated that the condition of the feature was favourable, maintained [Draft Monitoring Report by L Barton-Allen, October 2005]. However, there is a threat to future conservation status if coppicing and glade maintenance is not kept up in units 2 & 4 or sufficient grazing maintained in unit 5.
Vulnerabilities (includes existing pressures and trends)	▪ **Grazing** - Past sporadic grazing in the wet woodland may have restricted the ash content and light grazing can have some positive benefits on overall species composition. However, the marsh fern and other grazing sensitive plants would be at risk from uncontrolled and anything more than light grazing. Heavy grazing in unit 5 is likely to eliminate sensitive species and could cause localised physical damage to the sward leading to invasion by "weedy" species. ▪ **Drainage** - There should be no drainage works that could interfere with the springs and the generally waterlogged ground. New drainage ditches could cause drying out of the site, leading to a loss of alluvial forest in favour of drier woodland types. Drainage maintenance along the roads (units 9 & 10) must be undertaken in a very sensitive manner. Maintenance of the road itself need to be carefully considered so as not to affect the drainage and adjoining habitat; CCW needs to be consulted before any materials are brought in to maintain the road so that there is no risk of invasive species such as Indian balsam being imported. ▪ **Nutrient Enrichment** - The wet woodland has developed relatively fertile valley soils because nutrients accumulate here as a result of down-slope water movement and leaf-fall. However, further enrichment

ANNEX 2

Site Name: Coed Y Cerrig **Location Grid Ref: SO291210** **JNCC Site Code: UK0012766** **Size: 9.1ha** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	from agricultural run-off would promote dominance by weed species, such as nettles. No new agricultural drains should be routed into the site and existing drains may need to be diverted if they are causing an enrichment problem.
Landowner/ Management Responsibility	▪ Unit 2 - NNR alder woodland (SAC). ▪ Unit 4 - Private broadleaved woodland (SAC). ▪ Unit 5 - Marshy grassland included in SAC boundary, with small area of alder woodland by stream and on boundaries. ▪ Unit 9 - Road straddling SAC habitat. Road within SAC but with no SAC habitat. Road straddles an area of SAC habitat and included for management reasons such that any works on road does not affect the SAC.
HRA/AA Studies undertaken that address this site	HRA Screening of the Torfaen Local Development Plan (2006-2021) January 2008. http://www.torfaen.gov.uk/EnvironmentAndPlanning/Planning/ForwardPlanning/Publications/HabitatsRegulationAssessment.pdf ▪ Given the distance of the site from Torfaen the Screening states that it is unlikely that proposals in the LDP Preferred Strategy would have a direct impact on Coed Y Cerrig SAC. The most likely mechanism for the Preferred Strategy to have a negative impact on the site is through airborne pollution. However the document states that the sites location within industrial south Wales means that it is already subject to high levels of pollution and it is therefore considered unlikely that development resulting from the LDP would result in a significant detrimental effect on the integrity of the primary features of the designated site.

ANNEX 2

Site Name: Coedydd Nedd a Mellte **Location Grid Ref: SN919093** **JNCC Site Code: UK0030141** **Size: 378.18** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Site Description	Coedydd Nedd a Mellte is a very large and diverse example of old sessile oak wood in south Wales. 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. The whole site is biologically rich, with many woodland plant communities represented and rich bryophyte and lichen assemblages. Notable higher plant species include wood fescue *Festuca altissima* and the ferns *Dryopteris aemula*, *Hymenophyllum tunbrigense* and *Asplenium viride*. Some of the woodland at the site has been heavily grazed in the past, with parts managed as coppice, and with other areas undoubtedly managed for the production of pit props etc. In the past, quarrying and silica mining were carried out in various parts of the site, particularly in the Pontneddfechan area, where there was also a gunpowder industry. Most of the woodland is subject to non-intervention management, but some small areas of ash and hazel are coppiced. The FC have declared their land as Open Access land. The wooded valleys, particularly within Dyffrynoedd Nedd a Mellte, a Moel Penderyn SSSI ('the Waterfalls' area) are popular with tourists and increasingly so with recreational/outdoor groups. As a result of high levels visitor usage, erosional problems are widespread.
Qualifying Features	Annex I Habitats primary reason for selection: ▪ Old sessile oak woods with Ilex and Blechnum in the British Isles - The woods extend along a series of deeply incised valleys and ravines. Annex I Habitats qualifying feature: ▪ Tilio-Acerion forests of slopes, screes and ravines* Priority feature
Conservation Objectives	**Conservation Objective for Feature 1:** ***Tilio-Acerion* forests of slopes, screes and ravines**

ANNEX 2

Site Name: Coedydd Nedd a Mellte **Location Grid Ref: SN919093** **JNCC Site Code: UK0030141** **Size: 378.18** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	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: ▪ 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. 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 Coedydd Nedd a Mellte Management Plan. **Conservation Objective for Feature 2:** **Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles** Vision for feature 2

ANNEX 2

Site Name: Coedydd Nedd a Mellte **Location Grid Ref: SN919093** **JNCC Site Code: UK0030141** **Size: 378.18** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	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. ▪ Heathy 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. Performance indicators for Feature 2 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 Coedydd Nedd a Mellte Management Plan.
Component SSSIs	▪ Blaen Nedd (units 1 to 13) ▪ Dyffrynnoedd Nedd a Mellte, a Moel Penderyn (units 14 to 29) The two SSSIs above are divided into 29 management units of which numbers 7, 8, 9, 15 to 29 comprise to form the Coedydd Nedd a Mellte SAC. The management units can be viewed on maps available on the CCW website.

ANNEX 2

Site Name: Coedydd Nedd a Mellte **Location Grid Ref: SN919093** **JNCC Site Code: UK0030141** **Size: 378.18** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Key Environmental Conditions (factors that maintain site integrity	▪ **Grazing** - Upper limit: grazing levels likely to be in the region of 0.1 Livestock units/ha/yr or less (One livestock unit is equivalent to 1 cow or horse. A sheep (with lamb) is equivalent to 0.15 livestock units). Grazing to the extent practiced routinely by the farming community prevents regeneration of woodland and damages the field layer. Cessation of all grazing over a long period, however, may be detrimental to the field layer as these may become shaded out. The ideal may be to mimic the very low level within a natural woodland ecosystem, or to periodically vary grazing pressure. ▪ **Non-native species** - There will be low tolerance of non-native species. Although some sycamore will be tolerated, it should not be allowed to become dominant over ash. A maximum of about 5% of non-native trees and shrubs, including conifers, will be tolerated. No invasive non-native shrubs in the understorey or shrub layer. ▪ **Woodland Management** - Natural ecological processes should be allowed to operate as far as possible. In the majority of units these processes should gradually create greater structural diversity. ▪ **Maintain/manage the surrounding woodland**. ▪ **Manage public access** - Throughout the site the cover of bare soil or denuded rocks due to footpaths, trampling and grazing and other activities undertaken by visitors (but not including natural landslips, naturally bare ground where leaf litter etc), should be less than X % (limit to be determined but likely to be close to the area taken up by footpaths). Additional limits may need to be set to address issues in more sensitive parts of the site.
SAC Condition Assessment	**Conservation Status of Feature 1** **Tilio-Acerion forests of slopes, screes and ravines** The conservation status of the feature within the site is **Unfavourable** (2006)

ANNEX 2

Site Name: Coedydd Nedd a Mellte Location Grid Ref: SN919093 JNCC Site Code: UK0030141 Size: 378.18 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	Further monitoring is required to fully assess the condition as the 2006 assessment used slightly different management units to those in the current plan. The upland ash woodland is considered to be unfavourable largely because of the presence of non-native species and insufficient understorey cover in parts of the site due to heavy grazing in the past - particularly in Unit DNM16 and Units BN7 and BN9. Negative effects as a result of visitor pressure are also affecting the feature, however at this stage (2008), the significance is not clear and further investigation is required. Following some initial monitoring work in 2007, it appear that the main problem areas are in Units DNM4, DNM11 and Unit BN7. **Conservation Status of Feature 2** **Old sessile oak woods with Ilex and Blechnum in the British Isles** The conservation status of the feature within the site is **Unfavourable** (2006) Further monitoring is required to fully assess the condition as the 2006 assessment used slightly different management units to those in the current plan. The sessile oak woodland is considered to be unfavourable largely because of the presence of non-native species in management Units DNM4, DNM8, DNM14. The understorey was also considered to be insufficient in parts of the site, usually due to heavy grazing in the past - particularly in Units DNM2, DNM4, DNM8, DNM11, DNM14, DNM15, and DNM16. Negative effects as a result of visitor pressure are also affecting the feature, however at this stage (2008), the

ANNEX 2

Site Name: Coedydd Nedd a Mellte Location Grid Ref: SN919093 JNCC Site Code: UK0030141 Size: 378.18 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	significance is not clear and further investigation is required. Sizeable areas of ground, particularly around waterfalls are heavily trampled and denuded with the prospects for tree regeneration greatly reduced. Ultimately, some areas could lose their canopy cover. Following some initial monitoring work in 2007, it appear that the main problem areas are in Units DNM4, DNM5, DNM7, DNM8 and DNM11.
Vulnerabilities (includes existing pressures and trends)	▪ **Air pollution**[*]. o Acidification. o Photochemical oxidants (Oak woodland). o Eutrophication. o Particulate matter. ▪ **Unchecked grazing** - Stray livestock still gain access in places and could pose a threat to tree and shrub regeneration. ▪ **Non-native species** - Sycamore should not be allowed to become dominant over ash. ▪ **Recreational pressure** - the wooded valleys, particularly within Dyffrynoedd Nedd a Mellte, a Moel Penderyn SSSI ('the Waterfalls' area) are popular with tourists and increasingly so with recreational/outdoor groups. As a result of high levels visitor usage, erosional problems are widespread. ▪ **Fire risk** - during prolonged dry periods.
Landowner/ Management Responsibility	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).

[*] Air Pollution Information System (APIS). Oak & Ash Woodland. Available from: http://www.apis.ac.uk/cgi_bin/query_habitat.pl?habitat_species=allHabs&submit.x=17&submit.y=5

ANNEX 2

Site Name: Coedydd Nedd a Mellte **Location Grid Ref: SN919093** **JNCC Site Code: UK0030141** **Size: 378.18** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
HRA/AA Studies undertaken that address this site	AA Screening of the Rhondda Cynon Taff County Borough Council's Local Development Plan (2006-2021): Preferred Strategy January 2007 (http://www.rhondda-cynon-taff.gov.uk/stellent/groups/Public/documents/RelatedDocuments/012830.pdf) ▪ Coedydd Nedd a Mellte lies outside the area covered by the LDP and on this basis, consideration of direct impacts (i.e. habitat loss) arising from any of the proposal would not need to be considered. ▪ Given the distance of the site relative to the closest proposed development, the risk from indirect impacts would appear negligible. For example, a cluster of residential development (e.g. Proposal No 406, 407) is proposed to the south of the A465 close to Rhigos although this type of development would not be expected to generate potential impacts of relevance to Coedydd Nedd a Mellte.

ANNEX 2

Site Name: Cwm Cadlan **Location Grid Ref: SN961098** **JNCC Site Code: UK0013585** **Size: 83.93** **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 SAC interests are: 'Molinia meadows on calcareous, peaty or clayey silt-laden soils (*Molinion caeruleae*)' - 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 is extensively developed, and there are clearly displayed transitions to a range of associated habitats, including base-rich flush and neutral grassland. 'Alkaline Fens' - 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 site was 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.
Qualifying Features	Annex I Habitats primary reason for selection: ▪ Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)

ANNEX 2

Site Name: Cwm Cadlan **Location Grid Ref: SN961098** **JNCC Site Code: UK0013585** **Size: 83.93** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	▪ Alkaline fens
Conservation Objectives	**Conservation Objective for Features 1 & 3:** **Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) - this also encompasses Feature 3: other non-SAC marshy grassland habitat** 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: ▪ 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. The rationale behind the selection and identification of performance indicators for fen-meadow and other marshy grassland and a map showing the main fen-meadow areas is given in Annex 1. Performance indicators for Feature 1 (& 3)

ANNEX 2

Site Name: Cwm Cadlan Location Grid Ref: SN961098 JNCC Site Code: UK0013585 Size: 83.93 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	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 Cwm Cadlan Management Plan. **Conservation Objective for Feature 2:** **Alkaline Fen** 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: ▪ Alkaline Fen will occupy about 11 ha or more. ▪ The remainder of the site will mainly consist of other semi-natural habitat including fen-meadow. ▪ 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. Performance indicators for Feature 2 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 Cwm Cadlan Management Plan.

ANNEX 2

Site Name: Cwm Cadlan **Location Grid Ref: SN961098** **JNCC Site Code: UK0013585** **Size: 83.93** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Component SSSIs	▪ Cwm Cadlan SSSI is divided into 12 management units, the Cwm Cadlan SAC covers the same area. The management units can be viewed on a map available on the CCW website.
Key Environmental Conditions (factors that maintain site integrity	▪ **Grazing** - the marshy grassland has been maintained through traditional farming practices. Without an appropriate grazing regime, the grassland would become rank and eventually turn to scrub and woodland. Light grazing by mainly cattle and ponies between April and November each year is essential in maintaining the marshy grassland and fen-meadow communities. o Lower limits: The wetland areas will be subject to light summer grazing by cattle and/or ponies at least 4 in every 5 years. Light summer grazing is defined as - cattle and/or ponies at a rate of 0.4 LSU/ha/year for the period April to October. Heavy grazing is defined as greater than 1 LSU/ha/year (1 LSU is equivalent to a cow/horse, plus calf/foal). o Upper limits: No significant grazing outside the growing season or heavy grazing at any time during the summer. ▪ **Scrub control** - open wetland areas are prone to invasion by alder and willow scrub. Optimum grazing levels should help control spread of scrub, but occasionally active scrub eradication is necessary. Scrub and woodland is also a natural component of such wetland complexes and enhances the site both biologically and visually, therefore older well-established stands will be retained. Scattered scrub will be tolerated within the following limits: o Lower limits: Scattered scrub present in defined locations. o Upper limits: No scrub covering area greater than 5m x 5m within stands mapped as marshy grassland. ▪ **Hydrological regime** - the marshy grassland communities are strongly influenced by the quantity and base status of the groundwater. Reductions in the quality and quantity of the water in the springs and watercourses feeding the site may lead to a loss of marshy grassland or changes in species composition. Conversely, reduced/impeded drainage may lead to ground-water stagnation and a different change in species composition, e.g. increased abundance of rushes. Infilling some of the many ditches at the site is

Site Name: Cwm Cadlan Location Grid Ref: SN961098 JNCC Site Code: UK0013585 Size: 83.93 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	likely to lead to re-wetting of some marshy grassland. o Upper limit: No new drainage ditches to be installed within the open meadow areas of the site. ▪ **Air Quality** - Atmospheric deposition at this site has the potential to harm the alkaline fen feature. Dust deposition is likely to be high given the close proximity of Penderyn Quarry, and the absence of a published critical load for this pollutant against this habitat should be taken as indicating lack of impact. Atmospheric Nitrogen deposition in this area is estimated at 21.8 kg N/ha/yr which lies above the lower critical load limit for this pollutant (15-35 kg N / ha / yr). It's likely that the critical load for Nitrogen for M10 forms of alkaline fen is towards the lower end of this range. o Lower limits: None set – very low dust and N deposition regimes may be beneficial. o Upper limits: Suggest 15 kg N / ha / year for N. None yet defined for dust.
SAC Condition Assessment	**Conservation Status of Feature 1** **Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) - this also encompasses Feature 3: other non-SAC marshy grassland habitat** The conservation status of these features within the site is considered to be **Unfavourable** (2007). Assessment carried out in 2004 indicated that the condition of both was: Unfavourable, no change. White clover, at a low cover and frequency, may be a natural component of the sward. In 2004, the cover and frequency of white clover was a little on the high side in some areas, which detracts somewhat from the quality of the stands of fen-meadow. Part of the site, until purchased by CCW, had been quite heavily grazed by sheep - sometimes throughout the year. Current management by CCW (Unit 1) has returned the grazing to a more cattle-based state and other areas are now in favourable management (units 2, 6 & 7) that should ensure that the quality of the more modified swards recover. Unit 4 is only occasionally grazed and this has resulted in some of the vegetation being rather tussocky. Overall the factors affecting the feature appear to be largely under control, apart from continuing uncertainty over the impacts of drainage and quarrying and the need for more a suitable more grazing in some parts of the site.

ANNEX 2

Site Name: Cwm Cadlan **Location Grid Ref: SN961098** **JNCC Site Code: UK0013585** **Size: 83.93** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Conservation Status of Feature 2 **Alkaline Fen** The conservation status of this feature within the site is considered to be **Unfavourable** (2007). Assessment carried out in 2004 indicated that feature condition was: Unfavourable, recovering. Some alkaline fen has been modified by past attempts at drainage resulting in a few stands, which are rather dry and somewhat intermediate to fen-meadow. It is also possible that some stands of fen-meadow were derived from alkaline fen. Part of the site, until purchased by CCW, had been quite heavily grazed by sheep - sometimes throughout the year. Current management by CCW (Unit 1) has returned the grazing there to a more cattle-based regime and sympathetic management elsewhere (units 2, 6 & 7) should ensure that the quality stands are maintained. Some areas are slightly under-grazed or partially affected by past tree planting. Removal of some planted trees has been undertaken and the remaining trees should be removed with the next few years (Unit 8). Under-grazing for a year or two is probably not detrimental to the quality of the fen, but is something that needs addressing (Unit 4). Overall, the factors affecting the feature are still not quite under control, although the habitat is recovering, hence the unfavourable status assessment for 2007.
Vulnerabilities (includes existing pressures and trends)	▪ **Inappropriate grazing regime** - without an appropriate grazing regime, the grassland would become rank and eventually turn to scrub and woodland. Any excessive grazing pressure would be expected to increase the frequency and cover of bare ground and agricultural species. Cessation of cattle farming could affect the vegetation, as sheep are more selective grazers. ▪ **Scrub encroachment** - 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). ▪ **Changes to hydrological regime** - Activities that effect groundwater level and flow, such as mineral extraction. Dewatering of the adjacent quarry has potential to affect the hydrology of the site.

ANNEX 2

Site Name: Cwm Cadlan Location Grid Ref: SN961098 JNCC Site Code: UK0013585 Size: 83.93 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ **Eutrophication** - there has been concern about fertilizer run-off from some adjacent improved fields causing localised nutrient enrichment. ▪ **Atmospheric Pollution*** - atmospheric deposition at this site has the potential to harm the alkaline fen feature. Dust deposition is likely to be high given the close proximity of Penderyn Quarry, and the absence of a published critical load for this pollutant against this habitat should be taken as indicating lack of impact. Atmospheric Nitrogen deposition in this area is estimated at 21.8 kg N/ha/yr which lies above the lower critical load limit for this pollutant (15-35 kg N / ha / yr). It's likely that the critical load for Nitrogen for M10 forms of alkaline fen is towards the lower end of this range.
Landowner/ Management Responsibility	▪ Unit 1 is owned by CCW.
HRA/AA Studies undertaken that address this site	AA Screening of the Rhondda Cynon Taff County Borough Council's Local Development Plan (2006-2021): Preferred Strategy January 2007 (http://www.rhondda-cynon-taff.gov.uk/stellent/groups/Public/documents/RelatedDocuments/012830.pdf) ▪ Cwm Cadlan lies outside the area covered by the LDP and on this basis, consideration of direct impacts (i.e. habitat loss) arising from any of the proposal would not need to be considered. ▪ Given the distance of the site relative to the closest proposed development, the risk from indirect impacts would appear negligible. For example, the cluster of proposed residential development north of Hirwaun would not result in any foreseeable activities of relevance to Cwm Cadlan.

* Air Pollution Information System (APIS). Calcareous grassland. Available from: http://www.apis.ac.uk/cgi_bin/habitat_result.pl?habResult=Calcareous+grassland&choice=allHabs&haborspec=habitat&submit.x=35&submit.y=13

ANNEX 2

Site Name: Cym Clydach Woodlands **Location Grid Ref: SO207123** **JNCC Site Code: UK0030127** **Size: 28.81** **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 and is in close proximity to the A465 Heads of the Valley Road. 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*.
Qualifying Features	Annex I Habitats primary reason for selection: ▪ *Asperulo-Fagetum* beech forests Annex I Habitats qualifying feature: ▪ Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (*Quercion robori-petraeae or Ilici-Fagenion*)
Conservation Objectives	**Conservation Objective for Feature 1:** *Asperulo – Fagetum* beech forests 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:

ANNEX 2

Site Name: Cym Clydach Woodlands Location Grid Ref: SO207123 JNCC Site Code: UK0030127 Size: 28.81 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ 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. 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 Cym Clydach Management Plan. **Conservation Objective for Feature 2:** Atlantic *acidophilous* beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Ilici-Fagenion* 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:

ANNEX 2

Site Name: Cym Clydach Woodlands **Location Grid Ref: SO207123** **JNCC Site Code: UK0030127** **Size: 28.81** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	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. Performance indicators for Feature 2 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 Cym Clydach Management Plan.
Component SSSIs	▪ Cym Clydach SSSI is composed of 5 management units of which numbers 1and 5 comprise to form the Cym Clydach Woodlands SAC. A map of the management units can be viewed on the CCW website.
Key Environmental Conditions (factors that maintain site integrity	▪ **Grazing** - Sufficiently low to allow regeneration in the long term. ▪ **Non-native and invasive species** - No increase in the area of woodland floor that is dominated by invasive species.
SAC Condition Assessment	**Conservation Status of Feature 1** *Asperulo – Fagetum* beech forests The conservation status of this feature within the site is considered to be **Favourable** (2006).

ANNEX 2

Site Name: Cym Clydach Woodlands **Location Grid Ref: SO207123** **JNCC Site Code: UK0030127** **Size: 28.81** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Conservation Status of Feature 2 Atlantic *acidophilous* beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (*Quercion robori-petraeae* or *Ilici-Fagenion* The conservation status of this feature within the site is considered to be **Favourable** (2006).
Vulnerabilities (includes existing pressures and trends)	▪ **Woodland management** - Recent changes in management within the locality, a general reduction of sheep numbers and the construction of cycle route through the site may have the potential to adversely effect the grassland areas and the fungi in particular. ▪ **Grazing** - 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 and suppress the woodland ground flora. ▪ **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. It is essential that these barriers be maintained to prevent any future occurrences. ▪ **Invasive alien plants** - Japanese knotweed is 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. Airborne acid and nutrient deposition are not a significant threat here as most of the woodland soils are well-buffered and nutrient-rich.
Landowner/ Management	▪ Unit 1 is owned by CCW and comprises the bulk of the SAC beech woodland. Most of the acidiophilous

ANNEX 2

Site Name: Cym Clydach Woodlands Location Grid Ref: SO207123 JNCC Site Code: UK0030127 Size: 28.81 Designation: SAC	Habitats Regulations Assessment: Data Proforma
Responsibility	beech woodland is found towards the western part of Unit 1. ▪ Unit 5 is other land within the SAC not owned by CCW.
HRA/AA Studies undertaken that address this site	HRA Screening of the Torfaen Local Development Plan (2006-2021) January 2008. http://www.torfaen.gov.uk/Environm]entAndPlanning/Planning/ForwardPlanning/Publications/HabitatsRegulationAssessment.pdf ▪ It is considered that the potential impact from development in Torfaen would be negligible. Taking the precautionary approach the HRA Assessment for the LDP has identified the potential for in-combination effects on 4 SAC sites, which includes Cwm Clydach Woodlands SAC.

ANNEX 2

Site Name: Llangorse Lake **Location Grid Ref: SO131262** **JNCC Site Code: UK0012985** **Size: 215.64** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Site Description	The site is situated towards the head of the Afon Llynfi between the hills of Mynydd Llangorse and Allt yr Esgair. 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 primary reason for selection: ▪ Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation
Conservation Objectives	**Conservation Objective for Feature 1:** Natural Eutrophic Lakes with Magnopotamion or Hydrochariton – type vegetation 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: ▪ 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 fine-leaved pondweeds, water lilies, amphibious bistort, water-crowfoots, rigid hornwort, spiked water-milfoil, mare's-tail and horned

ANNEX 2

Site Name: Llangorse Lake Location Grid Ref: SO131262 JNCC Site Code: UK0012985 Size: 215.64 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	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. 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 Llangorse Lake Management Plan.
Component SSSIs	Llyn Syfaddan (Llangorse Lake) SSSI – is composed of 13 management units, the SAC covers the same area. A map of the site can be viewed on the CCW website.
Key Environmental Conditions (factors that maintain site integrity	▪ **Water Quality** - there should be no eutrophication: o Upper limit: Annual mean total phosphorus (TP) of 35 µgl-1 or less. o Lower limit: At least 5 mgl-1 dissolved oxygen (O2) throughout the water column. ▪ **Hydrology** - No new structures that will reduce inflow or deepening or enlargement of outflow points. ▪ **Sediment loads and lake substrate** - No extensive poaching of the lake margins by stock.

ANNEX 2

Site Name: Llangorse Lake **Location Grid Ref: SO131262** **JNCC Site Code: UK0012985** **Size: 215.64** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	▪ **Recreational Disturbance** - No use outside agreed zones and periods of year as described in printed guidance. ▪ **Development** - No new permanent jetties, slipways or hard bank structures. ▪ **Non-native species** (Fish) - Any introduction of species that are not native to Llangorse would be highly undesirable. o Upper limit: Introduced species should be removed or populations controlled as necessary. This will be guided by regular EA fish sampling. o Lower limit: Fish are an essential component of the lake ecology. Populations need to be maintained by a sensible fisheries policy/rules and by ensuring other factors such as water quality are under control. ▪ **Non-native & Invasive Species** - Canadian and/or Nuttall's waterweed (Elodea spp.) no more than frequent. AND: No invasive non-native species, such as New Zealand pigmyweed, floating pennywort, curly waterweed, parrot's-feather, water fern, signal crayfish and zebra mussel, are present in the lake.
SAC Condition Assessment	**Conservation Status of Feature 1:** Natural Eutrophic Lakes with Magnopotamion or Hydrochariton – type vegetation The conservation status of this feature within the site is considered to be **Un-favourable** (2006). 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.

ANNEX 2

Site Name: Llangorse Lake Location Grid Ref: SO131262 JNCC Site Code: UK0012985 Size: 215.64 Designation: SAC	Habitats Regulations Assessment: Data Proforma
Vulnerabilities (includes existing pressures and trends)	▪ **Eutrophication** - 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. 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. Since the diversion directly to the Afon Llynfi of water that was causing eutrophication of the lake, 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. ▪ **Sediment run-off** - 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. 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 is 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. ▪ **Recreation** - Llangorse Lake is a very popular location for water-based recreation, attracting fishermen, sailing craft, water-skiers, canoeists/kayakers and outdoor groups. However, there is great potential to disturb habitats and the wildlife that inhabits the lake. The many bird species that feed, nest or rest on and around the lake are particularly vulnerable to disturbance from recreational use of the lake itself and from walkers and dogs. Wash from motorboats can be a problem, as it can erode vegetation and the shoreline

Site Name: Llangorse Lake Location Grid Ref: SO131262 JNCC Site Code: UK0012985 Size: 215.64 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	and it is essential than the numbers using the lake are limited and exclusion zones observed. Fishing should be managed to ensure that the balance of fish populations is maintained, predatory fish such as pike, are returned to the lake, and that there is no introduction of fish species not native to the lake. It is essential that this land-based recreation should continue to have a low impact on the lake's wildlife and that people continue to behave responsibly, do not disturb the habitats and importantly keep dogs under control to prevent disturbance to nesting birds. Parts of the lake have no public access and it is essential that this should continue, as it is in these quiet areas that birds such as lapwing are able to continue to breed, wildfowl such as coot and wigeon can feed, and mammals such as otters can find quiet areas to rest. ▪ **Non-native invasive species** - Non-native species including Canada geese and Canadian pondweed already exist in and around Llangorse Lake. Although all of the consequences of their presence (especially the impacts of grazing and enrichment from geese) are not desirable, their impact is not well understood at present and further research is required. Similarly, the presence of introduced fish species such as bream, which through feeding can disturb the lake sediments, raise the amount of available nutrients and cloud the water, which in turn can affect algal and aquatic weed vegetation. There are many non-native species such as New Zealand pigmyweed, zebra mussels and carp that, if introduced, could out-compete native species or in the case of carp cause severe disturbance to lake sediments. ▪ **Management of surrounding habitats** - 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. 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

ANNEX 2

Site Name: Llangorse Lake **Location Grid Ref: SO131262** **JNCC Site Code: UK0012985** **Size: 215.64** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	the continuation of this fragile habitat.
Landowner/ Management Responsibility	▪ Unit 1 is owned or leased by the Brecon Beacons National Park Authority. ▪ 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. ▪ In Units 1-8 & 10-12, which are mainly small fields, the SAC habitat is largely confined to the innundation 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	▪ N/A

ANNEX 2

Site Name: River Usk **Location Grid Ref: SO301113** **JNCC Site Code: UK0013007** **Size: 1007.71** **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. The River Usk is also important for its population of sea lamprey *Petromyzon marinus*. The site also supports a healthy population of brook lamprey *Lampetra planeri* and river lamprey *Lampetra fluviatilis* and is considered to provide exceptionally good quality habitat likely to ensure the continued survival of the species in this part of the UK. The site supports a range of Annex II fish species, which includes twaite shad *Alosa falla*, salmon *Salmo sala* and bullhead *Cottus gobi*. The River Usk is an important site for otters Lutra lutra in Wales.
Qualifying Features	Annex I Habitats qualifying feature: ▪ Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Annex II Species primary reason for selection:

ANNEX 2

Site Name: River Usk **Location Grid Ref: SO301113** **JNCC Site Code: UK0013007** **Size: 1007.71** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	▪ Sea lamprey *Petromyzon marinus* ▪ Brook lamprey *Lampetra planeri* ▪ River lamprey *Lampetra fluviatilis* ▪ Twaite shad *Alosa fallax* ▪ Atlantic salmon *Salmo salar* ▪ Bullhead *Cottus gobio* ▪ Otter *Lutra lutra* Annex II Species qualifying feature: ▪ Allis shad *Alosa alosa*
Conservation Objectives	**The ecological status of the water course is a major determinant of Favourable Condition Status (FCS) for all features. The required conservation objective for the water course is defined below.** **Conservation Objective for the water course** ▪ 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.

ANNEX 2

Site Name: River Usk Location Grid Ref: SO301113 JNCC Site Code: UK0013007 Size: 1007.71 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ 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, eg. 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

Site Name: River Usk Location Grid Ref: SO301113 JNCC Site Code: UK0013007 Size: 1007.71 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	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. **Conservation Objective for Features 1-5:** - **Sea lamprey** *Petromyzon marinus*; - **Brook lamprey** *Lampetra planeri*; - **River lamprey** *Lampetra fluviatilis*; - **Twaite shad** *Alosa fallax*; - **Allis shad** *Alosa alosa*; - **Atlantic salmon** *Salmo salar*; - **Bullhead** *Cottus gobio*. Vision for features 1-5 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The conservation objective for the water course as defined in 4.1 above must be met. ▪ The population of the feature in the SAC is stable or increasing over the long term. ▪ The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms eg. suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions eg. food supply. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable

Site Name: River Usk Location Grid Ref: SO301113 JNCC Site Code: UK0013007 Size: 1007.71 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	future. Natural factors such as waterfalls may limit the natural range of individual species. Existing artificial influences on natural range that cause an adverse effect on site integrity, such as physical barriers to migration, will be assessed in view of the following bullet point. ▪ There is, and will probably continue to be, a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis. Performance indicators for features 1-5 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 River Usk Management Plan. **Conservation Objective for Feature 6:** **- European otter** *Lutra lutra* Vision for feature 6 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC, as determined by natural levels of prey abundance and associated territorial behaviour. ▪ The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches that are potentially suitable to form part of a breeding territory and/or provide routes between breeding territories. The whole area of the Usk SAC is considered to form potentially suitable breeding habitat for otters. The size of breeding territories may vary depending on prey abundance. The population size should not be limited by the availability of suitable undisturbed breeding sites. Where these are insufficient they should be created through habitat

Site Name: River Usk **Location Grid Ref: SO301113** **JNCC Site Code: UK0013007** **Size: 1007.71** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	enhancement and where necessary the provision of artificial holts. No otter breeding site should be subject to a level of disturbance that could have an adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance must be managed. ▪ The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers. Performance indicators for feature 6 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 River Usk Management Plan. **Conservation Objective for Feature 7:** **- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation** Vision for feature 7 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 conservation objectives for the water course as defined above must be met. ▪ The natural range of the plant communities represented within this feature should be stable or increasing in the SAC. The natural range is taken to mean those reaches where predominantly suitable habitat exists over the long term. Suitable habitat and associated plant communities may vary from reach to reach. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms eg. depth and stability of flow, stability of bed substrate, and ecosystem structure and functions eg. nutrient levels, shade. Suitable habitat for the feature need not be present throughout the SAC but where

ANNEX 2

Site Name: River Usk **Location Grid Ref: SO301113** **JNCC Site Code: UK0013007** **Size: 1007.71** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	present must be secured for the foreseeable future, except where natural processes cause it to decline in extent. ▪ The area covered by the feature within its natural range in the SAC should be stable or increasing. ▪ The conservation status of the feature's typical species should be favourable. The typical species are defined with reference to the species composition of the appropriate JNCC river vegetation type for the particular river reach, unless differing from this type due to natural variability when other typical species may be defined as appropriate. Performance indicators for feature 7 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 River Usk Management Plan.
Component SSSIs	▪ River Usk (Upper Usk) SSSI ▪ River Usk (Lower Usk) SSSI ▪ River Usk (Tributaries) SSSI ▪ Penllwyn-yr-hendy SSSI ▪ Coed Dyrysiog SSSI ▪ Coed Nant Menascin SSSI ▪ Coed Ynysfaen SSSI The SAC has been divided into 10 management units: ▪ Units 1 to 3 - River Usk (Lower Usk) SSSI. ▪ Units 4 to 6 - River Usk (Upper Usk) SSSI. ▪ Units 7 to 10 - River Usk (Tributaries) SSSI. A map showing the various management units can be seen within the River Usk Management Plan.

ANNEX 2

Site Name: River Usk **Location Grid Ref: SO301113** **JNCC Site Code: UK0013007** **Size: 1007.71** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Key Environmental Conditions (factors that maintain site integrity	▪ **Hydrological processes**: o **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. Water-crowfoot 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. Lampreys need clean gravel for spawning, and marginal silt or sand for the burrowing juvenile ammocoetes. 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

Site Name: River Usk Location Grid Ref: SO301113 JNCC Site Code: UK0013007 Size: 1007.71 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	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 a 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.

ANNEX 2

Site Name: River Usk Location Grid Ref: SO301113 JNCC Site Code: UK0013007 Size: 1007.71 Designation: SAC	Habitats Regulations Assessment: Data Proforma
SAC Condition Assessment	**Conservation status of Feature 1: Sea lamprey *Petromyzon marinus*** Status: **Unfavourable**: Unclassified. Sea lamprey monitoring showed that overall catchment mean ammocoete density considerably exceeded the JNCC target threshold and also complied with targets for spawning site and ammocoete distribution. A caveat on the latter is uncertainty over whether the natural range of sea lamprey extends above Brecon weir: this is assumed not to be the case. Factors leading to an unfavourable assessment are the presence of probable partial barriers further downstream (notably Crickhowell Bridge), and flow depletion resulting from abstractions including Brecon canal and Prioress Mill public water supply abstraction. The latter in particular has been shown to have effects both on a seasonal timescale by reducing spate flows during the migration period and on a diurnal timescale by substantially depleting flows during the night time to the extent that sea lamprey nests and nursery areas are likely to be exposed above the water level. The effect of the Brecon canal abstraction has been shown to comprise a substantial depletion of flows, at least locally, during low flow periods with a resulting reduction in river depth downstream of the off-take weir. **Conservation status of Feature 2: Brook lamprey *Lampetra planeri* and River lamprey *Lampetra fluviatilis*** Status: **Favourable**. Brook/river lamprey monitoring showed that overall catchment mean ammocoete density considerably exceeded the JNCC target threshold and also complied with targets for ammocoete distribution1. It has not been possible to distinguish between these two species during monitoring, due to the reliance on juvenile stages (ammocoetes). Anecdotal evidence suggests that both species are likely to be present in many reaches, though brook lamprey are expected to predominate in the headwaters and river lamprey may be the more abundant species in the main channel and the lower reaches of larger tributaries. More information on the relative abundance of these two species in different parts of the Usk SAC is desirable.

ANNEX 2

Site Name: River Usk Location Grid Ref: SO301113 JNCC Site Code: UK0013007 Size: 1007.71 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	Records of spawning adult river lamprey would be particularly useful. **Conservation status of Feature 3: Twaite shad *Alosa fallax* and Allis shad *Alosa alosa*** Status: **Unfavourable**: Unclassified. Monitoring of these species in the Usk relies on two methods, Kick sampling for eggs provides qualitative information on spawning distribution, Netting for juveniles in the lower river and tidal reaches during late summer/autumn when juveniles drift downstream towards the estuary. These methods do not distinguish between the two species. Allis shad is thought to be rare, with no recent records in the Usk, while twaite shad is relatively common. Kick sampling for eggs is only able to give a broad scale indication of presence or absence at sampled locations. Netting for juveniles gives a quantitative estimate of abundance, though may be subject to a high degree of uncertainty due to sampling error. This uncertainty is likely to be compounded by variation between years in the size of the adult run, spawning success and resulting numbers of juveniles. Poor adult runs are likely to result from unsuitable flows during the March to June migration period, in particular prolonged low flows, while poor survival of eggs and juveniles is related to spate flows in the mid to late summer which can flush them into the estuary prematurely. CSM guidance states that adult run size should comply with an agreed target for each river, with no drop in the annual run greater than would be expected from variations in natural mortality alone. This attribute is not currently assessed in the Usk due to the absence of a fish counter. The current unfavourable status results from a precautionary assessment of feature distribution and abundance, and from the presence of adverse factors, in particular flow depletion and physical barriers to migration. **Conservation status of Feature 4: Atlantic salmon *Salmo salar***

ANNEX 2

Site Name: River Usk **Location Grid Ref: SO301113** **JNCC Site Code: UK0013007** **Size: 1007.71** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Status: **Unfavourable**: Unclassified. Monitoring of Atlantic salmon in the Usk relies on two methods, 1. Estimation of adult run size from angling catch returns, 2. Electro-fishing for juveniles in nursery areas. The estimate of adult numbers is converted into an estimate of numbers of eggs deposited which is compared against an Egg Deposition Target (EDT), calculated by considering the area of suitable spawning habitat within the catchment. The equivalent adult run to achieve the EDT is described in terms of a Conservation Limit, which must be exceeded 4 years in 5 for the Management Target to be considered attained. Electro-fishing for juveniles is either quantitative or semi-quantitative, and estimated juvenile densities are classified in one of six categories A to F. The monitoring guidance produced by the LIFE in UK Rivers project recommends that ideally juvenile densities should be compared to predicted densities for the sample reach using the HABSCORE model6. These targets are calculated and monitored by the Environment Agency as part of the Salmon Action Plan for the Usk. The current unfavourable status results from a precautionary assessment of feature distribution and abundance, in particular the results of juvenile surveys, and from the presence of adverse factors, in particular flow depletion and localised water quality failures. **Conservation status of Feature 5: Bullhead *Cottus gobio*** Status: **Unfavourable**: Unclassified. The current unfavourable status results from the presence of adverse factors, in particular flow depletion and localised water quality failures. Records obtained from juvenile salmon monitoring show that bullhead are widespread in the main river and tributaries. There is a need for quantitative information on bullhead abundance, which will be addressed by targeted monitoring in 2007. **Conservation status of Feature 6: European otter *Lutra lutra*** Status: **Favourable**. The conservation status of otters in the Usk SAC is determined by monitoring their

Site Name: River Usk Location Grid Ref: SO301113 JNCC Site Code: UK0013007 Size: 1007.71 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	distribution, breeding success, and the condition of potential breeding and feeding habitat outlined in the Performance Indicators. Their current condition can be considered favourable, but with scope for further improvement, if habitat and other natural factors can be maintained and enhanced. **Conservation status of Feature 7: Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation** Status: **Unfavourable**: Unclassified. This feature is not identified as one of the primary reasons for designation of the River Usk SAC; its distribution being apparently limited by the availability of suitable hydromorphological conditions. Important stands have been identified in the lower reaches of the main river below Abergavenny down to the tidal limit, and in the upper reaches of a headwater stream, the Afon Senni. These reaches may represent a sub-type of the feature where large submerged and floating leaved flowering plants, in particular Ranunculus, are dominant. Habitat suitability studies4 suggest that the natural range of the feature may be more widespread within the SAC. More widespread sub-types may consist of communities dominated by aquatic bryophytes. Where necessary, examples of these sub-types may be identified as priorities for management, for example through the management of riparian vegetation to preserve shade and humidity. Further understanding of the distribution and status of this feature and its natural range within the River Usk SAC is required. The present unfavourable status of the feature results from the over-abundance of invasive non-native species of bankside plant communities, which are included within the feature definition. These are predominantly giant hogweed and Himalayan balsam in the lower reaches of the main river.
Vulnerabilities (includes existing pressures and trends)	▪ **Abstraction levels -** Entrainment in water abstractions directly impacts on population dynamics through reduced recruitment and survival rates. The impact of flow depletion resulting from a small number of major abstractions was highlighted in the Review of Consents process. ▪ **Eutrophication** - factors that are important to the favourable conservation status of this feature include flow,

Site Name: River Usk Location Grid Ref: SO301113 JNCC Site Code: UK0013007 Size: 1007.71 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	substrate quality and water quality, which in turn influence species composition and abundance. These factors often interact, producing unfavourable conditions by promoting the growth of a range of algae and other species indicative of eutrophication. Under conditions of prolonged low flows and high nutrient status, epiphytic algae may suppress the growth of aquatic flowering plants. ▪ **Diffuse Pollution** - 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. 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. Farm operations should avoid ploughing land which is vulnerable to soil erosion or leaving such areas without crop cover during the winter. 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. 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. ▪ **Barriers to migration** - There are few barriers to migration for the anadromous species and where barriers exist, investigation is proposed to analyse for potential impacts and remedy them through multi-species fish passes. Crickhowell Bridge is considered to be the most significant barrier to fish migration in the Usk.

ANNEX 2

Site Name: River Usk Location Grid Ref: SO301113 JNCC Site Code: UK0013007 Size: 1007.71 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	Management to reduce or remove the effect of this barrier is a high priority for the River Usk SAC. 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. ▪ **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). Barriers resulting from vibration, chemicals, low dissolved oxygen and artificially high sediment levels must be prevented at key times (generally March to June). ▪ **Invasive non-native plants** - are a detrimental impact on the water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. Giant hogweed, Himalayan balsam and Japanese knotweed should be actively managed to control their spread and hopefully reduce their extent in the SAC. ▪ **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. ▪ **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.

ANNEX 2

Site Name: River Usk **Location Grid Ref: SO301113** **JNCC Site Code: UK0013007** **Size: 1007.71** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Landowner/ Management Responsibility	▪ N/A
HRA/AA Studies undertaken that address this site	HRA Screening of the County Council of the City and County of Cardiff Local Development Plan Preferred Strategy Sept 2007. www.cardiff.gov.uk/ObjView.asp?Object_ID=9788 ▪ The Screening states that the most likely mechanism for the Preferred Strategy to have a significant effect on this site is through airborne pollution. HRA Screening of the Torfaen Local Development Plan (2006-2021) January 2008. http://www.torfaen.gov.uk/EnvironmentAndPlanning/Planning/ForwardPlanning/Publications/HabitatsRegulationAssessment.pdf ▪ The Screening concludes that there is potential for significant effects on this site through discharge of sewerage, increased surface run-off and an increase in airborne pollutants.

ANNEX 2

Site Name: River Wye **Location Grid Ref: SO109369** **JNCC Site Code: UK0012642** **Size: 2234.89** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Site Description	The River Wye rises on Plynlimon in the Cambrian Mountains and flows in a generally south-easterly direction to enter the Severn Estuary at Chepstow. The upper catchment comprises several large sub-catchments, including the Irfon on the generally infertile upland landscape in the north-west, the Ithon in the north-east often on more low-lying, fertile terrain and the Lugg in the east in a predominantly low-lying fertile landscape much of which lies within England. The underlying geology consists predominantly of impermeable, acidic rocks of Silurian and Ordovician age in the north-west and more permeable Devonian Old Red Sandstone with a moderate base status in the middle and lower catchment. This geology produces a generally low to moderate nutrient status and a low to moderate base-flow index, making the river characteristically flashy. 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 and the Lugg. The Wye catchment is divided between Wales and England; the river forms the border from south of Monmouth to Chepstow and to the east of Hay-on-Wye. Historically, the Wye is the most famous and productive river in Wales for Atlantic salmon *Salmo salar*, with high-quality spawning grounds and juvenile habitat in both the main channel and tributaries. The Wye salmon population is particularly notable for the very high proportion (around 75%) of multi sea winter (MSW) fish, a stock component which has declined sharply in recent years throughout the UK. This pattern has also occurred in the Wye, with a consequent marked decline in the population since the 1980s. However, the Wye salmon population is still of considerable importance in UK terms. The Atlantic salmon is the focus for much of the management activity carried out on the Wye. 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. The Wye also holds the densest and most well-established otter *Lutra lutra* population in Wales, representative of otters occurring in lowland freshwater habitats in the borders of Wales. The river has bank-side vegetation cover, abundant food supply, clean water and undisturbed areas of dense scrub suitable for breeding, making it particularly favourable as otter habitat. The population remained even during the lowest point of the UK decline, confirming that the site is particularly favourable for this species and the population likely to be highly stable. The site is considered one of the best in the UK for white-clawed crayfish

ANNEX 2

Site Name: River Wye **Location Grid Ref: SO109369** **JNCC Site Code: UK0012642** **Size: 2234.89** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Austropotamobius pallipes. The tributaries are the main haven for the species, particularly at the confluences of the main river and the Edw, Dulas Brook, Sgithwen and Clettwr Brook. Other importance species supported by the River Wye are twaite shad, bullhead and river, sea and brook lamprey.
Qualifying Features	Annex I habitats primary reason for selection: ▪ Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation Annex I habitats qualifying feature: ▪ Transition mires and quaking bogs Annex II species primary reason for selection: ▪ White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes* ▪ Sea lamprey *Petromyzon marinus* ▪ Brook lamprey *Lampetra planeri* ▪ River lamprey *Lampetra fluviatilis* ▪ Twaite shad *Alosa fallax* ▪ Atlantic salmon *Salmo salar* ▪ Bullhead *Cottus gobio* ▪ Otter *Lutra lutra* Annex II Species qualifying feature: ▪ Allis shad *Alosa alosa*
Conservation Objectives	The ecological status of the watercourse is a major determinant of Favourable Condition Status for all features. The required conservation objective for the watercourse is defined below. **Conservation Objective for the watercourse**

ANNEX 2

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ 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. Where the SAC habitat is not underpinned by a river habitat SSSI feature, 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, eg. weirs, bridge sills, acoustic barriers. ▪ Natural factors such as waterfalls, which may limit, wholly or partially, 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

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	abstraction to the extent that passage upstream to spawning sites is hindered. ▪ Flow objectives for assessment points in the Wye 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 Wye 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 Wye 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 Wye 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. **Conservation Objective for Features 1-5:** - **Sea lamprey** *Petromyzon marinus*; - **Brook lamprey** *Lampetra planeri*; - **River lamprey** *Lampetra fluviatilis*; - **Twaite shad** *Alosa fallax*; - **Allis shad** *Alosa alosa*; - **Atlantic salmon** *Salmo salar*; - **Bullhead** *Cottus gobio*.

ANNEX 2

Site Name: River Wye **Location Grid Ref: SO109369** **JNCC Site Code: UK0012642** **Size: 2234.89** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Vision for features 1-5 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The conservation objective for the water course as defined in 4.1 above must be met. ▪ The population of the feature in the SAC is stable or increasing over the long term. ▪ The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms eg. suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions eg. food supply. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. Natural factors such as waterfalls may limit the natural range of individual species. Existing artificial influences on natural range that cause an adverse effect on site integrity, such as physical barriers to migration, will be assessed in view of the following bullet point. ▪ There is, and will probably continue to be, a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis. Performance indicators for features 1-5 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 River Wye Management Plan. **Conservation Objective for Feature 6:** **- European otter** *Lutra lutra*

ANNEX 2

Site Name: River Wye **Location Grid Ref: SO109369** **JNCC Site Code: UK0012642** **Size: 2234.89** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Vision for feature 6 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC, as determined by natural levels of prey abundance and associated territorial behaviour. ▪ The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches that are potentially suitable to form part of a breeding territory and/or provide routes between breeding territories. The whole area of the Wye SAC is considered to form potentially suitable breeding habitat for otters. The size of breeding territories may vary depending on prey abundance. The population size should not be limited by the availability of suitable undisturbed breeding sites. Where these are insufficient they should be created through habitat enhancement and where necessary the provision of artificial holts. No otter breeding site should be subject to a level of disturbance that could have an adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance must be managed. ▪ The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers. Performance indicators for feature 6 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 River Wye Management Plan. **Conservation Objective for Feature 7:** **- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation**

ANNEX 2

Site Name: River Wye **Location Grid Ref: SO109369** **JNCC Site Code: UK0012642** **Size: 2234.89** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Vision for feature 7 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The conservation objectives for the water course as defined above must be met. ▪ The natural range of the plant communities represented within this feature should be stable or increasing in the SAC. The natural range is taken to mean those reaches where predominantly suitable habitat exists over the long term. Suitable habitat and associated plant communities may vary from reach to reach. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms eg. depth and stability of flow, stability of bed substrate, and ecosystem structure and functions eg. nutrient levels, shade. Suitable habitat for the feature need not be present throughout the SAC but where present must be secured for the foreseeable future, except where natural processes cause it to decline in extent. ▪ The area covered by the feature within its natural range in the SAC should be stable or increasing. ▪ The conservation status of the feature's typical species should be favourable. The typical species are defined with reference to the species composition of the appropriate JNCC river vegetation type for the particular river reach, unless differing from this type due to natural variability when other typical species may be defined as appropriate. Performance indicators for feature 7 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 River Wye Management Plan. **Conservation Objective for Feature 8:** **- White-clawed crayfish *Austropotamobius pallipes***

ANNEX 2

Site Name: River Wye **Location Grid Ref: SO109369** **JNCC Site Code: UK0012642** **Size: 2234.89** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Vision for feature 8 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The conservation objective for the water course as defined in 4.1 above must be met. ▪ The population of the feature in the SAC is stable or increasing over the long term. ▪ The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms e.g. substrate type, water hardness and temperature, and ecosystem structure and functions e.g. food supply, absence of invasive non-native competitors. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. Natural factors such as waterfalls may limit the natural range of individual species. Existing artificial influences on natural range that cause an adverse effect on site integrity will be assessed in view of the objective below. ▪ There is, and will probably continue to be, a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis. Performance indicators for feature 8 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 River Wye Management Plan. **Conservation Objective for Feature 9:** **- Quaking bogs and transition mires**

ANNEX 2

Site Name: River Wye **Location Grid Ref: SO109369** **JNCC Site Code: UK0012642** **Size: 2234.89** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Vision for feature 9 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The conservation objective for the water course as defined in 4.1 above must be met. ▪ The natural range of the plant communities represented within this feature should be stable or increasing in the SAC. The natural range is taken to mean those reaches where near-natural hydrological and geomorphological processes and landforms favour the development of this habitat. The feature need not be present in all suitable locations in the SAC but where present must be secured for the foreseeable future. ▪ The area covered by the feature within its natural range in the SAC should be stable or increasing. ▪ The conservation status of the feature's typical species should be favourable. The typical species are defined with reference to the species composition of the appropriate NVC type(s), unless differing from this type due to natural variability/local distinctiveness when other typical/indicator species may be defined as appropriate. Performance indicators for feature 9 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 River Wye Management Plan.
Component SSSIs	The site 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 the following: ▪ SSSI boundaries

ANNEX 2

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ Natural hydromorphology, where there are significant differences in management issues/key features between reaches ▪ Units partly within England coincide with Natural England's equivalent units, as far as is practicable ▪ 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. The component SSSIs and management units that comprise to form the River Wye SAC are: ▪ **River Wye (Lower Wye) SSSI - Management units 1A to 1D;** o Twaite shad spawn in Unit 1C & possibly in 1D and migrate through Units 1A & 1B, where they may be subject to disturbance impacts, so are selected as key features in all units. Sea and river lamprey migrate though all units and may spawn. o Management for twaite shad and sea lamprey is expected to also be sympathetic for Atlantic salmon, river/brook lamprey and bullhead. o Specific management measures for otter relating to adjacent habitats and disturbance require its selection as a key feature in all units. o The status of allis shad is uncertain in River Wye (Lower Wye) SSSI. It is assumed to be present in the same units as twaite shad. o White-clawed crayfish have been recorded in the River Wye at Hay-on-Wye and in adjacent tributaries including Clyro Brook and Dulas Brook. ▪ **River Wye (Upper Wye) SSSI - Management units 2A & 2B;** o Atlantic salmon is a key feature in Unit 2B due to the presence of spawning sites, although salmon may occasionally also spawn within Unit 2A. o Twaite shad is recorded spawning throughout Unit 2A but only infrequently upstream of the River Irfon confluence. o The status of Allis shad is uncertain in the River Wye SAC. Allis shad is assumed to be present in the same units as twaite shad, but normally migrates further upstream and therefore would be expected to occur in the upper river. o Sea lamprey is frequently recorded spawning within Unit 2A; spawning has also been recorded within

ANNEX 2

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	Unit 2B as far upstream as Rhayader. o Management for Atlantic salmon, twaite shad and sea lamprey is expected to be sympathetic for river/brook lamprey and bullhead. o Specific management measures for otter relating to adjacent habitats and disturbance require its selection as a key feature in all units. ▪ **River Wye (Tributaries) SSSI - Management unit 3;** o The tributaries included in this SSSI form the core range of the white-clawed crayfish in the River Wye SAC. o Atlantic salmon spawn in all tributaries within this SSSI although in the Sgithwen and Cletwr their natural range is limited to the lower reaches by waterfalls. o Twaite shad, allis shad and sea lamprey are thought not to occur within this SSSI. ▪ **Afon Llynfi SSSI - Management unit 4;** o An important population of white-clawed crayfish occurs in this SSSI. o Twaite shad, allis shad and sea lamprey are not known to occur within this SSSI but habitat in the lower reaches may possibly be suitable. ▪ **Duhonw SSSI - Management unit 5;** o An important population of white-clawed crayfish formerly occurred in this SSSI; restoration of the species here is a management objective. o Twaite shad, allis shad and sea lamprey are thought not to occur within this SSSI. ▪ **Afon Irfon SSSI - Management unit 6;** o Small populations of white-clawed crayfish are known to occur in the rivers Hafrena and Chwefri in this SSSI; restoration of the species here and to parts of its former range including the Garth Dulas is a management objective. o Twaite shad is frequently recorded spawning in the lowest approximately 0.6km of the Afon Irfon and at the confluence with the River Wye. o The status of Allis shad is uncertain in the River Wye SAC. Allis shad is assumed to be present in the same units as twaite shad, but normally migrates further upstream and therefore would be expected to occur in the upper river.

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	○ Sea lamprey is reported spawning within the Afon Irfon. ○ Atlantic salmon is recorded spawning throughout this SSSI but reproductive success is limited in parts of the upper Afon Irfon and Gwesyn due to acidification related to forestry. ▪ **River Ithon SSSI - Management unit 7;** ○ White-clawed crayfish has been recorded in this SSSI, including in Howey Brook, however its restoration to this sub-catchment is not a current management objective. ○ Twaite shad, allis shad and sea lamprey are not known to occur within this SSSI but habitat in the lower reaches may possibly be suitable. ▪ **Upper Wye Tributaries SSSI - Management unit 8; and** ○ This SSSI forms an important part of the spawning range of Atlantic salmon. ▪ **Colwyn Brook Marshes (North & South) SSSI - Management units 9A to 9G & 10A & 10E.** ○ This is the only component SSSI of the River Wye SAC that contains the feature 'quaking bogs and transition mires'. ○ The site comprises 5 separate ownership units. Note: a number of smaller SSSI have part of their area included within the River Wye SAC. These are not all included separately here, but management actions for adjacent SAC units also apply to these sites. Maps containing the component SSSIs and management units can be viewed on the CCW website.
Key Environmental Conditions (factors that maintain site integrity	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 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'

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	flows and base-flows is essential. Reductions in flow may reduce the ability of the adult migratory fish to reach spawning sites. Water-crowfoot 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. While some sections of the river are naturally stable, especially where they flow over bedrock, others undergo continual 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

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	riparian habitat for 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. Overhanging trees provide valuable shade and food sources for Atlantic salmon whilst tree root systems provide important cover and flow refuges for juveniles. 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. ▪ **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. In all river types, artificial barriers should be made passable. 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. Certain areas of the SAC are critical to the movement of otters both within the system and to adjacent sites. The Wye 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 urban centres such as Monmouth. Connectivity should be maintained, or restored

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	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.
SAC Condition Assessment	**Conservation status of Feature 1: Sea lamprey *Petromyzon marinus*** Conservation status (2006) Status within the site: **Favourable: Unclassified**. Sea lamprey monitoring showed that overall catchment mean ammocoete density considerably exceeded the JNCC target threshold and also complied with targets for spawning site and ammocoete distribution. Sea lamprey ammocoetes were recorded in good numbers immediately upstream of the falls at Rhayader, their most upstream recorded site on the main Wye. They were also recorded in the Irfon and Ithon tributaries. **Conservation status of Feature 2: Brook lamprey Lampetra planeri and River lamprey *Lampetra fluviatilis*** Conservation status (2006) Status within the site: **Favourable: Unclassified**. Brook/river lamprey monitoring showed that overall catchment mean ammocoete density considerably exceeded the JNCC target threshold. However, Lampetra ammocoetes were recorded at only 30 of the 54 sample sites (56%) thus failed to meet the criterion of presence at least two thirds of sites within their natural range. Consequently, the feature may be in unfavourable condition. Further clarification is needed concerning a number of sample sites in the upper reaches (Upper Wye and Elan), which may reflect unsuitable habitat and be outside the natural ranges of the species.

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	It has not been possible to distinguish between these two species during monitoring, due to the reliance on juvenile stages (ammocoetes). Anecdotal evidence suggests that both species are likely to be present in many reaches, though brook lamprey are expected to predominate in the headwaters and river lamprey may be the more abundant species in the main channel and the lower reaches of larger tributaries. More information on the relative abundance of these two species in different parts of the Wye SAC is desirable. Records of spawning adult river lamprey would be particularly useful. **Conservation status of Feature 3: Twaite shad *Alosa fallax* and Allis shad *Alosa alosa*** Conservation status (2006) Status within the site: **Unfavourable: Unclassified**. Physical barriers to migration are a major cause of unfavourable status of these species in Europe as a whole; however, there are not thought to be any significant barriers to shad migration in the Wye. The current unfavourable status results from a precautionary assessment of feature abundance, and from the presence of adverse factors, in particular the potential for damaging flow depletion and entrainment/impingement in water intakes. **Conservation status of Feature 4: Atlantic salmon *Salmo salar*** Conservation status (2006) Status within the site: **Unfavourable: Unclassified**. The current unfavourable status results from failure of the Management Target for adult run size as well as a

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	precautionary assessment of juvenile distribution and abundance and the presence of adverse factors, in particular the potential for flow depletion and localised water quality failures. Acidification due to forestry is a factor in the upper reaches of the Wye and Irfon. **Conservation status of Feature 5: Bullhead *Cottus gobio*** Conservation status (2006) Status within the site: **Unfavourable: Unclassified**. The current unfavourable status results from the presence of adverse factors, in particular localised water quality failures. Records obtained from juvenile salmon monitoring show that bullhead are widespread in the main river and tributaries. Quantitative information on bullhead abundance is being provided through targeted monitoring. **Conservation status of Feature 6: European otter *Lutra lutra*** Conservation status (2006) Status within the site: **Unfavourable**. The conservation status of otters in the Wye SAC is determined by monitoring their distribution, breeding success, and the condition of potential breeding and feeding habitat as outlined in the Performance Indicators. Their current condition is considered unfavourable due a lack of suitable breeding sites around the middle reaches of the river. **Conservation status of Feature 7: Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation** Conservation status (2006) Status within the site: **Unfavourable: Declining**. The present unfavourable status of the feature results from

Site Name: River Wye **Location Grid Ref: SO109369** **JNCC Site Code: UK0012642** **Size: 2234.89** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	declining water quality in some tributaries of the Wye e.g. parts of the Ithon and Llynfi sub-catchments, due mainly to diffuse pollution from agriculture. A further adverse factor is the over-abundance of invasive non-native species of bankside plant communities, which are included within the feature definition. Japanese knotweed and Himalayan balsam are widespread in the catchment, including the Irfon sub-catchment. **Conservation status of Feature 8: White-clawed crayfish *Austropotamobius pallipes*** Conservation status (2006) Status within the site: **Unfavourable: Declining**. There is considerable anecdotal evidence of a major decline in the distribution and abundance of the native white-clawed crayfish in the Wye catchment over the last few decades. Native crayfish may have been lost from the main river channel, from tributaries such as the Duhonw and Ithon and have almost disappeared from the Afon Irfon. Significant populations within the Wye SAC are now confined to the Sgithwen, Cletwr, Edw, Llynfi Dulas and Builth Road Dulas. The most recent assessment of the condition of crayfish in the Wye SAC, using modified Common Standards Monitoring techniques, found that populations are unfavourable.
Vulnerabilities (includes existing pressures and trends)	▪ **Abstraction levels -** entrainment in water abstractions directly impacts on species population dynamics through reduced recruitment and survival rates. 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 potential impacts on SAC features. ▪ **Eutrophication** - factors that are important to the favourable conservation status of this feature include flow, substrate quality and water quality, which in turn influence species composition and abundance. These factors often interact, producing unfavourable conditions by promoting the growth of a range of algae

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	and other species indicative of eutrophication. Under conditions of prolonged low flows and high nutrient status, epiphytic algae may suppress the growth of aquatic flowering plants. ▪ **Diffuse Pollution** - in the Wye 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. 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. 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-

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	environment schemes, will help to achieve the conservation objectives for the SAC. 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. ▪ **Barriers to migration** - 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. ▪ **Development pressure** - 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 eg. due to impact piling, drilling, salmon fish counters present within or in close proximity to the river can create a barrier to shad migration. Barriers resulting from vibration, chemicals, low dissolved oxygen and artificially high sediment levels must be prevented at key times. Engineering works such as bridge repairs in reaches where white-clawed crayfish are known to occur should include appropriate pollution prevention measures and a crayfish rescue by a suitably licensed person where there is a risk of physical damage to crayfish. ▪ **Invasive and non-native species** - are a detrimental impact on the water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. Giant hogweed, Himalayan balsam and Japanese knotweed should be actively managed to control their spread and hopefully reduce their extent in the SAC. The American signal crayfish is present in the Wye catchment and poses a very serious threat to the continued existence of the native white-clawed crayfish in the site and in Wales. Native crayfish are unable to co-exist where signal crayfish are present, due to the latter's superior competitive ability and a disease, crayfish plague, which it carries but to which native crayfish have no immunity. American signal crayfish and crayfish plague are widespread and abundant in nearby catchments such as the Lugg, Arrow and Severn. Crayfish plague can be transferred to streams on wet fishing gear, boots, canoes, machinery, stocked fish etc., so measures such as raising awareness, disinfection facilities and

ANNEX 2

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	where appropriate restrictions on access, should be implemented where a significant risk is identified. Signal crayfish are also extremely harmful to fish communities and the overall ecology of the river. It is illegal to release non-native crayfish into the wild, to keep live crayfish in most of Wales or to trap crayfish without a licence from the Environment Agency. 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. ▪ **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. A small-scale salmon rearing and stocking programme is currently in operation in the Wye, run by the Wye and Usk Foundation. 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 that salmon stocking in the Wye SAC will be phased out over time. 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. ▪ **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.
Landowner/ Management Responsibility	▪ N/A
HRA/AA Studies undertaken	HRA Screening of the Torfaen Local Development Plan (2006-2021) January 2008.

ANNEX 2

Site Name: River Wye **Location Grid Ref: SO109369** **JNCC Site Code: UK0012642** **Size: 2234.89** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
that address this site	http://www.torfaen.gov.uk/EnvironmentAndPlanning/Planning/ForwardPlanning/Publications/HabitatsRegulationAssessment.pdf ▪ The screening concludes that due to the distance between the SAC and Torfaen (approximately 30-35km) it is considered that the LDP is unlikely to have any significant effects on this SAC. Increases in airborne pollution could potentially have effects on particular habitats but this impact is considered negligible.

ANNEX 2

Site Name: Sugar Loaf Woodlands **Location Grid Ref: SO295166** **JNCC Site Code: UK0030072** **Size: 173.84** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Site Description	Sugar Loaf Woodlands are the largest example of old sessile oak woods near the south-eastern fringe of the habitat's range in the UK and Europe. The relatively dry situation restricts the development of the Atlantic flora associated with the habitat, but the main floristic components of sessile oak *Quercus petraea* canopy, acidic ground flora (typically of bilberry *Vaccinium myrtillus* and wavy hair-grass *Deschampsia flexuosa*) and extensive fern and bryophyte cover are in place. The woodland is grazed, but regenerates within gaps and at the fringes, where transitions to upland grassland and heath communities occur. The woodland also supports a smaller area of beech woodland and a large colony of red wood ants, which are more commonly found in southern and eastern Britain.
Qualifying Features	Annex I Habitats qualifying feature: ▪ Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles
Conservation Objectives	**Conservation Objective for Feature:** **Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles** Vision for feature: The vision for this feature is for it to be in favourable conservation status within the site, as a functioning and regenerating* oak wood, where all of the following conditions are satisfied: ▪ The wooded area is no less than 122 ha; ▪ The remainder of the site is semi-natural acid grassland, heathland, bracken and scrub, often forming a transition zone at the woodland edge; ▪ Saplings of birch betula spp, oak Quercus petraea, alder Alnus glutinosa or holly Ilex aquifolium dominate the tree regeneration; ▪ Young beech Fagus sylvatica and sycamore Acer pseudoplatanus trees are rare;

ANNEX 2

Site Name: Sugar Loaf Woodlands **Location Grid Ref: SO295166** **JNCC Site Code: UK0030072** **Size: 173.84** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	▪ The woodland ground flora is composed of a range of typical native plants including bilberry Vaccinium myrtillus, wavy-hair grass Deschampsia flexuosa and the mosses Plagiothecium undulatum, Rhytidiadelphus loreus, Dicranum majus. ▪ The liverwort Bazzania trilobata to continue to be present in its core area of Unit 1. ▪ All factors affecting the achievement of these conditions will under control. *A "functioning and regenerating oak woodland" would include all the positive attributes described in the performance indicators. Performance indicators for Feature 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 Sugar Loaf Woodlands Management Plan.
Component SSSIs	▪ Sugar Loaf Woodlands SSSI The site has been divided into 4 management units. A map of these units can be viewed on the CCW website.
Key Environmental Conditions (factors that maintain site integrity	Canopy regeneration is a key attribute for signifying the functioning, habitat quality and sustainability of most woodland types, including sessile oak woods. ▪ **Grazing regime** - The grazing within all 4 units has suppressed the regeneration of native woody species and in combination with past coppicing has resulted in a uniform age structure. The areas of Sugarloaf woodlands not subjected to continuous grazing appear to become densely populated with saplings of all species. This may demonstrate that the main factor restricting natural regeneration of woody species in

ANNEX 2

Site Name: Sugar Loaf Woodlands Location Grid Ref: SO295166 JNCC Site Code: UK0030072 Size: 173.84 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	Sugar Loaf Woodlands is grazing and that current grazing levels are incompatible with sustainable semi-natural woodland at this site. Liaison between owners/commoners is needed to discuss possible means of managing grazing to encourage natural regeneration in the woodland areas, including possible agreements to fence all new and some existing canopy gaps. Most of Unit 4 is already fenced and stock free and regeneration is now taking place, though some periodic grazing may be required to control bramble. ▪ **Manage non-native species** (Tree/shrub) - if necessary control the spread of non-native species (principally beech) through a programme of selective removal of saplings to ensure no further trees get into the canopy. Non-native beech trees can be accepted as part of the canopy in the short to medium term. Consequently, the limits need only be met in 75% of existing woodland. The upper limits are 5% cover of non-native trees in the canopy and no beech (or other invasive non-native shrubs) in the understorey or shrub layer. The conservation objectives state that the canopy should be composed of locally native trees and, apart from a beech woodland area within Unit 1, the canopy of Sugar Loaf Woodlands is currently dominated by oak throughout. Where beech is present its seedlings tend to dominate the regeneration and without management to control these locally non-native seedlings further parts of the SAC feature will become unfavourable. ▪ **Manage woodland by thinning/small group felling** - Much of the woodland lacks structure due to past woodland management to remove timber. It is likely to be decades before a more natural woodland structure can develop. Trees could be thinned to create a more uneven age structure or open gaps in the canopy when an appropriate means of controlling grazing levels have been identified and all dead/felled timber to be left in situ. This is already taking place in Unit 4 but elsewhere the grazing regime may be unsuitable. ▪ **Increase amounts of deadwood** - Deadwood is present on the site, but much has been removed in the past. In future, the owners should be encouraged to leave as much dead wood as possible.

ANNEX 2

Site Name: Sugar Loaf Woodlands Location Grid Ref: SO295166 JNCC Site Code: UK0030072 Size: 173.84 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ **Veteran trees** - Retain all veteran trees. ▪ **Manage bracken** - Bracken may require management where it is thought to be hindering successful regeneration, largely in the open areas and gaps. However, this needs to be balanced against the protection bracken offers for young saplings against browsing and its place as a key natural component of acidic woodlands. Together bracken and bramble should cover less than 75% of the woodland floor.
SAC Condition Assessment	**Conservation Status of Feature 1:** **Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles** Unfavourable (2007), due to: ▪ Grazing having a strong role in preventing some of the canopy regeneration and in creating a sparser ground flora; ▪ Some areas within the SAC/SSSI remain as open areas, especially on the fringe of the site. Whilst having some open areas is beneficial for a range of species, not all these open areas are of benefit to either the SAC or SSSI features; ▪ The even-aged and dense canopy in much of the wooded area. This is creating very densely shaded ground, field and shrub layers and is one of the barriers to regeneration of saplings and ground flora. However, more canopy gaps would be expected in the long term as the canopy trees die, or through storm damage in the more exposed parts of the site;
Vulnerabilities (includes existing pressures and trends)	▪ **Inappropriate grazing regime** - The grazing within all 4 units has suppressed the regeneration of native woody species and in combination with past coppicing has resulted in a uniform age structure. The areas of Sugarloaf woodlands not subjected to continuous grazing appear to become densely populated with

ANNEX 2

Site Name: Sugar Loaf Woodlands Location Grid Ref: SO295166 JNCC Site Code: UK0030072 Size: 173.84 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	saplings of all species. This may demonstrate that the main factor restricting natural regeneration of woody species in Sugar Loaf Woodlands is grazing and that current grazing levels are incompatible with sustainable semi-natural woodland at this site. ▪ **Non-native species** - Where beech is present its seedlings tend to dominate the regeneration and without management to control these locally non-native seedlings further parts of the SAC feature will become unfavourable. ▪ **Bracken encroachment** - can hinder successful regeneration in the open areas and gaps. However the bracken also offers protection for young saplings against browsing and its place as a key natural component of acidic woodlands. The accumulation of bracken litter on the common poses a fire risk in dry weather. Restrictions on public access could be considered, but it would be very difficult to control most incidents as they appear to be the result of children deliberately setting fires. Control of bracken in a buffer strip at the wood edges may be a more sensible consideration. ▪ **Air pollution*** - Airborne acid and nutrient deposition could be a particular problem for epiphytic lichens on the oak trees. o Acidification. o Eutrophication. o Photochemical oxidants. o Particulate matter.
Landowner/ Management Responsibility	▪ Unit 1 - National Trust (common) ▪ Unit 3 - National Trust (common)

* Air Pollution Information System (APIS). Oak Woodland. Available from: http://www.apis.ac.uk/cgi_bin/habitat_result.pl?habResult=Oak+woodland&choice=allHabs&haborspec=habitat&submit.x=23&submit.y=8

ANNEX 2

Site Name: Sugar Loaf Woodlands **Location Grid Ref: SO295166** **JNCC Site Code: UK0030072** **Size: 173.84** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	▪ Unit 4 - National Trust (tenanted) The management units have been largely based on the three woodland blocks that make up the SAC and SSSI. The SAC feature is the same for each block of woodland and units 1& 3 are on the same common and so are under broadly the same management, but their geographical isolation from each other gives them the status of separate units. Unit 2 is a small privately owned and enclosed area within Unit 1. Unit 4 is on a farm in the Tir Gofal agri-environment scheme and so is easily separated from the other two units. Unit 3 includes one isolated area of woodland joined to the enclosed Unit 4, but on the common and so potentially under the same management regime as the rest of Unit 3.
HRA/AA Studies undertaken that address this site	HRA Screening of the Torfaen Local Development Plan (2006-2021) January 2008. http://www.torfaen.gov.uk/EnvironmJentAndPlanning/Planning/ForwardPlanning/Publications/HabitatsRegulationAssessment.pdf ▪ The screening states that the LDP will not have a direct impact on the site; however, it is identified that airborne acid and nutrient deposition may be a problem for this site. It concludes that given the distance of the site from the Torfaen boundary the effect that the LDP could have on the site is negligible.

ANNEX 2

Site Name: Usk Bat Sites **Location Grid Ref: SO190145** **JNCC Site Code: UK0014784** **Size: 1686.4** **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.).

ANNEX 2

Site Name: Usk Bat Sites **Location Grid Ref: SO190145** **JNCC Site Code: UK0014784** **Size: 1686.4** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Qualifying Features	Annex I Habitats qualifying feature: ▪ European dry heaths ▪ Degraded raised bogs still capable of natural regeneration ▪ Blanket bogs* Priority feature ▪ Calcareous rocky slopes with chasmophytic vegetation ▪ Caves not open to the public ▪ Tilio-Acerion forests of slopes, screes and ravines* Priority feature Annex II Species primary reason for selection: ▪ Lesser horseshoe bat *Rhinolophus hipposideros*
Conservation Objectives	**Conservation Objective for Feature 1:** **Lesser Horseshoe Bat *Rhinolophus hipposideros*** 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 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 no reduction in population size or range, nor any decline in the extent or quality of breeding, foraging or hibernating habitat.

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ 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. 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 Usk Bat Sites Management Plan. **Conservation Objective for Feature 2:** **Blanket bog** Vision for Feature 2 ▪ 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 2

Site Name: Usk Bat Sites **Location Grid Ref: SO190145** **JNCC Site Code: UK0014784** **Size: 1686.4** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Performance indicators for Feature 2 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 Usk Bat Sites Management Plan. **Conservation Objective for Feature 3:** **Tilio-Acerion forests of slopes, screes and ravines** Vision for Feature 3 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.

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ 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. Performance indicators for Feature 3 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 Usk Bat Sites Management Plan. **Conservation Objective for Feature 4:** **Calcareous rocky slopes with chasmophytic vegetation** Vision for Feature 4 ▪ 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. Performance indicators for Feature 4 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 Usk Bat Sites Management Plan. **Conservation Objective for Feature 5:** **Caves not open to the public**

ANNEX 2

Site Name: Usk Bat Sites **Location Grid Ref: SO190145** **JNCC Site Code: UK0014784** **Size: 1686.4** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Vision for Feature 5 ▪ 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. Also see the vision for lesser horseshoe bats. As outlined in the JNCC description of this feature, the cavernicolous fauna is considered to be impoverished throughout the UK and this feature is not a primary reason for selection of any SAC in the UK (www.jncc.gov.uk). There is however significant bat interest associated with many of the caves within this SAC, particularly Lesser Horseshoe Bat. Great Horseshoe Bat has also been recorded in very small numbers. Several other bat species are recorded, particularly from the genus Myotis, but their habit of hibernating deep within crevices in the caves (rather than hanging freely from the cave roof, like horseshoe species) makes them extremely difficult to record. Performance indicators for Feature 5 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 Usk Bat Sites Management Plan. **Conservation Objective for Feature 6:** **Degraded raised bogs still capable of natural regeneration**

ANNEX 2

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	Vision for Feature 6 ▪ 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. Performance indicators for Feature 6 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 Usk Bat Sites Management Plan. **Conservation Objective for Feature 7:** **European dry heaths** Vision for Feature 7 ▪ The extent, quality and diversity of heath vegetation within the constituent sites is 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. Performance indicators for Feature 7 The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans

ANNEX 2

Site Name: Usk Bat Sites **Location Grid Ref: SO190145** **JNCC Site Code: UK0014784** **Size: 1686.4** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	and projects must be based on the entire conservation objective, not just the performance indicators. The performance indicators can be found within the Usk Bat Sites Management Plan.
Component SSSIs	▪ Mynydd Llangatwg/ Mynydd Llangattock SSSI (units 1 to 15) ▪ Siambre Ddu SSSI (unit 19) ▪ Buckland Coach House & Ice House SSSI (unit 20) ▪ Foxwood SSSI (unit 21) The site has been divided into 21 management units of which units 1 to 15, 19, 20 and 21 comprise to form the Usk Bat Sites SAC. A map of the management units can be viewed on the CCW website.
Key Environmental Conditions (factors that maintain site integrity	**Key environmental conditions for the Lesser Horseshoe Bat:** **Buckland House Maternity Roost** ▪ Site security - Access to the site should be secured against unauthorized access ensuring doors, gates and security fences are in sound condition. ▪ External condition of building - Fabric of building sufficient to maintain roost conditions internally with: o Weatherproof roof. The roof covering materials (slates, tiles etc.) in weatherproof condition with no significant gaps, slippage or damage. o No holes large enough to allow soaking of roof timbers, excessive heat loss or high light levels in the roost area o Walls sound, rainwater goods in adequate condition. o The building is structurally stable. No significant deterioration in overall condition of the building. ▪ Roost entrance -buildings and underground sites: o Unobstructed roost entrance large enough for bats to fly through unimpeded. Normal minima: 300 x 200 mm. o No artificial lights shining on access or associated flight paths. ▪ External Disturbance - Disturbance levels acceptable to bats with:

ANNEX 2

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	o No increase since previous visit. o Human access to roost controlled and limited. ▪ Internal condition of building/ underground site in roost area: o 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. o Low light levels with no through draught. o No toxic substances present, which would adversely affect the health of the bats (e.g. chemical timber treatment within inappropriate substances). ▪ Temperature of roost area: o Range of temperatures available to bats with mean temperature in July greater than 20°C ▪ Internal disturbance: o Human access to roost area controlled and limited. o Disturbance is kept to a minimum. **Hibernation Sites** ▪ Site entrance: o Existing entrances should be unobstructed. o No human-influenced new entrances causing a change to ventilation. o No change in size sufficient to affect airflow and internal temperature. ▪ External conditions of site: o Vegetation present close to entrance(s) but not obstructing it (them). o No artificial lights shinning on entrance(s). ▪ Internal conditions: o The temperature should remain constantly cool (8-12°C) and dark, once beyond the entrance zone. o No significant man-induced changes to ventilation or temperature regime.

ANNEX 2

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	o No toxic substances present (dumping of oil or other substances). ▪ Internal disturbance: o Human access to roost area controlled and limited (at Agen Allwedd the number of visitors is already controlled). 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. Any structures placed at cave entrances to prevent unauthorized access should not hinder the passage of bats. o Disturbance is kept to a minimum. **Foraging areas and links to roosts** ▪ Habitat Quality: o There should be no net loss of suitable woodland, scrub and hedgerows within the SAC or adjoining areas used by the bats. 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. ▪ Connectivity: o 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. Disturbance - Lesser horseshoe bats are very sensitive to disturbance and even the presence of a single person

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	in close proximity can cause problems. Light and noise pollution Habitat fragmentation **Key Environmental Conditions for the Blanket Bog:** ▪ **Drainage** - No new drainage ditches should be dug, and wherever possible old drainage ditches should be allowed to infill naturally. o There should be no evidence of new drains or major clearance of old drains or deepening of bog outlet streams. ▪ **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. o No evidence of significant burning (patches larger than 1ha) in any areas of blanket bog. ▪ **Peat Erosion** - There is a natural cycle of peat erosion and deposition but the balance can be upset by burning, heavy grazing, pollution and vehicle damage. o The total extent of active erosion over a 5-year period should not exceed the total extent of areas showing signs of peat accumulation and re-vegetation. ▪ **Air quality** - No exceedence of critical loads for: o Sulphur dioxide – 20µg/m³ o Nitrous Oxides – 30µg/m³ o Ozone – 3000 ppb o ammonia – 1µg/m³ o N – 5-10 kg/ha/yr

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	o acid – 0.35keq/ha/yr Monitoring stations located at grid location: 319097.79 214637.88 **Key Environmental Conditions for the Tilio-Acerion forests of slopes, screes and ravines:** ▪ **Grazing** - The greatest influence on the woodland, and its continued regeneration, is grazing. The present structure and species composition of the northern escarpment woodland, excluding the cliff ledges, is a result of natural regeneration. The cliff ledges are inaccessible to stock, have developed naturally and are not actively managed. In units 1 & 2, the woodland has developed on common land and parts are subject to high grazing levels by sheep. The woodland in units 5, 12 & 13 is now largely un-grazed and the ground flora is noticeably more luxuriant in these areas. o Grazing levels should be sufficient to allow regeneration in the long term. o On the common (units 1 & 2), maintain grazing at or below the current (2007) levels. o Un-grazed areas (unit 5, 12, 13) should remain un-grazed. ▪ **Woodland Management** - Natural ecological processes should be allowed to operate as far as possible. In many areas, these are gradually creating greater structural diversity. Most of the woodland on the site is not actively managed as the woodland occupies cliffs and steeply sloping ground, such that active woodland management is not a practical or desirable option o There should be no evidence of tree felling or coppicing within the past five years. (Tree surgery for safety reasons excluded). o 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. ▪ **Non-native species** - Beech is at the edge of its range in this part of Wales. In units 5, 12 and 13 the beech wood appears to be natural, but the spread of beech over much of Units 1 & 2 may not be desirable, as it

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	would replace the ash woodland. Limits should be met in 70% of the woodland. o 5% cover of non-native trees in the canopy. o No cotoneaster (or other invasive non-native shrubs) in the understorey or shrub layer. **Key Environmental Conditions for the Calcareous rocky slopes with chasmophytic vegetation:** ▪ **Grazing** - Low grazing levels on the more accessible rocky areas in units 1 & 2 in are important in controlling the growth of ground-smothering species such as ivy, which have the potential to smother boulders and cliff faces that are important for their lower plant communities. Tree growth at the base of the cliffs may shade out important calcareous chasmophytic habitat, so should be controlled within limits outside the areas of agreed woodland. Surveillance of grazing levels and type should be maintained so that changes that may influence the features on the site are identified and recorded. o Sufficient grazing to prevent the development of scrub or spread of ivy and tall vegetation in units 1 & 2. ▪ **Rock Climbing** - Intensive rock climbing 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. o No rock climbing in the key areas of units 1 & 2 without agreement. ▪ **Quarrying** - any quarrying in the key areas of units 1 & 2 would lead to habitat loss. **Key Environmental Conditions for the Degraded raised bogs still capable of natural regeneration:** ▪ **Drainage** - See blanket bog above. ▪ **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. o Upper limits: Overall grazing pressure of 0.05 livestock units/ha/year on the bog area.

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	AND: o Minimal winter grazing. AND: o No stock feeding o Lower limit: Sufficient to prevent the establishment of trees and shrubs in the long term. ▪ **Burning** - will damage the feature and could encourage dominance by purple-moor grass if grazing is significantly reduced and result in a decline in the cover of bog mosses. At present there is generally insufficient vegetation to be burnt here. ▪ **Air quality** - See blanket bog above. **Key Environmental Conditions for the European dry heaths:** ▪ **Burning** - 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. o In areas subject to any burning plan, only a maximum of up to 15% of the total heathland area should be burnt in any one year. ▪ **Erosion/Bare Ground** - Is generally caused by uncontrolled fires (see above) or heavy trampling. o Upper Limit - 10% bare ground ▪ **Air Quality** - Increased cover of grasses and de-generate heather may be symptomatic of air pollution, as there is evidence that pollution makes heather plants more susceptible to damage by frost and heather beetles. The Environment Agency has set critical levels for these pollutants in relation to various types of vegetation. No critical loads are exceeded: o Sulphur dioxide - 20µg/m³

ANNEX 2

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	o Nitrous Oxides - 30µg/m³ o Ozone - 3000 ppb o Ammonia - 1µg/m³ o N - 10-20 kg/ha/yr o Acid - 0.35keq/ha/yr Monitoring station located at grid location: 319097.79 214637.88
SAC Condition Assessment	**Conservation Status of Feature 1:** **Lesser horseshoe bat *Rhinolophus hipposideros*** The conservation status of this feature within the site is considered to be **Favourable** (2006). Based on annual counts made at all locations between 2000 and 2006, the lesser horseshoe bat feature is considered to be in favourable condition. **Conservation Status of Feature 2:** **Blanket bog** The conservation status of this feature within the site is considered to be **Unfavourable** (2006). Assessment carried out in April 2002 indicated that feature condition was: Unfavourable, no change. In many areas there was little or no bog mosses and the cover of dwarf shrubs exceeded the upper limits defined. In other areas the vegetation was dominated by hare's-tail cottongrass and the cover of bog mosses was limited. Past grazing, burning and drainage activity means that some stands of blanket bog have been damaged by deep drainage. There is also concern that the vegetation is being damaged by atmospheric pollution, due to

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	exceedence of many of the critical loads identified for this feature. **Conservation Status of Feature 3:** **Tilio-Acerion forests of slopes, screes and ravines** The conservation status of this feature within the site is considered to be **Favourable** (2006). Assessment carried out in August 2004 indicated that feature condition was: Favourable, maintained. All the factors affecting the features appear to be under control. **Conservation Status of Feature 4:** **Calcareous rocky slopes with chasmophytic vegetation** The conservation status of this feature within the site is considered to be **Favourable** (2006). Assessment carried out in August 2004 indicated that feature condition was: Favourable, maintained. All the factors affecting the features appear to be under control. **Conservation Status of Feature 5:** **Caves not open to the public** The conservation status of this feature within the site is considered to be **Favourable** (2006). Based on records of made at all locations between 2000 and 2006, the feature condition is considered to be: Favourable, maintained. All the factors affecting the features appear to be under control. **Conservation Status of Feature 6:** **Degraded raised bogs still capable of natural regeneration**

ANNEX 2

Site Name: Usk Bat Sites **Location Grid Ref: SO190145** **JNCC Site Code: UK0014784** **Size: 1686.4** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	The conservation status of this feature within the site is considered to be **Unfavourable** (2006). Assessment carried out in July 2002 indicated that feature condition was: Unfavourable, declining. The feature is currently (2007) too heavily grazed because the most of it is common land and because it is on the sheltered side of the hill, is subject to high levels of grazing, particularly by sheep. There is also concern that the vegetation is being damaged by atmospheric pollution, due to exceedence of many of the critical loads identified for this feature. **Conservation Status of Feature 7:** **European dry heaths** The conservation status of this feature within the site is considered to be **Unfavourable** (2006). Assessment carried out in April 2002 indicated that feature condition was: Unfavourable, no change. Past grazing and burning activity means that some stands of dry heath have insufficient cover of dwarf shrubs. There is also concern that the vegetation is being damaged by atmospheric pollution, due to exceedence of many of the critical loads identified for this feature.
Vulnerabilities (includes existing pressures and trends)	**Lesser Horseshoe bat:** ▪ **Deterioration of buildings used to roost** - 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. ▪ **Disturbance** - It is important that access to the cave systems and roosts is managed to protect the bats. Lesser horseshoe bats are very sensitive to disturbance, such as light and noise pollution and even the presence of a single person in close proximity can cause problems. Where there is a risk of disturbance by unauthorised persons, grilling the cave entrances should be considered. Any structures placed at cave

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	entrances to prevent unauthorised access should not hinder the passage of bats. ▪ **Temperature change** - 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 gappy and internal temperatures are dependant 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. ▪ **Habitat fragmentation** - Development allocations pressures and transport development could lead to the loss or decline in quality of linear features (such as hedgerows and tree lines) which the bats use as flight lines. Connectivity of woodland, hedgerows, linear habitat and field boundary features are important as lesser horseshoe bats tend to feed in wooded areas and use linear features to navigate their way between roosts and foraging habitat. **Blanket bog**: ▪ **Air pollution** - High levels of air pollution are believed to be damaging and there may be combined effects. Increased cover of hare's-tail cottongrass and flat-topped bog-moss may be symptoms, as could increased levels of peat erosion. Blanket bogs are at risk from*: o Acidification; o Photochemical oxidants; o Direct toxicity; and o Eutrophication.

* Pollution Information System (APIS). Raised bog and blanket bog. Available from: http://www.apis.ac.uk/cgi_bin/habitat_result.pl?habResult=Raised+bog+and+blanket+bog&choice=allHabs&haborspec=habitat&submit.x=27&submit.y=9

ANNEX 2

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	▪ **Hydrological change** - the blanket bog has been subject to hydrological change as a result of past ditch construction to supply water to reservoirs. ▪ **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. 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. ▪ **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. 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. **Tilio-Acerion forests of slopes, screes and ravines:** ▪ **Grazing** - 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. ▪ **Non-native species** - The ash woodland in units 1 & 2 is vulnerable to the introduction of beech. **Calcareous rocky slopes with chasmophytic vegetation:** ▪ **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

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	the south side of Mynydd Llangatwg above the Clydach gorge and some control is desirable to stop it spreading into feature habitats. ▪ **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. **Degraded raised bogs still capable of natural regeneration:** ▪ **Air Pollution** - See blanket bog above. ▪ **Hydrological Change** - No new drainage ditches should be dug within the bog and outlet and inflow channels must not be deepened or altered in any way. ▪ **Grazing** - This area of bog has been damaged by heavy grazing in the past and current (2008) grazing levels are still too high to enable the re-generation of the bog habitats. Most of the bog is on commonland and therefore it is difficult to control grazing without agreement and fencing. Supplementary stock feeding can lead to damage of the sward and cause poaching and gradual nutrient enrichment. Feeding should not occur on this habitat. **European dry heaths:** ▪ **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 regenerate. 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. Supplementary stock feeding can lead to localised damage of the sward and cause poaching and gradual nutrient enrichment. Feeding should be confined to acceptable

Site Name: Usk Bat Sites Location Grid Ref: SO190145 JNCC Site Code: UK0014784 Size: 1686.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	areas off the common, such as agriculturally improved land. ▪ **Bracken and scrub encroachment** - 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 heathy areas. ▪ **Burning in combination with intense grazing** - can 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. ▪ **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. ▪ **Development** - See blanket bog above.
Landowner/ Management Responsibility	▪ N/A
HRA/AA Studies undertaken that address this site	HRA Screening of the Torfaen Local Development Plan (2006-2021) January 2008. http://www.torfaen.gov.uk/EnvironmentAndPlanning/Planning/ForwardPlanning/Publications/HabitatsRegulationAssessment.pdf ▪ The Screening concludes that whilst the LDP will not have a direct impact on this SAC in terms of land take, there is the potential however for development of residential and employment uses to increase airborne pollution in Torfaen which could have an impact on this SAC. The Strategic Ecological Corridor of the Afon Llywd is present in Torfaen, which is an important river riparian habitat. This corridor could potentially be used by lesser horseshoe bats although details of the foraging areas from the Usk Valley sites are not known.

ANNEX 2

Special Areas of Conservation outside BBNP

Site Name: River Tywi **Location Grid Ref: SN687263** **JNCC Site Code: UK0013010** **Size: 363.45** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
Site Description	The River Tywi rises in the Cambrian Mountains and flows south for some 10km before entering Llyn Brianne reservoir. The reservoir was constructed in the early 1970's to regulate water flows in the Tywi, enabling abstraction for public supply at Nantgaredig. From Llyn Brianne the Tywi falls steeply through mountain valleys for a further 20km before reaching the upper boundary of the SAC at Llandovery Road Bridge. The river then flows in a broadly south-westerly direction to Llandeilo, and then westerly through Carmarthen to outfall into Carmarthen Bay at Llansteffan. The River Tywi SAC boundary terminates in the tidal reaches just south of Carmarthen, where it enters the Carmarthen Bay & Estuaries SAC. The freshwater reaches of the Tywi are some 110km long, with just short of 80km designated as SAC. Within the SAC its course is more characteristic of a mature river, falling just 65m between Llandovery and the sea. The valley, formed by the movement of glaciers during the last ice age, has a classic U-shape, steep sided, with a wide, flat bottom. Its underlying geology of alluvium, glacial sands and gravels has resulted in an actively eroding river meandering across its wide floodplain, with generally sparse tree cover along the banks. This has led to the formation of extensive shingle shoals, ox-bow lakes and former river terraces. A number of significant tributaries flow into the designated reach, including the Llandovery Bran, Afon Dulais, Sawdde, Cennen, Cothi and Gwili. The River Tywi is a regulated river, with flows at certain times of the year primarily controlled by releases from Llyn Brianne. The reservoir controls releases of water for hydropower generation and the principal potable abstraction at Capel Dewi, and a seasonal abstraction at Manorafan. In addition, the EAW retains control over a 9092 Ml management reserve, which can be used for ecological flows. These flows are most often used as freshets for fisheries management purposes in the spring and autumn to support migration of salmonids. The majority of the catchment is rural, urbanised areas are restricted to Llandovey, Llandeilo and Carmarthen. Land use is greatly influenced by geology and topography. In the mountainous upper catchment forestry and sheep farming is dominant, whilst dairy and livestock farming takes place in the middle and lower

Site Name: River Tywi Location Grid Ref: SN687263 JNCC Site Code: UK0013010 Size: 363.45 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	reaches. A limited amount of arable farming occurs in the middle and lower reaches, including maize for ensiling, and this has the potential to increase sediment loads in the river from field run-off over the winter period. There has been a major change from hay to silage production and increased grass production as well as an increase in the use of artificial fertilisers. The line of the A40 trunk road and B4300 mirror the course of the Tywi on either side of the valley, coming in close proximity to the river in a number of places. The Heart of Wales railway line from Llanelli to Shrewsbury crosses the river at Llandeilo, Llangadog and Llanwrda, with significant lengths of track adjacent to the river. The River Tywi supports a large spawning population of twaite shad *Alosa fallax* and is considered to be self-sustaining. Spawning sites occur throughout the lower reaches of the river between Carmarthen and Llangadog, with most spawning occurring downstream of Llandeilo. Water quality and quantity are considered adequate to maintain this internationally vulnerable species, and there are no impassable obstructions along the migration route, though one weir at Manorafon may be an obstacle during low flow conditions. The presence of Llyn Brianne reservoir at the headwaters provides the potential to manipulate river flows to aid shad migration. The River Tywi is one of the best rivers in Wales for otters *Lutra lutra*. There are abundant signs of otters and they are regularly seen on the river. The water quality is generally good and there is an ample supply of food. There are suitable lying-up areas along the river bank, but there few known breeding sites on the main river, although cubs have been seen.
Qualifying Features	Annex II species primary reason selection: ▪ Twaite shad *Alosa fallax* ▪ Otter *Lutra lutra* Annex II species qualifying feature: ▪ Sea lamprey *Petromyzon marinus*

ANNEX 2

Site Name: River Tywi **Location Grid Ref: SN687263** **JNCC Site Code: UK0013010** **Size: 363.45** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	▪ Brook lamprey *Lampetra planeri* ▪ River lamprey *Lampetra fluviatilis* ▪ Allis shad *Alosa alosa* ▪ Bullhead *Cottus gobio*
Conservation Objectives	The ecological status of the watercourse is a major determinant of Favourable Conservation Status for all features. The required conservation objective for the watercourse is defined below. **Conservation Objective for the watercourse** ▪ 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 & quality, physical habitat, community composition & 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

ANNEX 2

Site Name: River Tywi Location Grid Ref: SN687263 JNCC Site Code: UK0013010 Size: 363.45 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	excessive quantities of fine sediment, will be avoided. ▪ River habitat SSSI features should be in favourable condition. ▪ 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 Tywi, Taf & Gwendraeths Catchment Abstraction Management Strategy (CAMS) as they relate to the Tywi SAC 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 Tywi 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 Tywi 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. ▪ Levels of suspended solids will be agreed between EA and CCW for each Water Framework Directive water body in the Tywi 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. ▪ Potential sources of pollution not addressed in the Review of Consents, such as contaminated land, will be considered in assessing plans and projects. **Conservation Objective for Features 1-4:**

ANNEX 2

Site Name: River Tywi **Location Grid Ref: SN687263** **JNCC Site Code: UK0013010** **Size: 363.45** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Twaite shad *Alosa fallax*; **Allis shad *Alosa alosa*;** **Sea lamprey *Petromyzon marinus*;** **Brook lamprey *Lampetra planeri*;** **River lamprey *Lampetra fluviatilis*;** **Bullhead *Cottus gobio*.** Vision for features 1-4 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The conservation objective for the water course as defined in 4.1 above must be met. ▪ The population of the feature in the SAC is stable or increasing over the long term. ▪ The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms e.g. suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions e.g. food supply. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. Natural factors such as waterfalls may limit the natural range of individual species. Existing artificial influences on natural range that cause an adverse effect on site integrity, such as physical barriers to migration, will be assessed in view of the objective below. ▪ There is, and will probably continue to be, a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis. Performance indicators for features 1-4

ANNEX 2

Site Name: River Tywi Location Grid Ref: SN687263 JNCC Site Code: UK0013010 Size: 363.45 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	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 River Tywi Management Plan. **Conservation Objective for Feature 5: - European otter (*Lutra lutra*)** Vision for feature 5 The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied: ▪ The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC, as determined by natural levels of prey abundance and associated territorial behaviour. ▪ The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches that are potentially suitable to form part of a breeding territory and/or provide routes between breeding territories. The whole area of the Tywi SAC is considered to form potentially suitable breeding habitat for otters. The size of breeding territories may vary depending on prey abundance. The population size should not be limited by the availability of suitable undisturbed breeding sites. Where these are insufficient they should be created through habitat enhancement and where necessary the provision of artificial holts. No otter breeding site should be subject to a level of disturbance that could have an adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance must be managed. ▪ The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers. Performance indicators for Feature 5

ANNEX 2

Site Name: River Tywi **Location Grid Ref: SN687263** **JNCC Site Code: UK0013010** **Size: 363.45** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	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 River Tywi Management Plan.
Component SSSIs	▪ Afon Tywi (River Tywi) SSSI The site has been divided into 7 management units, which comprise to form the SAC. Maps containing the component SSSI and management units can be viewed on the CCW website.
Key Environmental Conditions (factors that maintain site integrity	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 and connectivity of riparian habitats. The more mobile species, such as migratory fish and otters, may also be affected by factors operating outside the site. ▪ **Hydrological processes** in particular river flow and water chemistry, determine a range of habitat factors of 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. Reductions in flow may reduce the ability of the adults of migratory fish to reach spawning sites. The flow regime should be flows as near to natural as constraints will allow in order to support the functioning of the river ecosystem. The solid geology of the upper reaches and tributaries result in catchments which respond quickly to rainfall. The area has an extremely high annual average rainfall with variations both spatially and seasonally. Annual average rainfall is highest in the Black Mountains and the Cambrian Mountains, at 2,420mm and 2,008mm respectively. Rainfall decreases down the valley sides and into the bottoms, with lowest rainfall occurring in the coastal areas. The topography of the area is such that catchments respond quickly to rainfall events, with rapid changes in river levels along their lengths. Base flows in the Tywi are enhanced by releases from Llyn Brianne, though di-urnal variations occur below the abstraction at Nantgaredig, pumping being mainly at night and over the weekends. This notwithstanding,

Site Name: River Tywi Location Grid Ref: SN687263 JNCC Site Code: UK0013010 Size: 363.45 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	the catchment is protected from low summer and drought flows. ▪ **Geomorphological processes** of erosion by water and subsequent deposition of eroded sediments downstream create the physical structure of the river habitats. For the greater part, the river meanders over a flat valley floor, re-working previously deposited river sediments and unconsolidated drift materials of sands, tills and gravels deposited during and after the last ice age. These deposits are frequently exposed in small river cliffs, displaying evidence of the historical development of the river basin. Though rock sections are uncommon, the orientation of the river course indicates that it is controlled by features in the underlying solid geology such as faults or folds in the rocks of the valley floor. The Tywi is the most mobile of rivers, meandering across the floodplain in its middle and lower reaches. Active erosion and deposition takes place from Llandovery all the way to Carmarthen, with gravel movement, pool filling, bank erosion and siltation occurring throughout. Large floods are responsible for larger-scale changes in channel character, while periods with higher frequencies of moderate floods are responsible for maintaining instability and large-scale movement of gravel bars and banks. The sensitivity of the river to change varies along its length, both in terms of the sequence of floods and human interventions. In addition, increases in extreme events as a result of climate change has implications for enhanced geomorphic activity. 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. Although gravel

Site Name: River Tywi Location Grid Ref: SN687263 JNCC Site Code: UK0013010 Size: 363.45 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	availability along the Tywi has reduced, there are many private gravel extraction sites, with commercial extraction taking place at Llwynjack below Llandovery. It is not known how much the extractions and the Llyn Brianne dam have contributed to the reduction in gravel availability. Other human interventions which have impacted on the geomorphology of the river include flood banks, river stabilisation, bank protection and construction of the railway embankment, which acts as a barrier to channel migration. ▪ **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 habitat for breeding and resting sites. It is important that appropriate amounts of tree 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. The mobility of the Tywi has resulted in the formation of significant areas of off-channel habitat in the form of ox-bows, wet woodlands, willow scrub etc. These are predominantly away from the main channel, and form important areas for otter to rest-up in or support breeding sites. 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

Site Name: River Tywi Location Grid Ref: SN687263 JNCC Site Code: UK0013010 Size: 363.45 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	populations to become genetically distinct, may be important factors. 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 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. Otters may be affected by developments that affect resting and breeding sites outside the SAC boundary.
SAC Condition Assessment	**Conservation status of Feature 1:** **Twaite shad *Alosa fallax* and Allis shad *Alosa alosa*** Conservation status Status: **Unfavourable: Unclassified** The current unfavourable status results from a precautionary assessment of feature distribution and abundance, and from the presence of adverse factors, in particular flow depletion & physical barriers to migration. Temperature effects and entrainment are also thought to be impacting upon spawning distribution and population density, though they do not form part of the CSM assessment. **Conservation status of Feature 2: Sea lamprey *Petromyzon marinus*** Conservation status

ANNEX 2

Site Name: River Tywi **Location Grid Ref: SN687263** **JNCC Site Code: UK0013010** **Size: 363.45** **Designation: SAC**	**Habitats Regulations Assessment: Data Proforma**
	Status: **Unfavourable: Unclassified** Sea lamprey monitoring undertaken in 2004 failed to find juvenile sea lamprey at any sites either on the main river Tywi or any of the tributaries. Therefore the Tywi SAC failed the JNCC target threshold, and targets for spawning site & ammocoete distribution. **Conservation status of Feature 3: Brook lamprey *Lampetra planeri* and River lamprey *Lampetra fluviatilis*** Conservation status Status: **Unfavourable: Unclassified** Brook/river lamprey monitoring undertaken in 2004 showed that overall catchment mean ammocoete density considerably exceeded the JNCC target threshold. The populations were considered to be healthy with a good recruitment of 0+ ammocoetes in most areas in 2004. However very few lampreys were caught in sub-optimal habitat, possibly indicating that optimal habitat is not limiting within the SAC. Densities in optimal habitat were 27.7 m-2 and sub-optimal habitat 0.3m-2, giving a SAC mean density for all habitats of 14.0 m-2 (sd=_4.5). When both optimal and sub-optimal habitat are taken into account the distribution of ammocoetes within the catchment fails the performance indicator - presence at not less that 2/3 of sites surveyed within natural range, and it is for this reason together with the impacts from flow depletion (see below) that their status was recorded as unfavourable. **Conservation status of Feature 4: Bullhead *Cottus gobio*** Conservation status Status: **Unfavourable: Unclassified**

ANNEX 2

Site Name: River Tywi Location Grid Ref: SN687263 JNCC Site Code: UK0013010 Size: 363.45 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	The current unfavourable status results from a lack of appropriate survey data. Records obtained from juvenile salmon monitoring show that bullhead are widespread in the Tywi catchment. There is a need for quantitative information on bullhead abundance. **Conservation status of Feature 5: European otter *Lutra lutra*** Conservation status Status: **Favourable** The conservation status of otters in the Tywi SAC is determined by monitoring their distribution, breeding success, and the condition of potential breeding and feeding habitat outlined in the Performance Indicators. Their current condition can be considered favourable, but with scope for further improvement, if habitat and other natural factors can be maintained and enhanced.
Vulnerabilities (includes existing pressures and trends)	▪ **Abstraction levels -** entrainment in water abstractions directly impacts on species population dynamics through reduced recruitment and survival rates. 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 potential impacts on SAC features. ▪ **Hydromorphology** - Hydrological processes in the Tywi are currently affected by the water management regime from Llyn Brianne reservoir and the abstraction at Capel Dewi. The system is complicated, but effects can be both positive and negative, the impoundment reducing summer flood events, but also augmenting flows during low summer flows. Flow reductions downstream of the abstraction during night and weekend pumping has the potential to dry-out spawning beds and lamprey ammocoete beds. Temperature effects from the hypolimnial release at Llyn Brianne suppress river temperatures as far

Site Name: River Tywi Location Grid Ref: SN687263 JNCC Site Code: UK0013010 Size: 363.45 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	downstream as Llandeilo. Migration and spawning in shad are triggered by increasing water temperatures, and this is likely to be restricting their range. Shad are particularly sensitive to flow and temperature changes. The timing, consistency and duration of adult sea lamprey migration are closely related to temperature. ▪ **Diffuse Pollution and siltation** - The Atlantic salmon and sea trout are the focus for much of the management activity carried out on the Tywi catchment. Their relatively demanding water quality and spawning substrate quality requirements mean that reduction in diffuse pollution and siltation impacts is a high priority for the catchment. Despite the fact that salmon are not an SAC feature on the Tywi, actions undertaken for the benefit of salmonids will in the main be beneficial to the SAC fish species and otter. In the Tywi 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. 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 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. 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. ▪ **Barriers to migration** - 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,

ANNEX 2

Site Name: River Tywi Location Grid Ref: SN687263 JNCC Site Code: UK0013010 Size: 363.45 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	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. ▪ **Development pressure** - 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 eg. due to impact piling, drilling, salmon fish counters present within or in close proximity to the river can create a barrier to shad migration. Barriers resulting from vibration, chemicals, low dissolved oxygen and artificially high sediment levels must be prevented at key times. ▪ **Invasive and non-native species** - All fish are vulnerable to the introduction of non-indigenous species. ▪ **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. ▪ **External factors** - operating outside the SAC, may also be influential, particularly for the migratory fish and otters. For example, otters may be affected by developments that affect resting and breeding sites outside the SAC boundary. Otter road deaths could have a potentially significant impact on otter populations within the Tywi catchment. Fifty six individual deaths were recorded from Carmarthenshire between 1983 & 2002, 12 of which were adult females. A number of mitigation schemes have been undertaken by the Trunk Roads Authority and Carmarthenshire CC Highways Dept at sites flagged as blackspots.
Landowner/ Management Responsibility	▪ N/A
HRA/AA Studies undertaken that address this site	The impact of flow depletion downstream of major abstractions was assessed in the Review of Consents process. The outputs of the hydraulic model suggest that changes to water depth and water velocities occurring as a result of the abstraction at Capel Dewi are unlikely to impact upon: the ability of adult shad to migrate through the lower reaches of the river; spawning habitat downstream of

ANNEX 2

Site Name: River Tywi Location Grid Ref: SN687263 JNCC Site Code: UK0013010 Size: 363.45 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	Capel Dewi; or juvenile habitat downstream of the abstraction. However the diurnal operation of the pumps does expose marginal habitat and therefore has the potential to strand juveniles or expose sediments supporting juvenile habitat. There are also requirements for screening of intakes to reduce or remove the impact of impingement and entrainment on juvenile fish migrating downstream. Entrainment in water abstractions directly impacts on population dynamics through reduced recruitment and survival rates. Information on likely rates of entrainment of shad eggs and juveniles is required before acceptable levels can be assessed. The screening arrangements at the DCWW intakes at Manorafon and Capel Dewi are currently being assessed as part of the Habitats Directive Review of Consents process. The impact of flow depletion downstream of major abstractions was assessed in the Review of Consents process. The outputs of the hydraulic model suggest that changes to water depth and water velocities occurring as a result of the abstraction at Capel Dewi are unlikely to impact upon: the ability of adult lamprey to migrate through the lower reaches of the river; spawning habitat downstream of Capel Dewi; or juvenile habitat downstream of the abstraction. However the diurnal operation of the pumps does expose marginal habitat and therefore has the potential to strand juveniles or expose juvenile sediment habitat.