

Appendix I: European Site Characterisations

- Cotswold Beechwoods SAC
- Dixton Woods SAC
- Bredon Hill SAC
- Lyppard Grange SAC
- River Usk SAC
- River Wye SAC
- Rodborough Common SAC
- Severn Estuary SAC
- Wye Valley and Forest of Dean Bat Sites SAC
- Wye Valley Woodlands SAC
- Severn Estuary SPA
- Walmore Common SPA
- Severn Estuary Ramsar
- Walmore Common Ramsar

Special Areas of Conservation

Site Name: Cotswolds Beechwoods Location Grid Ref: SO898134 JNCC Site Code: UK0013658 Size: 585.85ha Designation: SAC	Habitats Regulations Assessment: Data Proforma
Site Description	<p>The Cotswold Beechwoods represent the most westerly extensive blocks of <i>Asperulo-Fagetum</i> beech forests in the UK. The woods are floristically richer than the Chilterns, and rare plants include red helleborine <i>Cephalanthera rubra</i>, stinking hellebore <i>Helleborus foetidus</i>, narrow-lipped helleborine <i>Epipactis leptochila</i> and wood barley <i>Hordelymus europaeus</i>. There is a rich mollusc fauna. The woods are structurally varied, including blocks of high forest and some areas of remnant beech coppice.</p>
Qualifying Features	<p>Annex I habitats primary reason for selection:</p> <ul style="list-style-type: none"> ▪ <i>Asperulo-Fagetum</i> beech forests <p>Annex I habitats qualifying feature:</p> <ul style="list-style-type: none"> ▪ Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>)
Conservation Objectives	<p>With regard to the natural habitats and/or species for which the site has been designated (the Qualifying Features" listed below);</p> <p>Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.</p> <p>Subject to natural change, to maintain or restore:</p> <ul style="list-style-type: none"> ▪ The extent and distribution of qualifying natural habitats and habitats of qualifying species; ▪ The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species;

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	<ul style="list-style-type: none"> ■ The supporting processes on which qualifying natural habitats and habitats of qualifying species rely; ■ The populations of qualifying species; ■ The distribution of qualifying species within the site. <p>Qualifying Features: H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>); Dry grasslands and scrublands on chalk or limestone H9130. <i>Asperulo-Fagetum</i> beech forests; Beech forests on neutral to rich soils</p>
Vulnerabilities (includes existing pressures and trends)	<ul style="list-style-type: none"> ■ Physical Damage: Increased housing in vicinity may lead to direct damage through increased access levels by people and vehicles ■ Non Physical Disturbance: Light pollution ■ Human presence ■ Biological Disturbance: Management problems due to potential disturbance to grazing animals on unfenced common land

Site Name: Dixon Woods Location Grid Ref: SO979313 JNCC Site Code: UK0030135 Size: 13.14 ha Designation: SAC	Habitats Regulations Assessment: Data Proforma
Site Description	<p>Dixon Wood is situated approximately 6.7km to the South East of Tewkesbury and is an area of broadleaved woodland (formerly partially grazed) with a dominance of ash including exceptionally large ancient pollards. The site is designated for its population of Violet Click Beetle <i>Limoniscus violaceus</i>, which is largely dependent on these pollards (for breeding). Principal risks to the site's integrity are lack of future replacement pollards (age-class skewed to older generation) and game management practices.</p>
Qualifying Features	<p>Annex II species primary reason for selection:</p> <ul style="list-style-type: none"> ▪ Violet click beetle <i>Limoniscus violaceus</i>
Conservation Objectives	<p>With regard to the natural habitats and/or species for which the site has been designated (the Qualifying Features" listed below);</p> <p>Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.</p> <p>Subject to natural change, to maintain or restore:</p> <ul style="list-style-type: none"> ▪ The extent and distribution of qualifying natural habitats and habitats of qualifying species; ▪ The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species; ▪ The supporting processes on which qualifying natural habitats and habitats of qualifying species rely; ▪ The populations of qualifying species; ▪ The distribution of qualifying species within the site. <p>Qualifying Features: S1079. <i>Limoniscus violaceus</i>; Violet click beetle</p>

Site Name: Dixton Woods Location Grid Ref: SO979313 JNCC Site Code: UK0030135 Size: 13.14 ha Designation: SAC	Habitats Regulations Assessment: Data Proforma
Vulnerabilities (includes existing pressures and trends)	<p>Dixton Wood is an area of broadleaved woodland (formerly partially grazed) with a dominance of ash including exceptionally large ancient pollards. <i>Limoniscus violaceus</i> is largely dependent on these pollards (for breeding). Principal risks to the site's integrity are lack of future replacement pollards (age-class skewed to older generation) and game management practices. These issues will be addressed through a Management Agreement with the owner of the site. This will include provision for creation of new pollards as well as management of existing resource to prevent loss through senescence and wind-blow.</p>

Site Name: Bredon Hill Location Grid Ref: SO965406 JNCC Site Code: UK0012587 Size: 359.86ha Designation: SAC	Habitats Regulations Assessment: Data Proforma
Site Description	<p>Bredon Hill is an area of pasture woodland and ancient parkland situated approximately 4.5km to the South East of Evesham. The site provides habitat for the Violet Click Beetle <i>Limoniscus violaceus</i> beetle, which develops in the decaying wood either of very large, old hollow beech trees (Windsor Forest) or ash trees (Worcestershires/Gloucestershire border sites). Currently the only site attributes which Natural England understands the species to need is related to the abundance and condition of the ancient trees within which it develops.</p>
Qualifying Features	<p>Annex II Species primary reason for selection:</p> <ul style="list-style-type: none"> ▪ Violet Click Beetle (<i>Limoniscus violaceus</i>)
Conservation Objectives	<p>With regard to the natural habitats and/or species for which the site has been designated (the Qualifying Features" listed below);</p> <p>Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.</p> <p>Subject to natural change, to maintain or restore:</p> <ul style="list-style-type: none"> ▪ The extent and distribution of qualifying natural habitats and habitats of qualifying species; ▪ The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species; ▪ The supporting processes on which qualifying natural habitats and habitats of qualifying species rely; ▪ The populations of qualifying species; ▪ The distribution of qualifying species within the site. <p>Qualifying Features: S1079. <i>Limoniscus violaceus</i>; Violet click beetle</p>

Site Name: Bredon Hill Location Grid Ref: SO965406 JNCC Site Code: UK0012587 Size: 359.86ha Designation: SAC	Habitats Regulations Assessment: Data Proforma
Vulnerabilities (includes existing pressures and trends)	<ul style="list-style-type: none"> ▪ Lack of a replacement generation of trees for the current ancient trees over much of the hill, as many of the younger trees have been removed to increase stock grazing areas; the overall number of ancient trees suitable for <i>Limoniscus violaceus</i> is relatively small. ▪ Acid and nitrogen deposition currently exceed vegetation thresholds at site¹. Ozone levels are also above the critical level. <p>It is very important that no attempt should be made to measure the population size of this species directly, as methods currently available to find the species lead to destruction of its habitat.</p>

¹ Habitats Regulations Assessment of the Phase II Revision of the Regional Spatial Strategy for the West Midlands, 2007.

Site Name: Lyppard Grange Ponds Location Grid Ref: SO879556 JNCC Site Code: UK0030198 Size: 1.09ha Designation: SAC	Habitats Regulations Assessment: Data Proforma
Site Description	<p>The site is situated on the outskirts of Worcester set amongst a recent housing development on former pastoral farmland. Lyppard Grange SAC is composed of two ponds in an area of grassland and scrub (public open space). The site provides habitat for Great Crested Newts <i>Triturus cristatus</i>, which are dependent on both the terrestrial habitat (to provide foraging areas and refuge) and aquatic habitat (for breeding).</p>
Qualifying Features	<p>Annex II Species primary reason for selection:</p> <ul style="list-style-type: none"> ▪ Great Crested Newt (<i>Triturus cristatus</i>)
Conservation Objectives	<p>With regard to the natural habitats and/or species for which the site has been designated (the Qualifying Features" listed below);</p> <p>Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.</p> <p>Subject to natural change, to maintain or restore:</p> <ul style="list-style-type: none"> ▪ The extent and distribution of qualifying natural habitats and habitats of qualifying species; ▪ The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species; ▪ The supporting processes on which qualifying natural habitats and habitats of qualifying species rely; ▪ The populations of qualifying species; ▪ The distribution of qualifying species within the site. <p>Qualifying Features: S1166. <i>Triturus cristatus</i>; Great crested newt</p>

Site Name: Lyppard Grange Ponds Location Grid Ref: SO879556 JNCC Site Code: UK0030198 Size: 1.09ha Designation: SAC	Habitats Regulations Assessment: Data Proforma
Vulnerabilities (includes existing pressures and trends)	<ul style="list-style-type: none">▪ Recreational pressure from the public.▪ Introduction of fish - which affect the suitability of ponds as breeding habitats for great crested newts.

Site Name: River Usk Location Grid Ref: SO301113 JNCC Site Code: UK0013007 Size: 1007.71 Designation: SAC	Habitats Regulations Assessment: Data Proforma
Site Description	<p>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.</p> <p>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.</p> <p>The River Usk is also important for its population of sea lamprey <i>Petromyzon marinus</i>. The site also supports a healthy population of brook lamprey <i>Lampetra planeri</i> and river lamprey <i>Lampetra fluviatilis</i> 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 <i>Alosa falla</i>, salmon <i>Salmo salar</i> and bullhead <i>Cottus gobi</i>. The River Usk is an important site for otters <i>Lutra lutra</i> in Wales.</p>
Qualifying Features	<p>Annex I Habitats qualifying feature:</p> <ul style="list-style-type: none"> ▪ Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation <p>Annex II Species primary reason for selection:</p>

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	<ul style="list-style-type: none"> ▪ Sea lamprey <i>Petromyzon marinus</i> ▪ Brook lamprey <i>Lampetra planeri</i> ▪ River lamprey <i>Lampetra fluviatilis</i> ▪ Twaite shad <i>Alosa fallax</i> ▪ Atlantic salmon <i>Salmo salar</i> ▪ Bullhead <i>Cottus gobio</i> ▪ Otter <i>Lutra lutra</i> <p>Annex II Species qualifying feature:</p> <ul style="list-style-type: none"> ▪ Allis shad <i>Alosa alosa</i>
Conservation Objectives	<p>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.</p> <p>Conservation Objective for the water course</p> <ul style="list-style-type: none"> ▪ 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.

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	<ul style="list-style-type: none"> ▪ 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

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	<p>considered in assessing plans and projects.</p> <ul style="list-style-type: none"> ▪ 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. <p>Conservation Objective for Features 1-5:</p> <ul style="list-style-type: none"> - Sea lamprey <i>Petromyzon marinus</i>; - Brook lamprey <i>Lampetra planeri</i>; - River lamprey <i>Lampetra fluviatilis</i>; - Twaite shad <i>Alosa fallax</i>; - Allis shad <i>Alosa alosa</i>; - Atlantic salmon <i>Salmo salar</i>; - Bullhead <i>Cottus gobio</i>. <p>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:</p> <ul style="list-style-type: none"> ▪ 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

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	<p>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.</p> <ul style="list-style-type: none"> ▪ 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. <p>Performance indicators for features 1-5</p> <p>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.</p> <p>Conservation Objective for Feature 6: - European otter <i>Lutra lutra</i></p> <p>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:</p> <ul style="list-style-type: none"> ▪ 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

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	<p>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.</p> <ul style="list-style-type: none"> ▪ 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. <p>Performance indicators for feature 6</p> <p>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.</p> <p>Conservation Objective for Feature 7: - Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation</p> <p>Vision for feature 7</p> <p>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.</p> <ul style="list-style-type: none"> ▪ 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

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	<p>present must be secured for the foreseeable future, except where natural processes cause it to decline in extent.</p> <ul style="list-style-type: none"> ▪ 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. <p>Performance indicators for feature 7</p> <p>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.</p>
Vulnerabilities (includes existing pressures and trends)	<ul style="list-style-type: none"> ▪ 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, 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,

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	<p>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.</p> <ul style="list-style-type: none"> ▪ 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. 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.

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	<p>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).</p> <ul style="list-style-type: none"> ▪ Invasive non-native plants - are a detrimental impact on the water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> 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.

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
Site Description	<p>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.</p> <p>Historically, the Wye is the most famous and productive river in Wales for Atlantic salmon <i>Salmo salar</i>, 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 <i>Lutra lutra</i> 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</p>

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	<p><i>Austropotamobius pallipes</i>. 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.</p>
Qualifying Features	<p>Annex I habitats primary reason for selection:</p> <ul style="list-style-type: none"> ▪ Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation <p>Annex I habitats qualifying feature:</p> <ul style="list-style-type: none"> ▪ Transition mires and quaking bogs <p>Annex II species primary reason for selection:</p> <ul style="list-style-type: none"> ▪ White-clawed (or Atlantic stream) crayfish <i>Austropotamobius pallipes</i> ▪ Sea lamprey <i>Petromyzon marinus</i> ▪ Brook lamprey <i>Lampetra planeri</i> ▪ River lamprey <i>Lampetra fluviatilis</i> ▪ Twaite shad <i>Alosa fallax</i> ▪ Atlantic salmon <i>Salmo salar</i> ▪ Bullhead <i>Cottus gobio</i> ▪ Otter <i>Lutra lutra</i> <p>Annex II Species qualifying feature:</p> <ul style="list-style-type: none"> ▪ Allis shad <i>Alosa alosa</i>
Conservation Objectives	<p>With regard to the natural habitats and/or species for which the site has been designated (the Qualifying Features" listed below);</p> <p>Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the</p>

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	<p>significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.</p> <p>Subject to natural change, to maintain or restore:</p> <ul style="list-style-type: none"> ▪ The extent and distribution of qualifying natural habitats and habitats of qualifying species; ▪ The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species; ▪ The supporting processes on which qualifying natural habitats and habitats of qualifying species rely; ▪ The populations of qualifying species; ▪ The distribution of qualifying species within the site. <p>Qualifying Features:</p> <p>H3260. Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation; Rivers with floating vegetation often dominated by water-crowfoot</p> <p>H7140. Transition mires and quaking bogs; Very wet mires often identified by an unstable `quaking` surface</p> <p>S1092. <i>Austropotamobius pallipes</i>; White-clawed (or Atlantic stream) crayfish</p> <p>S1095. <i>Petromyzon marinus</i>; Sea lamprey</p> <p>S1096. <i>Lampetra planeri</i>; Brook lamprey</p> <p>S1099. <i>Lampetra fluviatilis</i>; River lamprey</p> <p>S1102. <i>Alosa alosa</i>; Allis shad</p> <p>S1103. <i>Alosa fallax</i>; Twaite shad</p> <p>S1106. <i>Salmo salar</i>; Atlantic salmon</p> <p>S1163. <i>Cottus gobio</i>; Bullhead</p> <p>S1355. <i>Lutra lutra</i>; Otter</p>
Vulnerabilities (includes existing pressures and trends)	<ul style="list-style-type: none"> ▪ 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

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	<p>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.</p> <ul style="list-style-type: none"> ▪ 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 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. <p>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.</p>

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	<p>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-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.</p> <ul style="list-style-type: none"> ▪ 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 <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation. Giant hogweed, Himalayan balsam and Japanese knotweed should be actively managed to control their spread and hopefully reduce their

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	<p>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 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.</p> <ul style="list-style-type: none"> ▪ 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

Site Name: River Wye Location Grid Ref: SO109369 JNCC Site Code: UK0012642 Size: 2234.89 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	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.

Site Name: Rodborough Common Location Grid Ref: SO849036 JNCC Site Code: UK0012826 Size: 104.26ha Designation: SAC	Habitats Regulations Assessment: Data Proforma
Site Description	Rodborough Common is the most extensive area of semi-natural dry grasslands surviving in the Cotswolds of central southern England, and represents CG5 <i>Bromus erectus</i> – <i>Brachypodium pinnatum</i> grassland, which is more or less confined to the Cotswolds. The site contains a wide range of structural types, ranging from short turf through to scrub margins, although short-turf vegetation is mainly confined to areas of shallower soils.
Qualifying Features	Annex I habitats primary reason for selection: <ul style="list-style-type: none"> ▪ Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>)
Conservation Objectives	With regard to the natural habitats and/or species for which the site has been designated (the Qualifying Features" listed below); <p>Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.</p> <p>Subject to natural change, to maintain or restore:</p> <ul style="list-style-type: none"> ▪ The extent and distribution of qualifying natural habitats and habitats of qualifying species; ▪ The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species; ▪ The supporting processes on which qualifying natural habitats and habitats of qualifying species rely; ▪ The populations of qualifying species; ▪ The distribution of qualifying species within the site. <p>Qualifying Features: H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>); Dry grasslands and scrublands on chalk or limestone</p>

Site Name: Rodborough Common Location Grid Ref: SO849036 JNCC Site Code: UK0012826 Size: 104.26ha Designation: SAC	Habitats Regulations Assessment: Data Proforma
Vulnerabilities (includes existing pressures and trends)	<ul style="list-style-type: none"> ■ Physical Damage: Erosion ■ Increased housing in vicinity may lead to direct damage through increased access levels by people and vehicles ■ Non Physical Disturbance: Traffic ■ Biological Disturbance: Scrub invasion ■ Under- grazing ■ Management issues because of disturbance to grazing animals on unfenced common land

Site Name: Severn Estuary Location Grid Ref: ST321748 JNCC Site Code: UK0013030 Size: 73715.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
Site Description	<p>The Severn Estuary is the largest coastal plain estuary in the UK with extensive mudflats and sandflats, rocky shore platforms, shingle and islands. Saltmarsh fringes the coast, backed by grazing marsh with freshwater and occasional brackish ditches. The estuary's classic funnel shape, unique in the UK, is a factor causing the Severn to have the second highest tidal range in the world (after the Bay of Fundy in Canada) at more than 12 meters. This tidal regime results in plant and animal communities typical of the extreme physical conditions of strong flows, mobile sediments, changing salinity, high turbidity and heavy scouring. The resultant low diversity invertebrate communities, that frequently include populations of ragworms, lugworms and other invertebrates in high densities, form an important food source for passage and wintering birds. The site is important in the spring and autumn migration periods for waders moving along the west coast of Europe, as well as in winter for large numbers of waterbirds including swans, geese, ducks and waders. These bird populations are regarded as internationally important.</p> <p>Glassworts and annual sea-blite colonise the open mud, with beds of all three species of eelgrass <i>Zostera</i> occurring on more sheltered mud and sandbanks. Large expanses of common cord-grass also occur on the outer marshes. Heavily grazed saltmarsh fringes the estuary with a range of saltmarsh types present. The middle marsh sward is dominated by common saltmarsh-grass with typical associated species. In the upper marsh, red fescue and saltmarsh rush become more prominent.</p> <p>Areas of saltmarsh fringe the estuary, mostly grazed with a range of vegetation communities. There are gradual and stepped transitions between bare mudflat to upper marsh and grassland. Main vegetation types are: upper saltmarsh with <i>Festuca rubra</i> and <i>Juncus gerardii</i>; middle marsh dominated by <i>Puccinellia maritima</i> with <i>Glaux maritima</i> and <i>Triglochin maritima</i>; dense monocultures of <i>Spartina anglica</i> at the edge of the mudflats-brackish pools and depressions with <i>Phragmites australis</i> and <i>Bolboschoenus maritimus</i>.</p>
Qualifying Features	<p>Annex I Habitats primary reason for selection:</p> <ul style="list-style-type: none"> ■ Estuaries ■ Mudflats and sandflats not covered by seawater at low tide

Site Name: Severn Estuary Location Grid Ref: ST321748 JNCC Site Code: UK0013030 Size: 73715.4 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	<ul style="list-style-type: none"> ■ Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) <p>Annex I Habitats qualifying feature:</p> <ul style="list-style-type: none"> ■ Sandbanks which are slightly covered by sea water all the time ■ Reefs <p>Annex II Species primary reason for selection:</p> <ul style="list-style-type: none"> ■ Sea lamprey <i>Petromyzon marinus</i> ■ River lamprey <i>Lampetra fluviatilis</i> ■ Twaite shad <i>Alosa fallax</i>
Conservation Objectives	<p>SAC interest feature 1: Estuaries</p> <p>The conservation objective for the “estuaries” feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below:</p> <p>The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ol style="list-style-type: none"> i. the total extent of the estuary is maintained; ii. the characteristic physical form (tidal prism/cross sectional area) and flow (tidal regime) of the estuary is maintained; iii. the characteristic range and relative proportions of sediment sizes and sediment budget within the site is maintained; iv. the extent, variety and spatial distribution of estuarine habitat communities⁵ within the site is maintained; v. the extent, variety, spatial distribution and community composition of hard substrate habitats and their

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	<p>notable communities is maintained;</p> <ul style="list-style-type: none"> vi. the abundance of the notable estuarine species assemblages⁷ is maintained or increased; vii. the physico-chemical characteristics of the water column⁹ support the ecological objectives described above; viii. Toxic contaminants in water column and sediment are below levels which would pose a risk to the ecological objectives described above. ix. Airborne nutrient and contaminant loads are below levels which would pose a risk to the ecological objectives described above <p>SAC interest feature 2: Subtidal sandbanks which are covered by sea water all the time (subtidal sandbanks)</p> <p>The conservation objective for the “subtidal sandbanks” feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below:</p> <p>The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ul style="list-style-type: none"> i. the total extent of the subtidal sandbanks within the site is maintained; ii. the extent and distribution of the individual subtidal sandbank communities within the site is maintained; iii. the community composition of the subtidal sandbank feature within the site is maintained; iv. the variety and distribution of sediment types across the subtidal sandbank feature is maintained; v. the gross morphology (depth, distribution and profile) of the subtidal sandbank feature within the site is maintained. <p>SAC interest feature 3: Mudflats and sandflats not covered by seawater at low tide (mudflats and sandflats)</p> <p>The conservation objective for “mudflats and sandflats” feature of the Severn Estuary SAC is to maintain the</p>

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	<p>feature in favourable condition, as defined below:</p> <p>The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ol style="list-style-type: none"> i. The total extent of the mudflats and sandflats feature is maintained; ii. the variety and extent of individual mudflats and sandflats communities within the site is maintained; iii. the distribution of individual mudflats and sandflats communities³ within the site is maintained; iv. the community composition of the mudflats and sandflats feature within the site is maintained; v. the topography of the intertidal flats and the morphology (dynamic processes of sediment movement and channel migration across the flats) are maintained. <p>SAC interest feature 4: Atlantic salt meadow</p> <p>The conservation objective for the "Atlantic salt meadow" feature of the Severn Estuary SAC is to maintain the feature in favourable condition, as defined below:</p> <p>The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ol style="list-style-type: none"> i. the total extent of Atlantic salt meadow and associated transitional vegetation communities within the site is maintained; ii. the extent and distribution of the individual Atlantic salt meadow and associated transitional vegetation communities within the site is maintained; iii. the zonation of Atlantic salt meadow vegetation communities and their associated transitions to other estuary habitats is maintained; iv. the relative abundance of the typical species of the Atlantic salt meadow and associated transitional vegetation communities is maintained;

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	<p>v. the abundance of the notable species of the Atlantic salt meadow and associated transitional vegetation communities is maintained.</p> <p>vi. the structural variation of the salt marsh sward (resulting from grazing) is maintained within limits sufficient to satisfy the requirements of conditions iv and v above and the requirements of the Ramsar and SPA features</p> <p>vii. the characteristic stepped morphology of the salt marshes and associated creeks, pills, drainage ditches and pans, and the estuarine processes that enable their development, is maintained.</p> <p>viii. Any areas of <i>Spartina anglica</i> salt marsh (SM6) are capable of developing naturally into other saltmarsh communities.</p> <p>SAC interest feature 5: Reefs</p> <p>The conservation objective for the "reefs" feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:</p> <p>The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <p>i. the total extent and distribution of <i>Sabellaria</i> reef is maintained;</p> <p>ii. the community composition of the <i>Sabellaria</i> reef is maintained;</p> <p>iii. the full range of different age structures of <i>Sabellaria</i> reef are present;</p> <p>iv. the physical and ecological processes necessary to support <i>Sabellaria</i> reef are maintained.</p> <p>SAC interest feature 6: River lamprey <i>Lampetra fluviatilis</i></p> <p>The conservation objective for the river lamprey <i>Lampetra fluviatilis</i> feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:</p>

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	<p>The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ol style="list-style-type: none"> i. the migratory passage of both adult and juvenile river lamprey through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality; ii. the size of the river lamprey population in the Severn Estuary and the rivers which drain into it, is at least maintained and is at a level that is sustainable in the long term; iii. the abundance of prey species forming the river lamprey's food resource within the estuary, is maintained. iv. Toxic contaminants in the water column and sediment are below levels which would pose a risk to the ecological objectives described above. <p>SAC interest feature 7: The conservation objective for sea lamprey <i>Petromyzon marinus</i></p> <p>The conservation objective for the sea lamprey <i>Petromyzon marinus</i> feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:</p> <p>The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ol style="list-style-type: none"> i. the migratory passage of both adult and juvenile sea lamprey through the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality; ii. the size of the sea lamprey population in the Severn Estuary and the rivers which drain into it, is at least maintained as is at a level that is sustainable in the long term; iii. the abundance of prey species forming the sea lamprey's food resource within the estuary, is maintained.

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	<p>vi. Toxic contaminants in the water column and sediment are below levels which would pose a risk to the ecological objectives described above.</p> <p>SAC interest feature 8: The conservation objective for twaite shad <i>Alosa fallax</i></p> <p>The conservation objective for the twaite Shad <i>Alosa fallax</i> feature of the Severn Estuary SAC is to maintain the feature in a favourable condition, as defined below:</p> <p>The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ul style="list-style-type: none"> i. the migratory passage of both adult and juvenile twaite shad through the Severn Estuary between the Bristol Channel and their spawning rivers is not obstructed or impeded by physical barriers, changes in flows or poor water quality; ii. the size of the twaite shad population within the Severn Estuary and the rivers draining into it is at least maintained and is at a level that is sustainable in the long term. iii. the abundance of prey species forming the twaite shad's food resource within the estuary, in particular at the salt wedge, is maintained. iv. Toxic contaminants in the water column and sediment are below levels which would pose a risk to the ecological objectives described above.
Vulnerabilities (includes existing pressures and trends)	<ul style="list-style-type: none"> ■ Physical loss of supporting habitats through removal - The physical loss of areas of intertidal habitats may be caused directly through change of land use or indirectly as a consequence of changes to sedimentation processes (e.g. coastal defences) as well as via the effects of smothering by artificial structures (e.g. jetties) or the disposal of spoils. The intertidal mudflats and sandflats and the saltmarsh are highly sensitive to removal by land reclamation and barrage construction. Information provided by NE and CCW states that large areas of the European marine site are not currently under threat, however when combined with a high level of sensitivity this leads to a moderate vulnerability.

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	<ul style="list-style-type: none"> ■ Contamination by synthetic and/or non-synthetic toxic compounds - At the moment there is no evidence to show that this is the case on the Severn Estuary, but the estuary is vulnerable to oil spills and there is a continuous discharge of toxins into the estuary, some of which bind to the sediments. NE and CCW identify this is an area which requires further assessment. The intertidal mudflats and sandflats and the saltmarsh are currently highly vulnerable to the introduction of synthetic and non-synthetic compounds. ■ Damage by abrasion or selective extraction - Saltmarsh may be physically damaged from overgrazing or eroded when boats are moored on it and when paths are worn through it to reach moored boats on foot or via vehicles. Currently all supporting habitats are considered to be moderately vulnerable to abrasion. Intertidal habitats are highly sensitive to damage by direct and indirect effects of aggregate dredging. The intertidal mudflats and sandflats and the shingle and rocky shore are therefore considered by NE and CCW to be highly vulnerable to selective extraction. ■ Changes in nutrient and/or organic loading - Changes in organic or nutrient loading can change the species composition of the plants on the saltmarsh and thus the structure of the sward. Increases in nutrients can also cause excessive algal growth on the mudflats, denying the birds access to their invertebrate prey and changing the invertebrate species composition in the sediment. Though the water quality has been improved in recent years there are still local areas of concern and any increase in nutrient loading should be avoided. At present the intertidal mudflats and sandflats are moderately vulnerable to this category of operation. ■ Inappropriate grazing - Much of the saltmarsh is managed by grazing and changes in management can alter the availability of prey and suitability of roosting sites. The saltmarsh is currently highly vulnerable to the selective extraction of species.

Site Name: Wye Valley and Forest of Dean Bat Sites Location Grid Ref: SO605044 JNCC Site Code: UK0014794 Size: 142.7 Designation: SAC	Habitats Regulations Assessment: Data Proforma
Site Description	<p>The Wye Valley and Forest of Dean Bats SAC straddles the Wales-England border and covers an area of 142.7ha. It is underpinned by 4 SSSI in Wales and 9 in England, all of which lie entirely within the SAC. This complex of sites contains by far the greatest concentration of lesser horseshoe bat <i>Rhinolophus hipposideros</i> in the UK, totalling about 26% of the national population. It has been selected on the grounds of the exceptional breeding population, and the majority of sites within the complex are maternity roosts. The site also supports the greater horseshoe bat <i>Rhinolophus ferrumequinum</i> in the northern part of its range, with about 6% of the UK population. The site contains the main maternity roost for bats in this area, which are believed to hibernate in the many disused mines in the Forest.</p>
Qualifying Features	<p>Annex II Species primary reason for selection:</p> <ul style="list-style-type: none"> ■ Lesser horseshoe bat <i>Rhinolophus hipposideros</i> ■ Greater horseshoe bat <i>Rhinolophus ferrumequinum</i>
Conservation Objectives	<p>With regard to the natural habitats and/or species for which the site has been designated (the Qualifying Features" listed below);</p> <p>Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.</p> <p>Subject to natural change, to maintain or restore:</p> <ul style="list-style-type: none"> ■ The extent and distribution of qualifying natural habitats and habitats of qualifying species; ■ The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species; ■ The supporting processes on which qualifying natural habitats and habitats of qualifying species rely; ■ The populations of qualifying species;

Site Name: Wye Valley and Forest of Dean Bat Sites Location Grid Ref: SO605044 JNCC Site Code: UK0014794 Size: 142.7 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	<ul style="list-style-type: none"> ▪ The distribution of qualifying species within the site. <p>Qualifying Features: S1303. <i>Rhinolophus hipposideros</i>; Lesser horseshoe bat S1304. <i>Rhinolophus ferrumequinum</i>; Greater horseshoe bat</p>
Vulnerabilities (includes existing pressures and trends)	<ul style="list-style-type: none"> ▪ 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 mine 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 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. ▪ 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.

Site Name: Flands Location Grid Ref: ST530957 JNCC Site Code: UK0012727 Size: 916.24 Designation: SAC	Habitats Regulations Assessment: Data Proforma
Site Description	<p>The Wye Valley Woodlands SAC is a large woodland SAC that straddles the Wales–England border. The site covers an area of 914ha and is underpinned by 9 SSSIs in Wales and 7 in England, all of which lie entirely within the SAC.</p> <p>The Wye Valley contains abundant and near-continuous semi-natural woodland along the gorge. Beech stands occur as part of a mosaic with a wide range of other woodland types, and represent the western range of <i>Asperulo-Fagetum</i> beech forests. Such a variety of woodland types is rare within the UK. In places lime <i>Tilia</i> sp., elm <i>Ulmus</i> sp. and oak <i>Quercus</i> sp. share dominance with the beech. Structurally the woods include old coppice, pollards and high forest types. Lady Park Wood, one of the component sites, is an outstanding example of near-natural old-growth structure in mixed broad-leaved woodland, and has been the subject of detailed long-term monitoring studies.</p> <p>The woods of the lower Wye Valley on the border of south Wales and England form one of the most important areas for woodland conservation in the UK and provide the most extensive examples of <i>Tilio-Acerion</i> forest in the west of its range. A wide range of ecological variation is associated with slope, aspect and landform. The woodland occurs here as a mosaic with other types, including beech <i>Fagus sylvatica</i> and pedunculate oak <i>Quercus robur</i> stands. Uncommon trees, including large-leaved lime <i>Tilia platyphyllos</i> and rare whitebeams such as <i>Sorbus porrigentiformis</i> and <i>S. rupicola</i> are found here, as well as locally uncommon herbs, including wood barley <i>Hordelymus europaeus</i>, stinking hellebore <i>Helleborus foetidus</i>, narrow-leaved bitter-cress <i>Cardamine impatiens</i> and wood fescue <i>Festuca altissima</i>.</p> <p>Wye Valley is representative of yew <i>Taxus baccata</i> woods in the south-west of the habitat's range. It lies on the southern Carboniferous limestone, and yew occurs both as an understorey to other woodland trees and as major yew-dominated groves, particularly on the more stony slopes and crags.</p>
Qualifying Features	Annex I habitats primary reason for selection: <ul style="list-style-type: none"> ■ Asperulo-Fagetum beech forests

Site Name: Flands Location Grid Ref: ST530957 JNCC Site Code: UK0012727 Size: 916.24 Designation: SAC	Habitats Regulations Assessment: Data Proforma
	<ul style="list-style-type: none"> ■ Tilio-Acerion forests of slopes, screes and ravines* Priority feature ■ Taxus baccata woods of the British Isles* Priority feature <p>Annex II species qualifying feature:</p> <ul style="list-style-type: none"> ■ Lesser horseshoe bat <i>Rhinolophus hipposideros</i>
Conservation Objectives	<p>With regard to the natural habitats and/or species for which the site has been designated (the Qualifying Features" listed below);</p> <p>Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.</p> <p>Subject to natural change, to maintain or restore:</p> <ul style="list-style-type: none"> ■ The extent and distribution of qualifying natural habitats and habitats of qualifying species; ■ The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species; ■ The supporting processes on which qualifying natural habitats and habitats of qualifying species rely; ■ The populations of qualifying species; ■ The distribution of qualifying species within the site. <p>Qualifying Features: H9130. <i>Asperulo-Fagetum</i> beech forests; Beech forests on neutral to rich soils H9180. <i>Tilio-Acerion</i> forests of slopes, screes and ravines; Mixed woodland on base-rich soils associated with rocky slopes* H91J0. <i>Taxus baccata</i> woods of the British Isles; Yew-dominated woodland* S1303. <i>Rhinolophus hipposideros</i>; Lesser horseshoe bat</p>

Site Name: Flands Location Grid Ref: ST530957 JNCC Site Code: UK0012727 Size: 916.24 Designation: SAC	Habitats Regulations Assessment: Data Proforma
Vulnerabilities (includes existing pressures and trends)	<ul style="list-style-type: none"> ■ Inappropriate management - Principal pressures are from lack of management (particularly traditional management, e.g. coppice) and inappropriate management proposals which would alter the recognised woodland stand types. ■ Grazing - When woodland is grazed for many years it can prevent the natural regeneration of the woodland, since seedlings and coppice stools are given no opportunity to grow into viable trees. There is a serious problem with deer grazing in these woodlands. It is necessary to control the number of animals grazing in the wood using appropriate measures. Fences and gates should be erected and maintained around areas of regeneration in order to prevent damage. In the future, light grazing by stock may be considered to help reduce the competition from other species allowing seedling regeneration to replace older stools. ■ Off-site pollution - The effects of the releases of quarry dust into the atmosphere from the works adjacent to the Blackcliff -Wyndcliff SSSI are not known; these emissions are subject to the authorisation of other competent authorities, particularly the Environment Agency.

Special Protection Areas

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK9015022 Size: 24662.98 Designation: SPA	Habitats Regulations Assessment: Data Proforma
Site Description	<p>The Severn Estuary is the largest coastal plain estuary in the UK with extensive mudflats and sandflats, rocky shore platforms, shingle and islands. Saltmarsh fringes the coast, backed by grazing marsh with freshwater and occasional brackish ditches. The estuary's classic funnel shape, unique in the UK, is a factor causing the Severn to have the second highest tidal range in the world (after the Bay of Fundy in Canada) at more than 12 meters. This tidal regime results in plant and animal communities typical of the extreme physical conditions of strong flows, mobile sediments, changing salinity, high turbidity and heavy scouring. The resultant low diversity invertebrate communities, that frequently include populations of ragworms, lugworms and other invertebrates in high densities, form an important food source for passage and wintering birds. The site is important in the spring and autumn migration periods for waders moving along the west coast of Europe, as well as in winter for large numbers of waterbirds including swans, geese, ducks and waders. These bird populations are regarded as internationally important.</p> <p>Glassworts and annual sea-blite colonise the open mud, with beds of all three species of eelgrass <i>Zostera</i> occurring on more sheltered mud and sandbanks. Large expanses of common cord-grass also occur on the outer marshes. Heavily grazed saltmarsh fringes the estuary with a range of saltmarsh types present. The middle marsh sward is dominated by common saltmarsh-grass with typical associated species. In the upper marsh, red fescue and saltmarsh rush become more prominent.</p> <p>Areas of saltmarsh fringe the estuary, mostly grazed with a range of vegetation communities. There are gradual and stepped transitions between bare mudflat to upper marsh and grassland. Main vegetation types are: upper saltmarsh with <i>Festuca rubra</i> and <i>Juncus gerardii</i>; middle marsh dominated by <i>Puccinellia maritima</i> with <i>Glaux maritima</i> and <i>Triglochin maritima</i>; dense monocultures of <i>Spartina anglica</i> at the edge of the mudflats-brackish pools and depressions with <i>Phragmites australis</i> and <i>Bolboschoenus maritimus</i>.</p>

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK9015022 Size: 24662.98 Designation: SPA	Habitats Regulations Assessment: Data Proforma
Qualifying Features	<p>Article 4.1 Qualification</p> <p>Over winter the area regularly supports:</p> <ul style="list-style-type: none"> ■ Bewick's Swan <i>Cygnus columbianus bewickii</i> 3.9% of the GB population <p>Article 4.2 Qualification</p> <p>Over winter the area regularly supports:</p> <ul style="list-style-type: none"> ■ Gadwall <i>Anas strepera</i> 0.9% of the population ■ White-fronted Goose <i>Anser albifrons albifrons</i> 0.4% of the population ■ Dunlin <i>Calidris alpina alpina</i> 3.3% of the population ■ Shelduck <i>Tadorna tadorna</i> 1.1% of the population ■ Redshank <i>Tringa totanus</i> 1.3% of the population <p>Article 4.2 Qualification: Internationally Important Assemblage of Birds</p> <p>Over winter the area regularly supports:</p> <ul style="list-style-type: none"> ■ 84317 waterfowl
Conservation Objectives	<p>SPA Interest feature 1: Internationally important population of regularly occurring Annex 1 species: Bewick's swan</p> <p>The conservation objective is to maintain the Bewick's swan population and its supporting habitats in favourable condition, as defined below.</p>

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK9015022 Size: 24662.98 Designation: SPA	Habitats Regulations Assessment: Data Proforma
	<p>The interest feature Bewick's swan will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ol style="list-style-type: none"> i. the 5 year peak mean population size for the Bewick's swan population is no less than 289 individuals (ie the 5 year peak mean between 1988/9 - 1992/3); ii. the extent of saltmarsh at the Dumbles is maintained; iii. the extent of intertidal mudflats and sandflats at Frampton Sands, Waveridge Sands and the Noose is maintained; iv. the extent of vegetation with an effective field size of >6 ha and with unrestricted bird sightlines > 500m at feeding, roosting and refuge sites are maintained; v. greater than 25% cover of suitable soft leaved herbs and grasses in winter season throughout the transitional saltmarsh at the Dumbles is maintained; vi. aggregations of Bewick's swan at feeding, roosting and refuge sites are not subject to significant disturbance. <p>SPA Interest feature 2: Internationally important population of regularly occurring migratory species: wintering European white-fronted goose</p> <p>The conservation objective is to maintain the European white-fronted goose population and its supporting habitats in favourable condition, as defined below.</p> <p>The interest feature European white-fronted goose will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ol style="list-style-type: none"> i. the 5 year peak mean population size for the wintering European white fronted goose population is no

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK9015022 Size: 24662.98 Designation: SPA	Habitats Regulations Assessment: Data Proforma
	<p>less than 3,002 individuals (ie the 5 year peak mean between 1988/9-1992/3);</p> <ul style="list-style-type: none"> ii. 1992/3); iii. the extent of saltmarsh at the Dumbles is maintained; iv. the extent of intertidal mudflats and sandflats at Frampton Sands, Waveridge Sands and the Noose is maintained; v. greater than 25% cover of suitable soft-leaved herbs and grasses is maintained during the winter on saltmarsh areas; vi. unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; vii. aggregations of European white-fronted goose at feeding or roosting sites are not subject to significant disturbance. <p>SPA Interest feature 3: Internationally important population of regularly occurring migratory species: wintering dunlin</p> <p>The conservation objective is to maintain the dunlin population and its supporting habitats in favourable condition, as defined below.</p> <p>The interest feature dunlin will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ul style="list-style-type: none"> i. the 5 year peak mean population size for the wintering dunlin population is no less than 41,683 individuals (ie the 5 year peak mean between 1988/9 - 1992/3); ii. the extent of saltmarsh and associated strandlines is maintained; iii. the extent of intertidal mudflats and sandflats is maintained; iv. the extent of hard substrate habitats is maintained; v. the extent of vegetation with a sward height of <10cm is maintained throughout the saltmarsh;

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK9015022 Size: 24662.98 Designation: SPA	Habitats Regulations Assessment: Data Proforma
	<ul style="list-style-type: none"> vi. the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats is maintained; vii. the abundance and macro-distribution of suitable invertebrates in hard substrate habitats is maintained; viii. unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; ix. aggregations of dunlin at feeding or roosting sites are not subject to significant disturbance. <p>SPA Interest feature 4: Internationally important population of regularly occurring migratory species: wintering redshank</p> <p>The conservation objective is to maintain the redshank population and its supporting habitats in favourable condition, as defined below.</p> <p>The interest feature redshank will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ul style="list-style-type: none"> i. the 5 year peak mean population size for the wintering redshank population is no less than 2,013 individuals (ie the 5 year peak mean between 1988/9 - 1992/3); ii. the extent of saltmarsh and associated strandlines is maintained; iii. the extent of intertidal mudflats and sandflats is maintained; iv. the extent of hard substrate habitats is maintained; v. the extent of vegetation with a sward height of <10cm throughout the saltmarsh is maintained; vi. the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats is maintained; vii. the abundance and macro-distribution of suitable invertebrates in hard substrate habitats is maintained;

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK9015022 Size: 24662.98 Designation: SPA	Habitats Regulations Assessment: Data Proforma
	<p>viii. unrestricted bird sightlines of >200m at feeding and roosting sites are maintained;</p> <p>ix. aggregations of redshank at feeding or roosting sites are not subject to significant disturbance.</p> <p>SPA Interest feature 5: Internationally important population of regularly occurring migratory species: wintering shelduck</p> <p>The conservation objective is to maintain the shelduck population and its supporting habitats in favourable condition, as defined below.</p> <p>The interest feature shelduck will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ul style="list-style-type: none"> i. the 5 year peak mean population size for the wintering shelduck population is no less than 2,892 individuals (ie the 5 year peak mean between 1988/9 - 1992/3); ii. the extent of saltmarsh is maintained; iii. the extent of intertidal mudflats and sandflats is maintained; iv. the extent of hard substrate habitats is maintained; v. the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats is maintained; vi. unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; vii. aggregations of shelduck at feeding or roosting sites are not subject to significant disturbance. <p>SPA interest feature 6: Internationally important population of regularly occurring migratory species: wintering gadwall</p> <p>The conservation objective is to maintain the gadwall population and its supporting habitats in favourable</p>

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK9015022 Size: 24662.98 Designation: SPA	Habitats Regulations Assessment: Data Proforma
	<p>condition, as defined below:</p> <p>The interest feature gadwall will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ul style="list-style-type: none"> i. the 5 year peak mean population size for the wintering gadwall population is no less than 330 (ie the 5 year peak mean between 1988/9 - 1992/3); ii. the extent of intertidal mudflats and sandflats (Appendix 8) is maintained; iii. unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; iv. aggregations of gadwall at feeding or roosting sites are not subject to significant disturbance. <p>SPA Interest feature 7: Internationally important assemblage of waterfowl</p> <p>The conservation objective is to maintain the waterfowl assemblage and its supporting habitats in favourable condition, as defined below.</p> <p>The interest feature waterfowl assemblage will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <ul style="list-style-type: none"> i. the 5 year peak mean population size for the waterfowl assemblage is no less than 68,026 individuals (ie the 5 year peak mean between 1988/9 - 1992/3); ii. the extent of saltmarsh and their associated strandlines is maintained; iii. the extent of intertidal mudflats and sandflats is maintained; iv. the extent of hard substrate habitats is maintained; v. extent of vegetation of <10cm throughout the saltmarsh is maintained; vi. the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats is

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK9015022 Size: 24662.98 Designation: SPA	Habitats Regulations Assessment: Data Proforma
	<p>maintained;</p> <p>vii. the abundance and macro-distribution of suitable invertebrates in hard substrate habitats is maintained;</p> <p>viii. greater than 25% cover of suitable soft leaved herbs and grasses during the winter on saltmarsh areas is maintained;</p> <p>ix. unrestricted bird sightlines of >500m at feeding and roosting sites are maintained;</p> <p>x. waterfowl aggregations at feeding or roosting sites are not subject to significant disturbance.</p>
Vulnerabilities (includes existing pressures and trends)	<p>Internationally important populations of regularly occurring Annex 1 species:</p> <ul style="list-style-type: none"> ■ Physical loss of supporting habitats through removal - The physical loss of areas of intertidal habitats may be caused directly through change of land use or indirectly as a consequence of changes to sedimentation processes (e.g. coastal defences) as well as via the effects of smothering by artificial structures (e.g. jetties) or the disposal of spoils. Activities or developments resulting in physical loss of the intertidal supporting habitats are likely to reduce the availability of feeding and roosting habitat and thus be detrimental to the favourable condition of the SPA interest features including the Annex 1 species, Bewick's swan. The intertidal mudflats and sandflats and the saltmarsh are highly sensitive to removal by land reclamation and barrage construction. Information provided by NE and CCW states that large areas of the European marine site are not currently under threat, however when combined with a high level of sensitivity this leads to a moderate vulnerability. ■ Noise or visual disturbance - Overwintering birds are disturbed by sudden movements and sudden noises. This can displace the birds from their feeding grounds. Disturbance can prevent the birds from feeding and in response they either a) decrease their energy intake at their present (disturbed) feeding site through displacement activity, or b) move to an alternative less favoured feeding site. Such a response affects energy budgets and thus survival. There is intermittent disturbance from both the landward and seaward

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK9015022 Size: 24662.98 Designation: SPA	Habitats Regulations Assessment: Data Proforma
	<p>side of the site. Bewick's swans are mainly affected by disturbance from the landward side and any increase in disturbance should be avoided. At present NE and CCW assess that the Annex 1 species are moderately vulnerable to noise and visual disturbance on the intertidal mudflats and sandflats and highly vulnerable to this category of operation on the saltmarsh.</p> <ul style="list-style-type: none"> ■ Contamination by synthetic and/or non-synthetic toxic compounds - Waterfowl are subject to the accumulation of toxins through the food chain or through direct contact with toxic substances when roosting or feeding. Their ability to feed can also be affected by the abundance or change in palatability of their prey caused by toxic contamination. At the moment there is no evidence to show that this is the case, but the estuary is vulnerable to oil spills and there is a continuous discharge of toxins into the estuary, some of which bind to the sediments. NE and CCW identify this is an area which requires further assessment. They also identify Bewick's swans as currently moderately vulnerable to toxic contamination. <p>Internationally important waterfowl assemblage including populations of regularly occurring migratory species:</p> <ul style="list-style-type: none"> ■ Physical loss through removal - The physical loss of areas of intertidal habitats may be caused directly through change of land use or indirectly as a consequence of changes to sedimentation processes (e.g. coastal defences) as well as via the effects of smothering by artificial structures (e.g. jetties) or the disposal of spoils. Eelgrass beds are being affected by siltation due to changes in sediment movement after construction of the Second Severn Crossing which has resulted in smothering. Activities or developments resulting in physical loss of the intertidal supporting habitats are likely to reduce the availability of food and roosting habitat and thus be detrimental to the favourable condition of the SPA interest features including all the migratory species and waterfowl assemblage. All three supporting habitats are highly sensitive to removal by land reclamation and barrage construction. Information provided by NE and CCW states that large areas of the European marine site are not currently under threat, however when combined with a

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK9015022 Size: 24662.98 Designation: SPA	Habitats Regulations Assessment: Data Proforma
	<p>high level of sensitivity this leads to a moderate vulnerability.</p> <ul style="list-style-type: none"> ■ Damage by abrasion or selective extraction - Saltmarsh may be physically damaged from overgrazing or eroded when boats are moored on it and when paths are worn through it to reach moored boats on foot or via vehicles. Currently all supporting habitats are considered to be moderately vulnerable to abrasion. Intertidal habitats are highly sensitive to damage by direct and indirect effects of aggregate dredging. The intertidal mudflats and sandflats and the shingle and rocky shore are therefore considered by NE and CCW to be highly vulnerable to selective extraction. ■ Noise or visual disturbance - Overwintering birds are disturbed by sudden movements and sudden noises. This can have the effect of displacing the birds from their feeding grounds. Disturbance can prevent the birds from feeding and in response they either a) decrease their energy intake at their present (disturbed) feeding site through displacement activity, or b) move to an alternative less favoured feeding site. Such a response affects energy budgets and thus survival. There is intermittent disturbance to the internationally important migratory species and the waterfowl assemblage from both the landward and seaward side of the site which has increased in recent years, due to the estuary becoming more populated and the development of all weather recreational pursuits. All supporting habitats are currently highly vulnerable to noise and visual disturbance. ■ Contamination by synthetic and/or non-synthetic toxic compounds - Waterfowl are subject to the accumulation of toxins through the food chain or through direct contact with toxic substances when roosting or feeding. Their ability to feed can also be affected by the abundance or change in palatability of their prey caused by toxic contamination. At the moment there is no evidence to show that this is the case on the Severn Estuary, but the estuary is vulnerable to oil spills and there is a continuous discharge of toxins into the estuary, some of which bind to the sediments. NE and CCW identify this is an area which requires further assessment. The intertidal mudflats and sandflats and the saltmarsh are currently highly

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK9015022 Size: 24662.98 Designation: SPA	Habitats Regulations Assessment: Data Proforma
	<p>vulnerable to the introduction of synthetic and non-synthetic compounds.</p> <ul style="list-style-type: none"> ■ Changes in nutrient and/or organic loading - Changes in organic or nutrient loading can change the species composition of the plants on the saltmarsh and thus the structure of the sward. Increases in nutrients can also cause excessive algal growth on the mudflats, denying the birds access to their invertebrate prey and changing the invertebrate species composition in the sediment. Though the water quality has been improved in recent years there are still local areas of concern and any increase in nutrient loading should be avoided. At present the intertidal mudflats and sandflats are moderately vulnerable to this category of operation. ■ Biological disturbance through the selective extraction of species - Wildfowling is carried out all around the estuary. NE and CCW have not established that it has a detrimental effect on the overall bird populations but state that wildfowling needs to be exercised in a managed and sustainable manner preferably by a British Association of Shooting and Conservation (BASC) affiliated association, applying the BASC wildfowling code of conduct. Bait digging is also carried out around the estuary. If too large an area is regularly dug over, it can change the availability of prey in the sediment as the area needs a period of recovery and recolonisation. The removal of strandline vegetation by beach cleaning removes an important habitat for invertebrates, as well as many of the invertebrates themselves, reducing the quantity and variety of prey available to the birds. Much of the saltmarsh is managed by grazing and changes in management can alter the availability of prey and suitability of roosting sites. The saltmarsh is currently highly vulnerable to the selective extraction of species.

Site Name: Walmore Common Location (Lat & Long): 51 49 58 N 02 22 14 W JNCC Site Code: UK9007051 Size: 52.85 ha Designation: SPA	Habitats Regulations Assessment: Data Proforma
Site Description	<p>Walmore Common is located in Gloucestershire, in the west of England, about 10 km south-west of Gloucester. The site is a wetland overlying peat providing a variety of habitats including improved neutral grassland, unimproved marshy grassland and open water ditches. The area is subject to regular winter flooding and this creates suitable conditions for regular wintering by an important number of Bewick's Swan <i>Cygnus columbianus bewickii</i>. The highest bird numbers are seen during the harshest winters, when Walmore Common provides an essential feeding and roosting area.</p>
Qualifying Features	<p>Article 4.1 Qualification</p> <p>Over winter the area regularly supports:</p> <ul style="list-style-type: none"> ■ Bewick's Swan <i>Cygnus columbianus bewickii</i> 1.4% of the GB population
Conservation Objectives	<p>With regard to the natural habitats and/or species for which the site has been designated (the Qualifying Features" listed below);</p> <p>Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.</p> <p>Subject to natural change, to maintain or restore:</p> <ul style="list-style-type: none"> ■ The extent and distribution of qualifying natural habitats and habitats of qualifying species; ■ The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species; ■ The supporting processes on which qualifying natural habitats and habitats of qualifying species rely;

Site Name: Walmore Common Location (Lat & Long): 51 49 58 N 02 22 14 W JNCC Site Code: UK9007051 Size: 52.85 ha Designation: SPA	Habitats Regulations Assessment: Data Proforma
	<ul style="list-style-type: none"> ■ The populations of qualifying species; ■ The distribution of qualifying species within the site. <p>Qualifying Features: A037 <i>Cygnus columbianus bewickii</i>; Bewick's swan (Non-breeding)</p>
Vulnerabilities (includes existing pressures and trends)	<p>Bewick's swans are attracted for feeding and roosting by the grassland, which is maintained by grazing and the natural winter flooding which is in turn determined by rainfall, run-off and river levels. A water level management plan, currently in preparation, will ensure appropriate conditions are retained for wintering bird interest. The marshy grassland and ditches will be maintained and enhanced by maintaining high water levels from spring to autumn through the implementation of a water level management plan.</p>

Ramsar Sites

Site Name: Severn Estuary Location (Lat & Long): 51 13 29 N 03 02 57 W JNCC Site Code: UK11081 Size: 24662.98 Designation: Ramsar	Habitats Regulations Assessment: Data Proforma
Site Description	<p>The Severn Estuary is the largest coastal plain estuary in the UK with extensive mudflats and sandflats, rocky shore platforms, shingle and islands. Saltmarsh fringes the coast, backed by grazing marsh with freshwater and occasional brackish ditches. The estuary's classic funnel shape, unique in the UK, is a factor causing the Severn to have the second highest tidal range in the world (after the Bay of Fundy in Canada) at more than 12 meters. This tidal regime results in plant and animal communities typical of the extreme physical conditions of strong flows, mobile sediments, changing salinity, high turbidity and heavy scouring. The resultant low diversity invertebrate communities, that frequently include populations of ragworms, lugworms and other invertebrates in high densities, form an important food source for passage and wintering birds. The site is important in the spring and autumn migration periods for waders moving along the west coast of Europe, as well as in winter for large numbers of waterbirds including swans, geese, ducks and waders. These bird populations are regarded as internationally important.</p> <p>Glassworts and annual sea-blite colonise the open mud, with beds of all three species of eelgrass <i>Zostera</i> occurring on more sheltered mud and sandbanks. Large expanses of common cord-grass also occur on the outer marshes. Heavily grazed saltmarsh fringes the estuary with a range of saltmarsh types present. The middle marsh sward is dominated by common saltmarsh-grass with typical associated species. In the upper marsh, red fescue and saltmarsh rush become more prominent.</p> <p>Areas of saltmarsh fringe the estuary, mostly grazed with a range of vegetation communities. There are gradual and stepped transitions between bare mudflat to upper marsh and grassland. Main vegetation types are: upper saltmarsh with <i>Festuca rubra</i> and <i>Juncus gerardii</i>; middle marsh dominated by <i>Puccinellia maritima</i> with <i>Glaux maritima</i> and <i>Triglochin maritima</i>; dense monocultures of <i>Spartina anglica</i> at the edge of the mudflats-brackish pools and depressions with <i>Phragmites australis</i> and <i>Bolboschoenus maritimus</i>.</p>

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Qualifying Features	<p>Ramsar criterion 1</p> <ul style="list-style-type: none"> ■ Immense tidal range (second-largest in world) creating diversity of physical environment and biological communities. <p>Ramsar criterion 3</p> <ul style="list-style-type: none"> ■ Due to unusual estuarine communities, reduced diversity and high productivity. <p>Ramsar criterion 4</p> <ul style="list-style-type: none"> ■ This site is important for the run of migratory fish between sea and river via estuary. Species include Salmon <i>Salmo salar</i>, sea trout <i>S. trutta</i>, sea lamprey <i>Petromyzon marinus</i>, river lamprey <i>Lampetra fluviatilis</i>, allis shad <i>Alosa alosa</i>, twaite shad <i>A. fallax</i>, and eel <i>Anguilla anguilla</i>. It is also of particular importance for migratory birds during spring and autumn. <p>Ramsar criterion 5</p> <p>Species with peak counts in winter:</p> <ul style="list-style-type: none"> ■ 70919 waterfowl <p>Ramsar criterion 6</p> <p>Species with peak counts in winter:</p> <ul style="list-style-type: none"> ■ Bewick's swan ■ Greater white-fronted goose ■ Common shelduck ■ Gadwall

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	<ul style="list-style-type: none"> ■ Dunlin ■ Common redshank <p>Ramsar criterion 8</p> <ul style="list-style-type: none"> ■ The fish of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. Salmon <i>Salmo salar</i>, sea trout <i>S. trutta</i>, sea lamprey <i>Petromyzon marinus</i>, river lamprey <i>Lampetra fluviatilis</i>, allis shad <i>Alosa alosa</i>, twaite shad <i>A. fallax</i>, and eel <i>Anguilla Anguilla</i> use the Severn Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary. The site is important as a feeding and nursery ground for many fish species particularly allis shad <i>Alosa alosa</i> and twaite shad <i>A. fallax</i> which feed on mysid shrimps in the salt wedge.
Conservation Objectives	<p>Ramsar interest feature 1: Estuaries</p> <p>The conservation objective for the “estuaries” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SAC “estuaries” feature”, in so far as these objectives are applicable to the area designated as Ramsar Site.</p> <p>Ramsar interest feature 2: Assemblage of migratory fish species</p> <p>The conservation objective for the “assemblage of migratory fish species” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined below:</p> <p>The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met:</p> <p>i. the migratory passage of both adults and juveniles of the assemblage of migratory fish species through</p>

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	<p>the Severn Estuary between the Bristol Channel and any of their spawning rivers is not obstructed or impeded by physical barriers, changes in flows, or poor water quality;</p> <p>ii. the size of the populations of the assemblage species in the Severn Estuary and the rivers which drain into it, is at least maintained and is at a level that is sustainable in the long term;</p> <p>iii. the abundance of prey species forming the principle food resources for the assemblage species within the estuary, is maintained.</p> <p>iv. Toxic contaminants in the water column and sediment are below levels which would pose a risk to the ecological objectives described above.</p> <p>Ramsar interest feature 3: Internationally important populations of waterfowl : Bewick's swan</p> <p>The conservation objective for the "Bewick's swan" feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA "Bewick's swan " feature.</p> <p>Ramsar interest feature 4: Internationally important populations of waterfowl: European white-fronted goose</p> <p>The conservation objective for the "European white-fronted goose" feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA "wintering European white-fronted goose" feature.</p> <p>Ramsar interest feature 5: Internationally important populations of waterfowl: dunlin</p> <p>The conservation objective for the "dunlin" feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA "wintering dunlin" feature.</p>

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	<p>Ramsar interest feature 6: Internationally important populations of waterfowl: redshank</p> <p>The conservation objective for the “redshank” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “wintering redshank” feature.</p> <p>Ramsar interest feature 7: Internationally important populations of waterfowl: shelduck</p> <p>The conservation objective for the “shelduck” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “wintering shelduck” feature.</p> <p>Ramsar interest feature 8: Internationally important populations of waterfowl: gadwall</p> <p>The conservation objective for the “gadwall” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “wintering gadwall” feature.</p> <p>Ramsar interest feature 9: Internationally important assemblage of waterfowl</p> <p>The conservation objective for the “internationally important assemblage of waterfowl” feature of the Severn Estuary Ramsar Site is to maintain the feature in favourable condition, as defined by the conservation objective for the SPA “internationally important assemblage of waterfowl” feature - with special reference to the individual species listed and their population figures.</p>
Vulnerabilities (includes	<ul style="list-style-type: none"> ■ Physical loss of supporting habitats through removal - The physical loss of areas of intertidal habitats may be

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existing pressures and trends)	<p>caused directly through change of land use or indirectly as a consequence of changes to sedimentation processes (e.g. coastal defences) as well as via the effects of smothering by artificial structures (e.g. jetties) or the disposal of spoils. Activities or developments resulting in physical loss of the intertidal supporting habitats are likely to reduce the availability of feeding and roosting habitats. The intertidal mudflats and sandflats and the saltmarsh are highly sensitive to removal by land reclamation and barrage construction. Information provided by NE and CCW states that large areas of the European marine site are not currently under threat, however when combined with a high level of sensitivity this leads to a moderate vulnerability.</p> <ul style="list-style-type: none"> ■ Noise or visual disturbance - Overwintering birds are disturbed by sudden movements and sudden noises. This can displace the birds from their feeding grounds. Disturbance can prevent the birds from feeding and in response they either a) decrease their energy intake at their present (disturbed) feeding site through displacement activity, or b) move to an alternative less favoured feeding site. Such a response affects energy budgets and thus survival. There is intermittent disturbance to the internationally important migratory species and the waterfowl assemblage from both the landward and seaward side of the site which has increased in recent years, due to the estuary becoming more populated and the development of all weather recreational pursuits. Bewick's swans are mainly affected by disturbance from the landward side and any increase in disturbance should be avoided. All supporting habitats are currently highly vulnerable to noise and visual disturbance. ■ Contamination by synthetic and/or non-synthetic toxic compounds - Waterfowl are subject to the accumulation of toxins through the food chain or through direct contact with toxic substances when roosting or feeding. Their ability to feed can also be affected by the abundance or change in palatability of their prey caused by toxic contamination. At the moment there is no evidence to show that this is the case, but the estuary is vulnerable to oil spills and there is a continuous discharge of toxins into the estuary, some of which bind to the sediments. NE and CCW identify this is an area which requires further assessment. The intertidal mudflats and sandflats and the saltmarsh are currently highly vulnerable to the introduction of

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	<p>synthetic and non-synthetic compounds.</p> <ul style="list-style-type: none"> ■ Damage by abrasion or selective extraction - Saltmarsh may be physically damaged from overgrazing or eroded when boats are moored on it and when paths are worn through it to reach moored boats on foot or via vehicles. Currently all supporting habitats are considered to be moderately vulnerable to abrasion. Intertidal habitats are highly sensitive to damage by direct and indirect effects of aggregate dredging. The intertidal mudflats and sandflats and the shingle and rocky shore are therefore considered by NE and CCW to be highly vulnerable to selective extraction. ■ Changes in nutrient and/or organic loading - Changes in organic or nutrient loading can change the species composition of the plants on the saltmarsh and thus the structure of the sward. Increases in nutrients can also cause excessive algal growth on the mudflats, denying the birds access to their invertebrate prey and changing the invertebrate species composition in the sediment. Though the water quality has been improved in recent years there are still local areas of concern and any increase in nutrient loading should be avoided. At present the intertidal mudflats and sandflats are moderately vulnerable to this category of operation. ■ Biological disturbance through the selective extraction of species - Wildfowling is carried out all around the estuary. NE and CCW have not established that it has a detrimental effect on the overall bird populations but state that wildfowling needs to be exercised in a managed and sustainable manner preferably by a British Association of Shooting and Conservation (BASC) affiliated association, applying the BASC wildfowling code of conduct. Bait digging is also carried out around the estuary. If too large an area is regularly dug over, it can change the availability of prey in the sediment as the area needs a period of recovery and recolonisation. The removal of strandline vegetation by beach cleaning removes an important habitat for invertebrates, as well as many of the invertebrates themselves, reducing the quantity and variety of prey available to the birds. Much of the saltmarsh is managed by grazing and changes in

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	<p>management can alter the availability of prey and suitability of roosting sites. The saltmarsh is currently highly vulnerable to the selective extraction of species.</p>

Site Name: Walmore Common Location (Lat & Long): 51 49 58 N 02 22 14 W JNCC Site Code: UK11076 Size: 52.85 ha Designation: Ramsar	Habitats Regulations Assessment: Data Proforma
Site Description	<p>Walmore Common is located in Gloucestershire, in the west of England, about 10 km south-west of Gloucester. The site is a wetland overlying peat providing a variety of habitats including improved neutral grassland, unimproved marshy grassland and open water ditches. The area is subject to regular winter flooding and this creates suitable conditions for regular wintering by an important number of Bewick's Swan <i>Cygnus columbianus bewickii</i>. The highest bird numbers are seen during the harshest winters, when Walmore Common provides an essential feeding and roosting area.</p>
Qualifying Features	<p>Ramsar criterion 6 Species with peak counts in winter:</p> <ul style="list-style-type: none"> ■ Bewick's swan
Conservation Objectives	<p>With regard to the natural habitats and/or species for which the site has been designated (the Qualifying Features" listed below);</p> <p>Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.</p> <p>Subject to natural change, to maintain or restore:</p> <ul style="list-style-type: none"> ■ The extent and distribution of qualifying natural habitats and habitats of qualifying species; ■ The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species; ■ The supporting processes on which qualifying natural habitats and habitats of qualifying species rely; ■ The populations of qualifying species;

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	<ul style="list-style-type: none"> ▪ The distribution of qualifying species within the site. <p>Qualifying Features: A037 <i>Cygnus columbianus bewickii</i>; Bewick's swan (Non-breeding)</p>
Vulnerabilities (includes existing pressures and trends)	<p>Bewick's swans are attracted for feeding and roosting by the grassland, which is maintained by grazing and the natural winter flooding which is in turn determined by rainfall, run-off and river levels. A water level management plan, currently in preparation, will ensure appropriate conditions are retained for wintering bird interest. The marshy grassland and ditches will be maintained and enhanced by maintaining high water levels from spring to autumn through the implementation of a water level management plan.</p>

Appendix II: Plans and Programmes Review

Plan/Project	Proposal	Potential impacts that could cause 'in-combination' effects
Adopted Malvern Hills Local Plan	<ul style="list-style-type: none"> • 3,900 dwellings • 55 hectares of employment land 	<ul style="list-style-type: none"> • Nearly all of these dwellings and employment land has already been built so will be in baseline consideration.
Adopted Wychavon Local Plan	<ul style="list-style-type: none"> • 7,450 dwellings • 110 hectares of employment land • Existing transportation and environment problems arising from concentrated HGV movements • Development of Throckmorton airfield for 10ha of B1 and B2 use 	<ul style="list-style-type: none"> • Nearly all of these dwellings and employment land has already been built so will be in baseline consideration. • The issue of traffic concentration is addressed in policy terms in the adopted plan.
South Worcestershire Development Plan - Submission (May 2013)	<ul style="list-style-type: none"> • 23,200 new dwellings • 280 hectares of employment land 	<ul style="list-style-type: none"> • Proposed housing, employment and infrastructure development has the potential to: increase disturbance (recreational, noise, light); increase atmospheric pollution (diffuse); increase pressure on sewerage capacity; increase water abstraction; result in the loss of supporting habitat and modify drainage. • The HRA Report (Nov 2012) for the SWDP concluded that proposed development would not have adverse effects on the integrity of European sites. However, given that more detail is now available for proposed development through the JCS the potential for in-combination effects should be considered further through the HRA. • The Plan has the potential to result in in-combination effects with the Draft JCS: <ul style="list-style-type: none"> ▪ atmospheric pollution through increased traffic, which could reduce air quality; ▪ increased levels of disturbance - recreational activity, noise and light pollution; and ▪ increased levels of abstraction; surface water run-off and sewerage

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Cotswold District Council Local Plan Consultation Paper: Preferred Development Strategy (May 2013)	<ul style="list-style-type: none"> • 6,900 new dwellings • Approx 15 ha employment land 	<p>discharge, which could reduce water quality and levels.</p> <ul style="list-style-type: none"> • Proposed housing, employment and infrastructure development has the potential to: increase disturbance (recreational, noise, light); increase atmospheric pollution (diffuse); increase pressure on sewerage capacity; increase water abstraction; result in the loss of supporting habitat and modify drainage. • The HRA Screening Report (May 2013) concluded that a number of the individual development strategies could result in likely significant effects on European sites. Particularly in relation to development planned in the south west of the District (at Cirencester and Tetbury) which could result in increased demand for recreational use of sites such as Rodborough Common SAC, Cotswold Beechwoods SAC and North Meadow and Clattinger Farm SAC. Increased vehicle traffic and water abstraction and waste water discharges were also identified as having the potential to result in significant effects. The potential for in-combination effects with other authorities' development plans was considered unlikely in most cases; however some uncertainty remained in relation to the potential for in-combination effects with Stroud's forthcoming Local Plan and the emerging Gloucester, Cheltenham and Tewkesbury Joint Core Strategy. • The Plan has the potential to result in in-combination effects with the Draft JCS: <ul style="list-style-type: none"> ▪ atmospheric pollution through increased traffic, which could reduce air quality; ▪ increased levels of disturbance - recreational activity, noise and light pollution; and ▪ increased levels of abstraction; surface water run-off and sewerage discharge, which could reduce water quality and levels.
Forest of Dean	<ul style="list-style-type: none"> • 5,162 new dwellings 	<ul style="list-style-type: none"> • Proposed housing, employment and infrastructure development has

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Core Strategy Adopted (Feb 2012)	<ul style="list-style-type: none"> About 75% of all new housing and 80% of new employment will be in the four towns: 1900 new dwellings and 30ha of employment land at Lydney, 1050 dwellings and 26ha of employment at Cinderford, 650 dwellings and 6.8ha at Coleford and 350 dwellings and 5ha at Newent. 	<p>the potential to: increase disturbance (recreational, noise, light); increase atmospheric pollution (diffuse); increase pressure on sewerage capacity; increase water abstraction; result in the loss of supporting habitat and modify drainage.</p> <ul style="list-style-type: none"> The HRA Screening (SA Report Feb 2012 - Appendix 10) concluded that the Core Strategy will not result in any significant negative impacts on identified sites. The need for HRA at later stages of the planning processes was identified, when development proposals are more detailed. The Plan has the potential to result in in-combination effects with the Draft JCS: <ul style="list-style-type: none"> atmospheric pollution through increased traffic, which could reduce air quality; increased levels of disturbance - recreational activity, noise and light pollution; and increased levels of abstraction; surface water run-off and sewerage discharge, which could reduce water quality and levels.
Tewkesbury Town Centre Masterplan Strategic Framework Document (July 2012)	<ul style="list-style-type: none"> Regeneration of key sites around Tewkesbury town centre Decrease congestion 	<ul style="list-style-type: none"> The Plan has the potential to result in in-combination effects with the Draft JCS: <ul style="list-style-type: none"> atmospheric pollution through increased traffic, which could reduce air quality increased levels of disturbance - recreational activity, noise and light pollution – a number of opportunity sites close to the River Avon and Severn, potential for increased disturbance to mobile species; and increased levels of abstraction; surface water run-off and sewerage discharge, which could reduce water quality and levels.
Stroud Local Plan (Pre-submission 2013)	<ul style="list-style-type: none"> 2400 new dwellings 6,200 jobs with new employment land allocations and support for further town centre and retail floorspace to meet 	<ul style="list-style-type: none"> The HRA including a appropriate assessment identified three European sites for further investigation: <ol style="list-style-type: none"> Severn estuary SAC, SPA & Ramsar – air quality, recreational pressure water supply and wastewater treatment.

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	<p>needs up to 2031</p> <ul style="list-style-type: none"> • Strategic sites: <ol style="list-style-type: none"> 1. Hunts Grove Extension 500 2. North East Cam 450 3. Sharpness 300 4. Stroud Valleys 300 	<ol style="list-style-type: none"> 2. Rodborough Common SAC – air quality and recreational pressure. 3. Cotswold Beechwoods SAC – air quality and recreational pressure. <p>With mitigation suggested in the HRA it was concluded that there would be an appropriate policy mechanism in place to ensure that adverse effects on the integrity of the three sites mentioned above could be avoided.</p> <ul style="list-style-type: none"> • The Plan has the potential to result in in-combination effects with the Draft JCS: <ul style="list-style-type: none"> ▪ atmospheric pollution through increased traffic, which could reduce air quality; ▪ increased levels of disturbance - recreational activity, noise and light pollution; and ▪ increased levels of abstraction; surface water run-off and sewerage discharge, which could reduce water quality and levels.
Herefordshire Draft Core Strategy (March 2013)	<ul style="list-style-type: none"> • The Draft Herefordshire Core Strategy (March 2013) presents detailed policies for development in the county up to 2031. • Housing provision - A supply of deliverable and developable land will be identified to secure the delivery of a minimum of 16,500 homes in Herefordshire between 2011 and 2031 to meet market and affordable housing need. • Employment Provision - Existing higher quality employment land countywide will be safeguarded from alternative uses and a continuous supply of 37 ha of readily 	<p>The HRA Screening concluded that a number of the Plan's Policies were likely to have a significant effect on the River Wye SAC with regard to water quality. The AA reported that mitigation measures were possible to prevent the adverse effects on water quality identified on the River Wye SAC.</p> <ul style="list-style-type: none"> • The Plan has the potential to result in in-combination effects with the Draft JCS: <ul style="list-style-type: none"> ▪ atmospheric pollution through increased traffic, which could reduce air quality; ▪ increased levels of disturbance - recreational activity, noise and light pollution; and ▪ increased levels of abstraction; surface water run-off and sewerage discharge, which could reduce water quality and levels.

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	<p>available employment land will be made available over a 5 year period, with an overall target of 148 ha of employment land over the plan period. New strategic employment land in tandem with housing growth and smaller scale employment sites will be delivered through the plan period. New strategic sites are identified at Hereford (15ha); Leominster (up to 10 ha), Ledbury (12 ha) and Bromyard (5 ha).</p>	
<p>Monmouthshire Local Development Plan (LDP) (Focused Changes 2012)</p>	<ul style="list-style-type: none"> • The Draft Deposit LDP sets out the spatial approach for housing provision in Monmouthshire, with the main focus for new housing development being within or adjoining the Main Towns of Abergavenny, Chepstow and Monmouth. • Provision will be made to meet a need for around 4,000 dwellings in the plan period 2011 - 2021 • The LDP also makes provision for employment land including: <ul style="list-style-type: none"> ➢ 37 ha at Magor suitable for employment development of regional or sub regional significance. ➢ 5 – 6 ha at each of the Main Towns of Abergavenny (Llanfoist), Chepstow and Monmouth. 	<ul style="list-style-type: none"> • The October 2012 HRA Report for the LDP describes the screening and Appropriate Assessment work that was undertaken. The screening assessment concluded that the Deposit LDP is not likely to have significant effects alone on European sites, if the recommended policy safeguards are incorporated into the Plan. These changes were incorporated into the LDP and the SA and HRA Changes Log recognised this and reached a final conclusion of no likely significant effects on European sites. • The screening work identified four main areas of impact arising that may have the potential for significant in combination effects on the integrity of the identified European sites: water resources, water quality, disturbance (including habitat loss and fragmentation) and air quality. • These issues were taken forward into the AA and considered in further detail. The AA assessed that there is uncertainty with regard to the potential adverse impacts of the LDP acting in combination with surrounding plans and projects. To address this uncertainty the AA proposed a number of mitigation measures, including recommendations to strengthen the mitigation provided by certain LDP policies. • The AA concluded that the LDP will not have adverse effects on the

Plan/Project	Proposal	Potential impacts that could cause 'in-combination' effects
		<p>integrity of European sites as the recommended mitigation measures have been incorporated into the Plan.</p> <ul style="list-style-type: none"> • The Plan has the potential to result in in-combination effects with the Draft JCS: <ul style="list-style-type: none"> ▪ increased levels of disturbance - recreational activity, noise and light pollution; and ▪ increased levels of abstraction; surface water run-off and sewerage discharge, which could reduce water quality and levels.
Powys Local Plan: Preferred Strategy (2012)	<p>The preferred growth options for the LDP are for the provision of:</p> <ul style="list-style-type: none"> • 42 ha of employment land – most of this land has been identified to support the needs of existing businesses wishing to re-locate in modern premises so spatially it relates to the location of existing businesses. • 7,700 dwellings – It is estimated that of this total 4,216 dwellings will be constructed as a result of completions since the start of 2011, sites that obtain planning permission within the lifetime of the UDP, and an estimated 15 year contribution from small sites (4 or less dwellings). The LDP will therefore make provision for a further 3,500 (3,484) dwellings through the allocation of land. 	<ul style="list-style-type: none"> • The HRA stated that it was not possible to state if an AA is required at this stage as the policies are strategic and do not contain sufficient information on the location of development to determine this. • The HRA screening process taking a precautionary approach, highlighted the potential for Powys' LDP to adversely affect the integrity of 28 European Sites, either alone or in-combination with other plans or projects including the River Usk and River Wye SACs. <p>The HRA identified range of in-combination impacts on identified vulnerabilities affecting both the River Usk and Wye SACs:</p> <ul style="list-style-type: none"> ➤ Indirect effects on water quality vulnerabilities from pollution from road drains/ house/ chemical ➤ Indirect effects on the development vulnerabilities from engineering/ chemicals. ➤ Direct/ indirect effects on the vulnerabilities of recreation and leisure arising from population growth and the opening up of the countryside through tourism and diversification. <ul style="list-style-type: none"> • Potential in-combination effects with regard to water abstraction and quality and air quality.
Gloucestershire	<ul style="list-style-type: none"> • 50,000 new dwellings 	<ul style="list-style-type: none"> • Nearly all of these dwellings and employment land has already been

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Structure Plan	<ul style="list-style-type: none"> • 507 hectares of employment land 	built so will be in baseline consideration.
Gloucestershire LTP3 2011 - 2026	<ul style="list-style-type: none"> • Major road and transport schemes/ interchanges 	<ul style="list-style-type: none"> • Proposed transport infrastructure could increase disturbance (recreational, noise, light); increase atmospheric pollution (diffuse); increase transfer of pollutants through surface water run-off; result in the loss of supporting habitat and modify drainage. • Potential for in-combination effects will be considered through the HRA for the JCS.
Gloucestershire Minerals Core Strategy Preferred Options	<ul style="list-style-type: none"> • 7 strategic objectives make up the preferred option and are fall within themes. • The MCS identifies the following resource areas, which are of relevance: • The Cotswolds - provides limestone used as a crushed rock and building stone and clay for brick-making; • The Severn Vale Corridor - also encompasses sand & gravel for aggregate use; and clay for engineering projects. 	<ul style="list-style-type: none"> • The MCS identifies the potential outward supply opportunity of crushed rock into Wales and the West Midlands. This could have the potential to have in-combination effects through increased transport and associated impacts/ pollution incidents. • The MCS also identifies the provision potential of the Severn Vale Corridor resource area to provide potential new site allocations for sand and gravel working. A new site to the north of Tewkesbury would be in close proximity to the Bredon Hill SAC and could again have the potential for increased transport and associated impacts/ pollution incidents. • The HRA for the Preferred Options acknowledged that there are uncertainties surrounding the minerals provision in Gloucestershire. • The Plan has the potential to result in in-combination effects with the Draft JCS: <ul style="list-style-type: none"> ▪ atmospheric pollution through increased traffic, which could reduce air quality; ▪ increased levels of disturbance - noise and light pollution; and ▪ increased levels of abstraction; surface water run-off and sewerage discharge, which could reduce water quality and levels.
Gloucestershire Waste Core Strategy Adopted	<ul style="list-style-type: none"> • The Waste Core Strategy (WCS) provides the framework for sustainable waste management in the County. 	<ul style="list-style-type: none"> • Strategic sites 1, 2 & 3 lie to the north of Cheltenham, potential impacts for Dixon Woods SAC. • The HRA concluded that the WCS and associated policies will have no

Plan/Project	Proposal	Potential impacts that could cause 'in-combination' effects
(Nov 2012)	<ul style="list-style-type: none"> The CS states that Planning permission will be granted for strategic residual recovery facilities (>50,000 tonnes/year) at the following sites: 1. Wingmoor Farm East 2. The Park 3. Wingmoor Farm West 4. Javelin Park 5. Land at Moreton Valence 	<p>likely significant effects alone or in-combination on any European designated sites for nature conservation.</p> <ul style="list-style-type: none"> The Plan has the potential to result in in-combination effects with the Draft JCS: <ul style="list-style-type: none"> atmospheric pollution through increased traffic, which could reduce air quality; increased levels of disturbance - noise and light pollution; and increased levels of abstraction; surface water run-off and sewerage discharge, which could reduce water quality and levels.
Shoreline Management Plans	<ul style="list-style-type: none"> Proposals for coastal defence management 	<ul style="list-style-type: none"> Mudflats, sandflats and sandbanks not currently covered by seawater at low tide may experience changes arising from the SMP which would then alter the baseline evidence. Potential impacts on Severn Estuary SAC/SPA/Ramsar, River Usk SAC & River Wye SAC. Potential for in-combination effects will be considered through the HRA for the JCS.
Relevant Catchment Flood Management Plans & Catchment Abstraction Management Strategies (EA)	<ul style="list-style-type: none"> CMFPs consider all types of inland flooding CAMS assess how much water is readily available on a catchment basis and also introduce time-limited licenses 	<ul style="list-style-type: none"> Time-limited licenses will allow more flexibility for the EA to respond where abstraction is having an impact on European sites. The JCS should inform the CAMS to ensure that the EA have the appropriate evidence on which to judge abstraction levels. Potential for in-combination effects will be considered through the HRA for the JCS.
Severn Estuary Flood Risk Management Strategy (EA)	<ul style="list-style-type: none"> A 100 year plan of investment for flood defences by the Environment Agency and Local Authorities The prioritisation of other flood risk management measures such as providing advice to utility companies to protect 	<ul style="list-style-type: none"> Mudflats, sandflats and sandbanks not currently covered by seawater at low tide may experience changes arising from the various plans which would then alter the baseline evidence. Potential for in-combination effects will be considered through the HRA for the JCS.

Plan/Project	Proposal	Potential impacts that could cause 'in-combination' effects
	<p>critical infrastructure, development control advice and flood warning investment</p> <ul style="list-style-type: none"> • Creation of new inter-tidal wildlife habitats to compensate for loss of wildlife habitats through rising sea levels. 	
Severn Estuary River Basin Management Plan	<ul style="list-style-type: none"> • Proposals relating to the Severn Estuary and its related pressures. 	<ul style="list-style-type: none"> • The potential for this plan to improve the habitat quality for this European site will have a bearing on the future potential impact of policies and the baseline against which it is measured. • A Habitats Regulations Assessment of this plan has been carried out to consider whether it is likely to have a significant effect on any Natura 2000 sites. The assessment was undertaken by the Environment Agency, in consultation with Natural England and the Countryside Council for Wales. • The assessment concluded that the River Basin Management Plan is unlikely to have any significant negative effects on any Natura 2000 sites and that Plan itself does not require further assessment under the Habitats Regulations. This conclusion is reliant on the fact that before any measures in the Plan are implemented they must be subject to the requirements of the Habitats Regulations. Any plans, project or permissions required to implement the measures must undergo an appropriate assessment if they are likely to have a significant effect.
Severn Trent Water Resource Management Plan Final Version (June 2010)	<ul style="list-style-type: none"> • The WRMP sets out Severn Trent Water's strategy for ensuring the security of water supplies between 2010 and 2035. 	<ul style="list-style-type: none"> • The HRA of the WRMP identified that based on the current level of detail available for the final WRMP schemes; it is unlikely that there will be any significant impact on Natura 2000 or Ramsar sites. However, all schemes that were identified within the HRA screening process as having the potential to have a significant effect will be subject to further screening at project design to determine whether, based on the additional design information, the scheme could have a likely significant effect. Any scheme that could have an adverse effect on the integrity of a European or International site will not be in

Plan/Project	Proposal	Potential impacts that could cause 'in-combination' effects
		accordance with the objectives of our WRMP and will not be taken forward.
Our draft Water Resources Management Plan 2015-2040 – Thames Water	<ul style="list-style-type: none"> • There is a significant deficit between the amount of water available and forecast demand in the London supply area. As a result the Plan proposes that three main activities are carried out over the next 25 years: <ul style="list-style-type: none"> ■ Reduce leakage from pipes and undertake a variety of initiatives to encourage customers to use water more wisely. ■ Gain a much more detailed understanding of where, when and how water is used throughout the region, so demand can be better managed. This will include progressively metering all domestic and business premises and the introduction of tariffs. ■ Develop new resources where appropriate, with further detailed studies to identify the options that will provide best overall value to customers and the environment. The indirect re-use of treated sewage effluent ('wastewater re-use') is currently assessed as the lowest cost solution and is therefore the option included in this Plan for delivery between 2025 and 2030. 	<ul style="list-style-type: none"> • The fixing of leaking pipes, the target to reduce demand and initiatives to re-use waste water will lead to less water abstraction. • Potential for in-combination effects will be considered through the HRA for the JCS.
Welsh Water's Final Water Resource	<ul style="list-style-type: none"> • This Plan details the strategy for managing supply and demand water 	<ul style="list-style-type: none"> • The HRA indicated that the following Preferred Options are will not have any adverse effects on any European sites, assuming that

Plan/Project	Proposal	Potential impacts that could cause 'in-combination' effects
Management Plan 2012	<p>resources across Welsh Water's supply area over the next 25 years. The key elements of our overall strategy can be summarised as follows:</p> <ul style="list-style-type: none"> ➤ regional leakage is expected to fall from 190.45 MI/d in 2010 -11 to 184.08 MI/d in 2014-15. This strategy is in line with the targets agreed with our economic regulator, Ofwat. As part of the option selection process for addressing supply demand deficits we have considered options involving more reductions in leakage. However, none have been selected because of their comparatively high costs; ➤ the promotion of a wide range of water efficiency activities for both our domestic and business customers. For the period 2010-15 the full suite of baseline promotion activities will continue; ➤ the installation of water meters at all new properties and those households who opt to be metered under our free meter option scheme. All new business customers will be metered and carry out selective metering on high water use unmeasured business premises; ➤ for Pembrokeshire, where the deficit has been driven by the potential impacts of climate change and the 	<p>normal and established environmental measures are employed at the scheme level:</p> <ul style="list-style-type: none"> • 8121.11 SEWCUS: Re-instate Grwyne reservoir with new WTW; • 8121.13 SEWCUS: Re-instate Wentwood reservoir with new WTW; • 8206.11 Pembrokeshire: Bolton Hill to Preseli transfer. <ul style="list-style-type: none"> • However, a conclusion of 'no adverse effects' cannot, at this strategic level, be made with certainty for the following Options: <ul style="list-style-type: none"> • 8108.4 Brecon - Portis: Additional releases from Usk Reservoir; • 8206.1 Pembrokeshire: Re-instate Milton source for industrial use. • Possible effects on some interest features of the River Usk SAC, notably salmon and possible effects on spawning sites due to changes in flow regime – although effects are likely to be positive and are promoted by the EAW through the RoC process. • No other sites are connected by reasonable impact pathways or likely to be vulnerable to the effects of the scheme. The scheme will be subject to further HRA as part of the licence amendment process, which will ensure that there are no significant or adverse effects. It should be noted that the scheme is required as a result of licence modifications to the Brecon licences under RoC. EAW have indicated that use of Usk reservoir to regulate/augment flows in the River Usk is an acceptable solution and therefore it is reasonable to assume that the scheme will not result in adverse effects. <ul style="list-style-type: none"> • The Plan has the potential to result in in-combination effects with the Draft JCS: <ul style="list-style-type: none"> ▪ increased levels of abstraction which could reduce water levels.

Plan/Project	Proposal	Potential impacts that could cause 'in-combination' effects
	<p>significant impact of sustainability reductions being proposed by the Environment Agency, it is proposed to reinstate a currently licence – exempt groundwater source and carry out a network scheme that will enhance the connectivity of the zone;</p> <ul style="list-style-type: none"> ➤ in the Brecon – Portis water resource zone where the Environment Agency wants to reduce abstractions from the River Usk at Brecon, the plan is to supplement the available flow in the river with additional releases from the Usk reservoir, when required; and ➤ in the South East Wales Conjunctive Use System zone, the effects of the Agency's review of abstractions on the protected habitats in the Wye and the Usk must be addressed, plus the effects of climate change on Deployable Output. The plan is to reinstate two reservoirs that have not been used for public water supply for some time, namely Wentwood and Grwyne Fawr, and to build new treatment works for both sources. 	
Development associated with the decommissioning	<ul style="list-style-type: none"> • The station is now proceeding through a measured and calculated programme of work to decommission the site. 	<ul style="list-style-type: none"> • There may be impacts on air quality and nutrient enrichment • The demolition of structures may create dust which could have a smothering effect on sites • The Plan has the potential to result in in-combination effects with the

Plan/Project	Proposal	Potential impacts that could cause 'in-combination' effects
of Berkeley Power Station		<p>Draft JCS:</p> <ul style="list-style-type: none"> ▪ atmospheric pollution through increased traffic, which could reduce air quality; ▪ increased levels of disturbance - noise and light pollution; and ▪ increased levels of abstraction; surface water run-off and sewerage discharge, which could reduce water quality and levels.
Development proposals for Oldbury Power Station	<ul style="list-style-type: none"> • 3 nuclear reactors with a combined expected output of approximately 3300MW. • Up to four cooling towers of between 70m and 200m in height • Interim waste storage facilities • Electricity transmission infrastructure • Access roads and highways improvements and a possible park and ride facility • A marine off-loading facility (MOF) and other such construction transport options • Implementation of a flood defence strategy for the site 	<p>There is the potential for impacts on the Severn SAC/SPA/Ramsar due to the proposal for cooling water infrastructure - intake ('make-up') and discharge ('purge') pipework and structures as well as through construction and operation of a marine offloading facility which could be constructed within the designated sites.</p> <ul style="list-style-type: none"> • The cooling water system required for the stations would need to abstract water from the River Severn to provide top up supplies. It is likely that the cooling water would be taken from the tidal lagoon currently operated by the present Magnox station which is within the Severn Estuary SPA, SCI, Ramsar site and SSSI. Abstraction would require new pipework and construction of intake and discharge structures within the designated areas. This could mean a temporary loss of habitat and disturbance of tidal flows around the construction works which in turn could impact on invertebrate communities. In the very dynamic estuarine environment such impacts would be likely to be short term and the habitats and ecology would recover following construction. • Whilst the discharge of cooling water in the intertidal area has the potential to cause an adverse effect, the thermal discharge from a tower cooled system would be much less than the existing Oldbury Power Station's discharge. • The construction of the new power station would require the transport of significant quantities of bulk materials such as fill material, aggregates, steel and concrete. Additionally, several abnormally large components or modules would need to be delivered by sea.

Plan/Project	Proposal	Potential impacts that could cause 'in-combination' effects
		<p>Delivery of the bulk materials and the abnormal loads could mean that a marine offloading facility may be required. Construction and ultimate decommissioning would entail a number of potentially noisy and visually intrusive activities which, although not necessarily within the designated areas, may be in close proximity. They could therefore result in some displacement of wintering bird populations during the construction period.</p> <ul style="list-style-type: none"> • The Severn Estuary supports a diverse range of fish and is considered a major fish migration route. Water abstraction could potentially cause an adverse effect (and even some mortality) due to fish impingement on cooling water screens, or entrainment in the cooling water intake (e.g. lamprey transformers). The thermal discharge could also affect fish populations in the vicinity of the discharge. This could also have effects on the migratory fish species which pass through the Severn Estuary to spawn in the River Wye leading to negative effects on the River Wye SAC. • The station development area, the need for any new construction roads and modifications to the transmission system could result in the loss of feeding and roosting area for birds on land adjacent to the Severn Estuary SAC, SPA, Ramsar and SSSI areas. Even though these areas lie outside the internationally designated area, this has some potential for affecting bird populations using the estuary. • If not properly managed, damage to intertidal habitats could also affect over wintering bird populations which feed in the shallows and the sandbanks due to loss of food sources. • Potential for in-combination effects will be considered through the HRA for the JCS.

Appendix III: Pre-submission Draft JCS Screening

Preferred Option Policy/ Allocation	Potential impacts of the Policy/ Allocation	Potential for LSE?
Strategic Policies		
SP1 – Scale of New Development	<p>The Policy makes provision over the Plan period for 30,500 new homes and land to support 28,000 new jobs. It aims to deliver this through development within existing urban area via District Plans and through urban extensions and strategic allocations set out in Policy SA1. The allocations have been considered separately below.</p> <p>The Policy has the potential to result in:</p> <ul style="list-style-type: none"> ▪ atmospheric pollution through increased traffic, which could reduce air quality; ▪ increased levels of disturbance - recreational activity, noise and light pollution; ▪ increased levels of abstraction; surface water run-off and sewerage discharge, which could reduce water quality and levels; and ▪ land take, which could lead to the loss and fragmentation of habitats. 	Yes
SP2 – Distribution of Development	<p>The Policy sets out the broad locations and the level of development (housing and jobs) for each broad location. Again the development is based in the existing urban area and in urban extensions and strategic allocations A1 to A9. The allocations have been considered separately below. Policy has the potential to result in:</p> <ul style="list-style-type: none"> ▪ atmospheric pollution through increased traffic, which could reduce air quality; ▪ increased levels of disturbance - recreational activity, noise and light pollution; ▪ increased levels of abstraction; surface water run-off and sewerage discharge, which could reduce water quality and levels; and ▪ land take, which could lead to the loss and fragmentation of habitats. 	Yes
Sustainable Development Policies		
SD1 – Presumption in Favour of Sustainable Development (Previously known as S1 – Presumption in Favour of Sustainable Development)	<p>This is a standard policy which supports the intention for sustainable development as set out in the National Planning Policy Framework 2012. It puts a safeguard in place if policies in the JCS are not relevant to a development or if relevant policies are out of date. This policy may require the Councils to take a more proactive and pro-development approach, requiring them to work 'proactively with applicants to find solutions which mean that proposals can be approved wherever possible'. This could lead to more development in the area; however, the mitigation measures and checks contained throughout the plan and other policies in the NPPF should help to ensure protection of the environment.</p>	No

Preferred Option Policy/ Allocation	Potential impacts of the Policy/ Allocation	Potential for LSE?
SD2 – Employment (Previously known as E1 – Employment)	The Policy will not lead to development itself as it sets out the criteria which development must meet in order to be granted planning permission. The scale and location of development is set out in later policies.	No
SD3 – Retail Hierarchy and Town Centres (Previously known as E2 – Ensuring the Vitality and Viability of Centres)	The Policy defines a hierarchy of town centres where initiatives which safeguard and enhance their role and function will be supported. At the top of the hierarchy is Cheltenham followed by Gloucester and then Tewkesbury and, Winchcombe and Bishop's Cleeve. It sets out the provision for floor space over the plan period and key principles which will be used to make a decision for permitting new development. Development which contributes to the vitality and the viability of centres within the JCS are is unlikely to lead to significant effects.	No
SD4 – Sustainable Design and Construction (Previously known as S3 – Sustainable Design and Construction)	<p>The Policy will not lead to development itself. It requires that development proposals will demonstrate how they contribute to the aims of sustainability by increasing energy efficiency, minimising waste and avoiding the unnecessary pollution of air, harm to the water environment, contamination of land or interference in other natural systems. In doing so, proposals (including changes to existing buildings) will be expected to achieve and, where viable, exceed applicable national standards.</p> <p>All development will be expected to be adaptable to climate change in respect of the design, layout, siting, orientation and function of both buildings and associated external spaces. Proposals must demonstrate that development is designed to use water efficiently, will not adversely affect water quality and will not hinder the ability of a water body to meet the requirements of the Water Framework Directive.</p> <p>Waste created through the process of construction should be carefully managed and reduced wherever possible. Major planning applications must be accompanied by a waste minimisation statement which demonstrates how the development will seek to minimise waste and sustainably re-use waste materials whenever possible during the lifespan of the development. To avoid unnecessary sterilisation of identified mineral resources, prior extraction should be undertaken where it is practical, taking into account environmental acceptability and economic viability relating both to extraction of the mineral(s) and subsequent implementation of the non-minerals development of the site.</p> <p>Major planning applications must be submitted with an Energy Statement that clearly indicates the methods used to calculate predicted annual energy demand and associated annual CO2 emissions.</p>	No

Preferred Option Policy/ Allocation	Potential impacts of the Policy/ Allocation	Potential for LSE?
	Where viable, such developments should secure 10% or more of their energy demand from decentralised (on or near site) and renewable or low carbon energy sources (including the use of combined heat and power where appropriate).	
SD5 – Design Requirements (Previously known as S4 – Design Requirements)	The Policy will not lead to development itself but instead sets out key design principles for all development to take account of. Its focus is on the urban environment, the creation of place for people to use. In particular it requires that new development should be designed to prioritise movement by sustainable transport modes. This is likely to reduce atmospheric pollution which has been identified as a potential impact of other Policies.	No
SD6 – Green Belt (Previously known as S5 – Green Belt)	<p>The Policy seeks to protect the Green Belt from harmful development to ensure that it continues to serve its key functions. The policy designates two sites as developed sites in the Green Belt including Gloucestershire Airport and Cheltenham Racecourse and supports developed related to these uses on these sites. It also mentions that waste management sites are allocated within the Green Belt but these are being taken forward by the Gloucestershire waste management Strategy and not being allocated through this plan. Furthermore, two safeguarded areas have been identified for potential future development in the green belt: an area of land to the West of Cheltenham and an area of land to the north west of Cheltenham.</p> <p>Gloucestershire Airport Site is just over 6km away from the Cotswold Beechwoods SAC so unlikely to have a significant effect alone. Norman's Brook runs along the western edge of the site and eventually flows into Hatherley Brook, which flows into the River Severn. The River Severn SAC/ SPA/ Ramsar and Walmore Common SPA/Ramsar are downstream so there is the potential for impacts alone on water quality. Norman's Brook should be protected and retained and any proposal for development should ensure that impacts on water quality and resources are minimised.</p> <p>Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.</p> <p>Cheltenham Racecourse Given the type of the development (employment) and the location of the site it is unlikely that there will be significant effects on European sites. Similar to other potential sites any proposal for development should seek to minimise impacts on water quality and water resources.</p> <p>Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA)</p>	Yes

Preferred Option Policy/ Allocation	Potential impacts of the Policy/ Allocation	Potential for LSE?
	<p>Report.</p> <p>Land to the West of Cheltenham Given the location of the site it is unlikely that there will be significant effects on European sites. Similar to other potential sites any proposal for development should seek to minimise impacts on water quality and water resources.</p> <p>Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.</p> <p>Land to the North West of Cheltenham Please refer to allocation A5 below. This parcel of safeguarded land is directly adjacent to the allocation set out in A5 and is included as an integral part of it.</p>	
SD7 – Landscape (Previously known as S6 – Landscape Policy)	The Policy requires that development will seek to protect landscape character. The Policy will not lead to development itself.	No
SD8 – Cotswolds Area of Outstanding Natural Beauty (Previously known as S7 – Cotswolds Area of Outstanding Natural Beauty)	The Policy requires that all development proposals in or adjacent to the Cotswolds AONB will be required to conserve and, where appropriate, enhance its landscape, scenic beauty, wildlife, cultural heritage and other special qualities. Proposals will be required to be consistent with the policies set out in the Cotswolds AONB Management Plan. This could help mitigate the effects of certain policies.	No
SD9 – Historic Environment (Previously known as S8 – Built and Historic Environment)	The Policy offers protection for both designated and undesignated heritage assets. It will not result in development itself.	No
SD10 – Biodiversity and Geodiversity (Previously known as Policy S9 - Conservation and Improvement of Biodiversity and Geodiversity)	<p>The Policy states that the biodiversity and geological resource of the JCS area will be protected and enhanced in order to establish and reinforce ecological networks that are resilient to current and future pressures. Improved community access will be encouraged so far as is compatible with the conservation of special features and interests. This will be achieved by:</p> <ul style="list-style-type: none"> • Ensuring that European Protected Species and National Protected Species are safeguarded in accordance with the law. • Conserving and enhancing biodiversity and geodiversity on internationally, nationally and locally designated sites, and other assets of demonstrable value where these make a 	No

Preferred Option Policy/ Allocation	Potential impacts of the Policy/ Allocation	Potential for LSE?
	<p>contribution to the wider network.</p> <ul style="list-style-type: none"> Encouraging new development to contribute positively to biodiversity and geodiversity, for example by incorporating habitat features into the design to assist in the creation and enhancement of wildlife corridors and ecological stepping stones between sites. Encouraging the creation, restoration and beneficial management of priority landscapes, priority habitats and populations of priority species. For example by securing improvements to Strategic Nature Areas (as set out on the Gloucestershire Nature Map) and Nature Improvement Areas. <p>The Policy also requires that any development that has potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment.</p> <p>In addition, harm to the biodiversity or geodiversity of an undesignated site or asset should be avoided where possible. Where there is a risk of harm as a consequence of development, this should be mitigated by integrating enhancements into the scheme that are appropriate to the location and satisfactory to the local planning authority. If harm cannot be mitigated on-site then, exceptionally, compensatory enhancements off-site may be acceptable.</p>	
SD11 – Residential Development (Previously known as C1 – Residential Development)	The Policy sets out the principles for residential development to meet. It aims to focus residential development onto previously developed land in the built up areas of Gloucester, Cheltenham and Tewkesbury Town and within the rural services and villages (identified by Policy SP 2). The Policy does not propose any development itself.	No
SD12 – Housing Mix and Standards (Previously known as C2 – Housing Mix and Standards)	The Policy seeks to achieve the right standard and mix of housing and also stipulates certain requirements which must be provided. It will not result in development itself.	No
SD13 – Affordable Housing (Previously known as C3 – Affordable Housing)	The Policy sets out the criteria for the provision of affordable housing and will not result in development itself.	No
SD14 – Gypsy, Traveller and Travelling Showpeople (Previously known as C4 – Gypsy and Traveller Accommodation)	The Policy puts forward a number criterion for new gypsy, traveler and travelling showpeople sites to be assessed against. It will not result in development itself.	No

Preferred Option Policy/ Allocation	Potential impacts of the Policy/ Allocation	Potential for LSE?
SD15 – Health and Environmental Quality (Previously known as C6 – Supporting Healthy Lifestyles and Wellbeing)	<p>The Policy states that high quality development should protect and seek to improve environmental quality. With reference to the protection of the natural environment, the policy requires that new development must:</p> <ul style="list-style-type: none"> ■ Result in no unacceptable levels of air, noise, water, light or soil pollution or odour, either alone or cumulatively, with respect to relevant national and EU limit values. ■ Incorporate, as appropriate, the investigation and remediation of any land contamination within the site. ■ Have regard to any areas of tranquillity that are identified in adopted or emerging district and neighbourhood plans. ■ Avoid any adverse impact from artificial light on intrinsically dark landscapes. <p>This will help mitigate the impact of other policies.</p>	No
Infrastructure Policies		
INF1 – Access to the Transport Network (Previously known as C7 – Transport Requirements)	<p>The policy will not result in development itself. The Policy provides a list of requirements to provide safe and accessible connections to the transport network. The Policy requires that all proposals must ensure that connections should be provided where appropriate to existing walking, cycling and passenger transport networks and should be designed to enable and encourage maximum potential use. It also requires that mitigation is put in place to prevent congestion at junctions. As a result this policy could help reduce emissions to air resulting from new development.</p>	No
INF2 – Safety and Efficiency of the Transport Network (Previously known as D3 – Transport Assessments and Travel Plans)	<p>The Policy requires that development will need to assess its impact on the transport network and where impact on factors including noise and atmospheric pollution are considered to be severe then mitigation will need to be provided to the satisfaction of the Local Planning Authority. This is likely to reduce potential emissions to air and also noise resulting from new development.</p>	No
INF3 – Flood Risk Management (Previously known as S2 – Flood Risk Management)	<p>The policy seeks to minimise the risk of flooding and providing resilience to flooding taking into account climate change. It also requires that:</p> <ul style="list-style-type: none"> ■ Requiring new development to incorporate suitable Sustainable Drainage Systems (SuDS) where appropriate in the view of the local authority to manage surface water drainage: to avoid any increase in discharge into the public sewer system; to ensure that flood risk is not increased on-site or elsewhere; and to protect the quality of the receiving water course and groundwater. Where possible, the authorities will promote the retrofitting of SuDS and encourage development proposals to reduce the overall flood risk through the design and layout of schemes which enhance natural forms of drainage. Developers will be required to fully fund such mitigation 	No

Preferred Option Policy/ Allocation	Potential impacts of the Policy/ Allocation	Potential for LSE?
	<p>measures for the expected lifetime of the development including adequate provision for on-going maintenance.</p> <ul style="list-style-type: none"> ■ Working with key partners, including the Environment Agency and Gloucestershire County Council, to ensure that any risk of flooding from development proposals is appropriately mitigated and the natural environment is protected in all new development. 	
<p>INF4 – Green Infrastructure (Previously known as S10 – Green Infrastructure)</p>	<p>The Policy states that the green infrastructure network of local and strategic importance will be conserved and enhanced, in order to deliver a series of multifunctional, linked green corridors across the JCS area by:</p> <ul style="list-style-type: none"> • improving the quantity and/or quality of assets; • improving linkages between assets in a manner appropriate to the scale of development, and • designing improvements in a way that supports the cohesive management of green infrastructure. <p>Development proposals should consider and contribute positively towards green infrastructure, including the wider landscape context and strategic corridors between major assets and populations. Where new residential development will create, or add to, a need for publicly accessible green space or outdoor space for sports and recreation, this will be fully met in accordance with Policy INF5. Development at Strategic Allocations will be required to deliver connectivity through the site linking urban areas with the wider rural hinterland.</p> <p>Existing green infrastructure will be protected in a manner that reflects its contribution to ecosystem services (including biodiversity, landscape/townscape quality, the historic environment, public access, recreation and play) and the connectivity of the green infrastructure network. Development proposals that will have an impact on woodlands, hedges and trees will need to include a justification for why this impact cannot be avoided and should incorporate measures acceptable to the local planning authority to mitigate the loss. Mitigation should be provided on-site or, where this is not possible, in the immediate environs of the site.</p> <p>Where assets are created, retained or replaced within a scheme they should be properly integrated into the design and contribute to local character and distinctiveness. Proposals should also make provisions for future maintenance of green infrastructure.</p>	No
<p>INF5 – Social & Community Infrastructure (Previously</p>	<p>The Policy seeks to safeguard existing community facilities but where new residential development will create or add to a need for communities facilities, this must be fully met as newly built on-site</p>	No

Preferred Option Policy/ Allocation	Potential impacts of the Policy/ Allocation	Potential for LSE?
known as C5 – Community Facilities)	provision and/or contribution to facilities or services off-site. Community facilities include sports pitches, open space and children’s play provision.	
INF6 – Renewable Energy/ Low Carbon Energy Development (Previously known as S11 – Renewable Energy Development)	The Policy will not lead to development itself but sets conditions which need to be met in order for this type of development to be permitted.	No
INF7 – Infrastructure Delivery (Previously known as D1 – Infrastructure)	<p>The Policy requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and supported by adequate and appropriate on- and/or off-site infrastructure and services. It states that where need for additional infrastructure and services and/or impacts on existing infrastructure and services is expected to arise, the local planning authority will seek to secure appropriate and proportionate infrastructure provision in respect of in particular:</p> <ul style="list-style-type: none"> ■ Climate change mitigation / adaptation ■ Community facilities ■ The highway network, traffic management, sustainable transport and disabled people's access ■ Protection of environmental assets and the potential for their enhancement ■ Provision of Green Infrastructure including open space <p>Priority for provision will be assessed both on a site by site basis and having regard to the mitigation of cumulative impact together with implementation of the JCS Infrastructure Delivery Plan. Planning permission will be granted only where sufficient provision has been made for infrastructure and services (together with their continued maintenance) to meet the needs of new development and/or which is required to mitigate the impact of new development upon existing communities.</p> <p>Policy has the potential to result in:</p> <ul style="list-style-type: none"> ■ atmospheric pollution through increased traffic, which could reduce air quality; ■ increased levels of disturbance - noise and light pollution; and ■ land take, which could lead to the loss and fragmentation of habitats. <p>However, it generally seeks to provide mitigation which could reduce emission to air, increased levels and disturbance and protection of environmental assets and the potential for their enhancement.</p>	Yes

Preferred Option Policy/ Allocation	Potential impacts of the Policy/ Allocation	Potential for LSE?
INF8 – Developer Contributions (New policy)	The policy will not lead to development itself as it is the mechanism for seeking financial contributions from developers towards the provision of infrastructure and services referred to in Policy INF7.	No
Strategic Allocation Policies		
SA1 –Strategic Allocations Policy (Previously known as SA1 – Requirements for Strategic Allocations)	The Policy sets out a number of requirements to mitigate the impacts of the strategic allocations..	No
SA1 –Strategic Allocations Policy A1 – Innsworth (Previously known as A1 – Innsworth and Twighworth Urban Extension, Gloucester) <ul style="list-style-type: none"> ■ 1250 dwellings. ■ 2.4 ha employment land. 	Site is over 7 km from the Cotswold Beechwoods SAC so unlikely to have a significant effect alone. The site has one brook (Hatherley Brook) running through it which eventually flow into the River Severn a km away. The River Severn SAC/ SPA/ Ramsar and Walmore Common SPA/Ramsar are downstream so there is the potential for impacts alone on water quality. The Brooks flowing through the site should be protected and retained and any proposal for development should ensure that impacts on water quality and resources are minimised. Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.	Yes
SA1 –Strategic Allocations Policy A2 – North Churchdown (Previously known as A2 – North Churchdown Urban Extension, Gloucester) <ul style="list-style-type: none"> ■ 530 dwellings 	Site is just over 6 km away from the Cotswold Beechwoods SAC so unlikely to have a significant effect alone. Norman's Brook runs through the site and eventually flows into Hatherley Brook, which flows into the River Severn. The River Severn SAC/ SPA/ Ramsar and Walmore Common SPA/Ramsar are downstream so there is the potential for impacts alone on water quality. Norman's Brook should be protected and retained and any proposal for development should ensure that impacts on water quality and resources are minimised. Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.	Yes
SA1 –Strategic Allocations Policy A3 – South Churchdown (Previously known as A3 –	Given the location of the site it is unlikely that there will be significant effects on European sites. Similar to the other potential sites around Gloucester any proposal for development should seek to minimise impacts on water quality and resources. Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.	No

Preferred Option Policy/ Allocation	Potential impacts of the Policy/ Allocation	Potential for LSE?
South Churchdown Urban Extension, Gloucester) <ul style="list-style-type: none"> ■ 870 dwellings. ■ 17 ha employment land. 		
SA1 –Strategic Allocations Policy A4 – North Brockworth (Previously known as A4 – North Brockworth Urban Extension, Gloucester) <ul style="list-style-type: none"> ■ 1550 dwellings. 	Site is approximately 2 km away from the Cotswold Beechwoods SAC; need to consider potential impacts of development on the A46 which runs adjacent to the SAC. Potential for increased levels of atmospheric pollution as the A46 is within 200m of the SAC. Will require further investigation on the sensitivity of the SAC to recreational activity. Horsbere Brook runs along the boundary of the site and eventually flows into the River Severn. The River Severn SAC/ SPA/ Ramsar and Walmore Common SPA/Ramsar are downstream so there is the potential for impacts alone on water quality. Horsbere Brook should be protected and retained and any proposal for development should ensure that impacts on water quality and resources are minimised. It is considered that suitable mitigation will be available to address the potential likely significant effect of development alone on water quality. Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.	Yes
SA1 –Strategic Allocations Policy A5 – North West Cheltenham (Previously known as A5 – North West Cheltenham Urban Extension, Cheltenham) <ul style="list-style-type: none"> ■ 4785 dwellings. ■ 23 ha of employment land. 	Site is approximately 6.5 km away from Dixton Woods SAC and therefore there are unlikely to be any significant effects alone with regard to recreational activity. The River Swilgate and Hyde River flow through the site and eventually into the River Severn. The River Severn SAC/ SPA/ Ramsar and Walmore Common SPA/Ramsar are downstream so there is the potential for impacts alone on water quality. The Rivers flowing through the site should be protected and retained and any proposal for development should ensure that impacts on water quality and resources are minimised. Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.	Yes
SA1 –Strategic Allocations Policy A6 – South Cheltenham	Site is situated to the south of Cheltenham, adjacent to the existing settlement. The Cotswold Beechwoods SAC lies approximately 5.5 km away to the South West of the site. Need to consider potential impacts of development on the A46 which runs along the eastern boundary of the site and adjacent to the SAC. Potential for increased levels of atmospheric pollution as the A46 is within	Yes

Preferred Option Policy/ Allocation	Potential impacts of the Policy/ Allocation	Potential for LSE?
<p>Leckhampton (Previously known as A6 – South Cheltenham – Leckhampton Urban Extension, Cheltenham)</p> <ul style="list-style-type: none"> ■ 1125 dwellings. 	<p>200m of the SAC. Given the proximity of the SAC to Gloucester, development at this site is unlikely to significantly increase the levels of recreation at the SAC alone. Hatherley Brook runs through the site and eventually flows into the River Severn. The River Severn SAC/ SPA/ Ramsar and Walmore Common SPA/Ramsar are downstream so there is the potential for impacts alone on water quality. Hatherley Brook should be protected and retained and any proposal for development should ensure that impacts on water quality and resources are minimised.</p> <p>Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.</p>	
<p>SA1 –Strategic Allocations Policy</p> <p>A8 – Mod Site At Ashchurch (Previously known as A8 – Mod Site At Ashchurch Strategic Allocation)</p> <ul style="list-style-type: none"> ■ 2762 dwellings. ■ 20 ha of employment land. 	<p>Site is approximately 4 km away from Dixton Woods SAC and 5.2 km from Bredon Hill SAC. Potential for significant effects through increased recreational activity at both SACs. Will require further investigation on the sensitivity of the SAC to recreational activity. Similar to other potential sites any proposal for development should seek to minimise impacts on water quality and water resources.</p> <p>Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.</p>	Yes
<p>SA1 –Strategic Allocations Policy</p> <p>A9 – Ashchurch (Previously known as A9 – Ashchurch Strategic Allocation)</p> <ul style="list-style-type: none"> ■ 14 ha employment land. 	<p>Site is approximately 5 km away from Dixton Woods SAC and 6 km from Bredon Hill SAC. Given the scale and type of proposed development at this site, there is unlikely to be significant effects on European sites.</p> <p>Potential in-combination effects are considered in Appendix IV and Section 4 of the HRA (AA) Report.</p>	No

Appendix IV: European Sites Screening

Screening Summary Key

Likely Significant Effect	Yes	Further Appropriate Assessment required
No Likely Significant Effect	No	No further Appropriate Assessment required as no pathways identified
Significant Effect Uncertain	?	Precautionary approach taken and further Appropriate Assessment required

European sites within or partly within the Plan area

Cotswold Beechwoods SAC								
Potential impacts of the Plan	Environmental Pathways	Is the site sensitive/vulnerable to these impacts?	Risk?	Potential avoidance/mitigation	LSE alone?	Potential impacts of other plans and programmes	Potential avoidance/mitigation	LSE in-comb?
Reduced air quality through increased traffic and emissions from buildings. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A4 and A6).	Proposed development has the potential to increase traffic along the A46, which is within 200m of the site. Potential pathway for short range atmospheric pollution. Baseline information indicates that the majority of residents work within the JCS area, predominantly commuting between the three main settlements ¹ of Gloucester City, Cheltenham Town and Tewkesbury Town. Therefore, much of the traffic which may	Yes, the beech woods and grasslands are sensitive to atmospheric pollution. Critical loads for nitrogen are being exceeded for both the beech forest and grassland at the site ² . Critical loads for acid deposition are not being exceeded at the site for either habitat ³ .	Yes	Mitigation provided by the JCS Policies which is likely to protect/ improve air quality includes: <ul style="list-style-type: none"> SP2 - Distribution of Development - focuses development in and around existing urban areas, which will help to promote and improve sustainable transport and reduce use of the private vehicle. SD15 - Health and Environmental Quality - 	?	There is the potential for the policies to act in combination with a number of the plans and programmes identified in Appendix 2.	Given the uncertainty around in-combination effects the policies have been carried forward to AA.	?

¹ ONS - Area Based Analysis, Commuting Patterns from the Annual Population Survey, Local Authorities, 2010 and 2011

² Air Pollution Information System (2012) Site Relevant Critical Loads. Online at <http://www.apis.ac.uk/> [Accessed March 2014]

³ Air Pollution Information System (2012) Site Relevant Critical Loads. Online at <http://www.apis.ac.uk/> [Accessed March 2014]

	<p>increase on the A46 as a result of certain Allocation Policies is unlikely to travel near to the site as the site is south (approx. between 2 and 5.5km away) of the three main settlements. Therefore, the policies are unlikely to result in a significant increase in traffic on major roads within 200m of the site.</p> <p>There is also the potential for impacts as a result of increased diffuse (long range) atmospheric pollution.</p>			<p>the Policy requires that new development must result in no unacceptable levels of air pollution either alone or cumulatively, with respect to national and EU limit values.</p> <ul style="list-style-type: none"> • SD4 - Sustainable Design and Construction - requires that development proposals will demonstrate how they contribute to the aims of sustainability by increasing energy efficiency, minimising waste and avoiding the unnecessary pollution of air or interference in other natural systems. • SD5 - Design Requirements - requires that new development should be designed to prioritise movement by sustainable transport modes. • INF1 - Access to the Transport Network - requires that all proposals must ensure that connections should be provided where appropriate to existing walking, cycling and passenger transport networks and should be designed to enable 				
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				<p>and encourage maximum potential use. It also requires that mitigation is put in place to prevent congestion at junctions.</p> <ul style="list-style-type: none"> • INF2 - Safety and Efficiency of the Transport Network - The Policy requires that development will need to assess its impact on the transport network and where impact on factors including noise and atmospheric pollution are considered to be severe then mitigation will need to be provided to the satisfaction of the Local Planning Authority. • INF4 - Green Infrastructure - development is required to conserve and enhance Green Infrastructure (GI) assets. • INF7 - Infrastructure Delivery - The Policy requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and 			
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				<p>supported by adequate and appropriate on- and/or off-site infrastructure and services. It states that where need for additional infrastructure and services and/or impacts on existing infrastructure and services is expected to arise, the local planning authority will seek to secure appropriate and proportionate infrastructure provision in respect of in particular: Climate change mitigation / adaptation; The highway network, traffic management, sustainable transport and disabled people's access; Protection of environmental assets and the potential for their enhancement; and Provision of Green Infrastructure including open space.</p> <ul style="list-style-type: none"> • SD10 - Biodiversity and Geodiversity - The Policy states that the biodiversity and geological resource of the JCS area will be protected and enhanced in order to establish and reinforce 			
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				<p>ecological networks that are resilient to current and future pressures. The Policy also requires that any development that has potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment.</p> <ul style="list-style-type: none"> In addition, the Plan proposes to monitor the number of AQMQs in the area with the aim of reducing the number of areas designated. <p>Despite the mitigation provided through JCS policies it is considered that the potential for likely significant effects alone on this site should be considered further through AA.</p>				
<p>Increased disturbance - recreational activity and noise and light pollution. Pre-Submission Draft JCS Policies: SP1; SP2; INF7 and SA1 (Allocations A4 and A8).</p>	<p>The majority of the site is open access land for people on foot. There is also a network of footpaths, as well as bridleways open to horse and bike riders. The Cotswold Way National Trail also passes through the site.</p>	<p>Yes, the site is sensitive to disturbance from recreational activities.</p>	<p>Yes</p>	<p>Mitigation provided by the JCS Policies is as follows:</p> <ul style="list-style-type: none"> SD10 - Biodiversity and Geodiversity - states that the biodiversity and geological resource of the JCS area will be protected and enhanced in order to establish and reinforce ecological networks that are resilient to current and 	<p>?</p>	<p>There is the potential for the policies to act in combination with a number of the plans and programmes identified in Appendix 2.</p>	<p>Given the uncertainty around in-combination effects the policies have been carried forward to AA.</p>	<p>?</p>

				<p>future pressures. The Policy also requires that any development that has potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment.</p> <ul style="list-style-type: none"> • SD15 - Health and Environmental Quality - seeks high quality development that results in no unacceptable levels of air, noise, water, light, soil pollution or odour, either alone or cumulatively. Avoids any adverse impact from artificial light on intrinsically dark landscapes. • INF4 - Green Infrastructure - development is required to conserve and enhance Green Infrastructure (GI) assets in order to deliver a series of multifunctional, linked green corridors across the JCS area. Development proposals should consider and contribute positively towards green infrastructure, including the wider landscape context and strategic 			
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				<p>corridors between major assets and populations. Where new residential development will create, or add to, a need for publicly accessible green space or outdoor space for sports and recreation, this will be fully met in accordance with Policy INF5.</p> <ul style="list-style-type: none"> • INF5 - Social and Community Infrastructure - Where new residential development will create, or add to, a need for community facilities, it will be fully met as on-site provision and/or as a contribution to facilities or services off-site. • INF7 - Infrastructure Delivery - The Policy requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and supported by adequate and appropriate on- and/or off-site infrastructure and services. This includes 			
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				community facilities, the protection of environmental assets and the potential for their enhancement and provision of Green Infrastructure including open space. Despite the mitigation provided through JCS policies it is considered that the potential for likely significant effects alone on this site should be considered further through AA.				
Changes to Water Quality and Levels through increased surface water run-off, discharges and abstraction. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A1, A2, A4, A5 and A6).	There are no pathways for impacts on water quality given the elevation of the site ⁴ . The site is situated within the Seven Water Resource Zone although increased levels of abstraction are unlikely to affect the integrity of the site.	Site is not considered sensitive to the impacts increased surface water run-off, discharges and abstraction.	No	Site not sensitive and no pathways for LSE.	No	Site is not considered sensitive to the impacts increased surface water run-off, discharges and abstraction.	N/A	No
Habitat loss and fragmentation as a result of proposed development. Pre-Submission	The Plan makes provision over the Plan period for 30,500 new homes and land to support 28,000 new jobs. The development will be focused in the existing urban area and in	The designated feature is sensitive to the loss of supporting habitat.	Yes	Pre-Submission JCS Policy SD10 seeks to protect and enhance the biodiversity and geological resource of the JCS area in order to establish and reinforce	No	N/A	N/A	No

⁴ Alastair Peattie (Enfusion) telephone conversation with Paul Hackman (Natural England). 01/08/2013

<p>Draft JCS: SP1; SP2; and INF7.</p>	<p>urban extensions and strategic allocations set out in Policy SA1. None of these locations are likely to lead to direct or indirect loss or fragmentation of designated land or supporting habitat.</p> <p>However, some rural development could have the potential to result in direct or indirect loss or fragmentation of designated land or supporting habitat.</p>			<p>ecological networks that are resilient to current and future pressures. The Policy ensures that European Protected Species are safeguarded in accordance with the law and requires that any development that has potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment.</p> <p>Policy INF4 (Green Infrastructure) requires development to conserve and enhance Green Infrastructure (GI) assets in order to deliver a series of multifunctional, linked green corridors across the JCS area. Development proposals should consider and contribute positively towards green infrastructure, including the wider landscape context and strategic corridors between major assets and populations. Existing green infrastructure will be protected in a manner that reflects its contribution to ecosystem services (including biodiversity, landscape/townscape quality, the historic environment, public access,</p>			
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				<p>recreation and play) and the connectivity of the green infrastructure network. Development proposals that will have an impact on woodlands, hedges and trees will need to include a justification for why this impact cannot be avoided and should incorporate measures acceptable to the local planning authority to mitigate the loss. Mitigation should be provided on-site or, where this is not possible, in the immediate environs of the site.</p> <p>The mitigation provided by the JCS policies above is considered sufficient to address/ prevent LSEs alone on the site.</p>				
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Dixton Woods SAC								
Potential impacts of the Plan	Environmental Pathways	Is the site sensitive/vulnerable to these impacts?	Risk?	Potential avoidance/mitigation	LSE alone?	Potential impacts of other plans and programmes	Potential avoidance/mitigation	LSE in-comb?
Reduced air quality through increased traffic and emissions from buildings. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A4 and A6).	There are no major roads within 200m of the site ⁵ ; therefore there is no pathway for impacts as a result of short range atmospheric pollution. However, there is the potential for impacts as a result of increased diffuse (long range) atmospheric pollution.	According to APIS critical loads for nitrogen are being exceeded at the site. However, given that the Violet Click Beetle relies upon decaying timber it is not considered sensitive to the impacts of increased atmospheric pollution.	No	Site is not considered sensitive to the impacts of atmospheric pollution.	No	There is the potential for the Draft to act in-combination with a number of plans and programmes; however, given that the site is not considered sensitive to the impacts of atmospheric pollution, it is considered that there will not be significant effects.	N/A	No
Increased disturbance - recreational activity and noise and light pollution. Pre-Submission Draft JCS Policies: SP1; SP2; INF7 and SA1 (Allocations A4 and A8).	As stated previously, the level of development which the Plan makes provision for will be focused in the existing urban area and in urban extensions and strategic allocations set out in Policy SA1. The nearest allocation is A8 which is approximately 4 km away. The site is steep and inaccessible and as a result the potential for LSE is small. However, some rural	Increased recreational activity has the potential to result in physical disturbance (e.g. the removal of decaying wood) of the habitat that supports the Violet Click Beetle. However, discussion with an NE Officer confirmed that recreation is not an issue at the site ⁶ . Although it was noted	No	Mitigation provided by the JCS Policies is as follows: <ul style="list-style-type: none"> SD10 - Biodiversity and Geodiversity - states that the biodiversity and geological resource of the JCS area will be protected and enhanced in order to establish and reinforce ecological networks that are resilient to current and future pressures. The 	No	Given the small levels of development proposed within 10km of the site in the neighbouring authority of South Worcester, the sites inaccessibility and steepness and the main focus of development in the JCS are being located in urban	N/A	No

⁵ According to the Department of Transport's Transport Analysis Guidance, beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant. Department for Transport (April 2004) The Local Air Quality Sub-objective TAG Unit 3.3.3. Online at <http://www.dft.gov.uk/webtag/documents/archive/1104/unit3.3.3.pdf>

⁶ Alastair Peattie (Enfusion) telephone conversation with Paul Hackman (Natural England). 01.08.2013.

	<p>development in close proximity could have the potential to result in increased recreational activity and/ or noise and light pollution at the site.</p>	<p>that the site may be vulnerable to vandalism if development was located close by⁷.</p>		<p>Policy also requires that any development that has potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment.</p> <ul style="list-style-type: none"> • SD15 - Health and Environmental Quality - seeks high quality development that results in no unacceptable levels of air, noise, water, light, soil pollution or odour, either alone or cumulatively. Avoids any adverse impact from artificial light on intrinsically dark landscapes. • INF4 - Green Infrastructure - development is required to conserve and enhance Green Infrastructure (GI) assets in order to deliver a series of multifunctional, linked green corridors across the JCS area. Development proposals should consider and contribute positively towards green infrastructure, including the wider landscape 		<p>areas, it is considered unlikely that the policies will contribute to increased levels of recreational activity and therefore in combination effects.</p>		
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⁷ Consultation response – Natural England (October 2011) on HRA Screening Report for Gloucester, Cheltenham and Tewkesbury (December 2011)

				<p>context and strategic corridors between major assets and populations. Where new residential development will create, or add to, a need for publicly accessible green space or outdoor space for sports and recreation, this will be fully met in accordance with Policy INF5.</p> <ul style="list-style-type: none"> • INF5 - Social and Community Infrastructure - Where new residential development will create, or add to, a need for community facilities, it will be fully met as on-site provision and/or as a contribution to facilities or services off-site. • INF7 - Infrastructure Delivery - The Policy requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and supported by adequate and appropriate on- and/or off-site infrastructure and 			
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				<p>services. This includes community facilities, the protection of environmental assets and the potential for their enhancement and provision of Green Infrastructure including open space.</p> <p>The mitigation provided by JCS policies is considered sufficient to address the potential adverse effects of the policies alone on the integrity of the site.</p>				
<p>Changes to Water Quality and Levels through increased surface water run-off, discharges and abstraction. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A1, A2, A4, A5 and A6).</p>	<p>There are no pathways for impact given the elevation of the site and the Violet Click Beetles reliance on decaying timber.</p>	<p>The Violet Click Beetle relies upon decaying timber so it is therefore not considered to be vulnerable to reduced water quality and levels.</p>	No	<p>Not sensitive and no pathways for LSE.</p>	No	<p>Site is not considered sensitive to the impacts increased surface water run-off, discharges and abstraction.</p>	N/A	No
<p>Habitat loss and fragmentation as a result of proposed development. Pre-Submission Draft JCS: SP1; SP2; and INF7.</p>	<p>The Plan makes provision over the Plan period for 30,500 new homes and land to support 28,000 new jobs. The development will be focused in the existing urban area and in urban extensions and strategic allocations set out in Policy SA1. None of these locations are</p>	<p>The designated feature is sensitive to the loss of supporting habitat.</p>	Yes	<p>Pre-Submission JCS Policy SD10 seeks to protect and enhance the biodiversity and geological resource of the JCS area in order to establish and reinforce ecological networks that are resilient to current and future pressures. The Policy</p>	No	N/A	N/A	No

	<p>likely to lead to direct or indirect loss or fragmentation of designated land or supporting habitat.</p> <p>However, some rural development could have the potential to result in direct or indirect loss or fragmentation of designated land or supporting habitat.</p>			<p>ensures that European Protected Species are safeguarded in accordance with the law and requires that any development that has potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment.</p> <p>Policy INF4 (Green Infrastructure) requires development to conserve and enhance Green Infrastructure (GI) assets in order to deliver a series of multifunctional, linked green corridors across the JCS area. Development proposals should consider and contribute positively towards green infrastructure, including the wider landscape context and strategic corridors between major assets and populations. Existing green infrastructure will be protected in a manner that reflects its contribution to ecosystem services (including biodiversity, landscape/townscape quality, the historic environment, public access, recreation and play) and the connectivity of the green infrastructure</p>			
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				<p>network. Development proposals that will have an impact on woodlands, hedges and trees will need to include a justification for why this impact cannot be avoided and should incorporate measures acceptable to the local planning authority to mitigate the loss. Mitigation should be provided on-site or, where this is not possible, in the immediate environs of the site.</p> <p>The mitigation provided by the JCS policies above is considered sufficient to address/ prevent LSEs alone on the site.</p>				
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European sites outside the Plan area

Bredon Hill SAC								
Potential impacts of the Plan	Environmental Pathways	Is the site sensitive/vulnerable to these impacts?	Risk?	Potential avoidance/mitigation	LSE alone?	Potential impacts of other plans and programmes	Potential avoidance/mitigation	LSE in-comb?
Reduced air quality through increased traffic and emissions from buildings. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A4 and A6).	There are no major roads within 200m of the site; therefore there is no pathway for impacts as a result of short range atmospheric pollution ⁸ . However, there is the potential for impacts as a result of increased diffuse (long range) atmospheric pollution.	According to APIS critical loads for nitrogen are being exceeded at the site. However, given that the Violet Click Beetle relies upon decaying timber it is not considered sensitive to the impacts of increased atmospheric pollution.	No	Site is not considered sensitive to the impacts of atmospheric pollution.	No	There is the potential for the Draft to act in-combination with a number of plans and programmes; however, given that the site is not considered sensitive to the impacts of atmospheric pollution, it is considered that there will not be significant effects.	N/A	No
Increased disturbance - recreational activity and noise and light pollution. Pre-Submission Draft JCS Policies: SP1; SP2; INF7 and SA1 (Allocations	There are a number of public paths/tracks and bridleways that run through and around the site. New development being proposed through the plan in Tewkesbury although only a very small part is within 5.6 km of the SAC and also development at A8 could increase recreational activity on the site. The site is	Increased recreational activity has the potential to result in physical disturbance (e.g. the removal of decaying wood) of the habitat that supports the Violet Click Beetle. However, the NE Officer responsible for Bredon Hill SAC has	No	Mitigation provided by the JCS Policies is as follows: <ul style="list-style-type: none"> SD10 - Biodiversity and Geodiversity - states that the biodiversity and geological resource of the JCS area will be protected and enhanced in order to establish and reinforce ecological 	No	The policies have the potential act in-combination with the South Worcestershire Development Plan as well as the Cotswold Core Strategy. However, the NE Officer responsible for	N/A	No

⁸ According to the Department of Transport's Transport Analysis Guidance, beyond 200m, the contribution of vehicle emissions from the roadside to local pollution levels is not significant. Department for Transport (April 2004) The Local Air Quality Sub-objective TAG Unit 3.3.3. Online at <http://www.dft.gov.uk/webtag/documents/archive/1104/unit3.3.3.pdf>


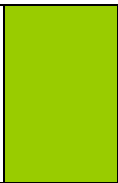

<p>A4 and A8).</p>	<p>approximately 2 km outside of the JCS are and therefore it is unlikely that proposed development will increase levels of noise and light pollution at the site.</p>	<p>stated that recreational activity is not an issue at the site⁹. The site is not considered sensitive to noise and light pollution.</p>		<p>networks that are resilient to current and future pressures. The Policy also requires that any development that has potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment.</p> <ul style="list-style-type: none"> • SD15 - Health and Environmental Quality - seeks high quality development that results in no unacceptable levels of air, noise, water, light, soil pollution or odour, either alone or cumulatively. Avoids any adverse impact from artificial light on intrinsically dark landscapes. • INF4 - Green Infrastructure - development is required to conserve and enhance Green Infrastructure (GI) assets in order to deliver a series of multifunctional, linked green corridors across the JCS area. Development proposals should consider and 		<p>Bredon Hill SAC has stated that recreational activity is not an issue at the site¹⁰.</p>	
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⁹ Alastair Peattie (Enfusion) telephone conversation with Helen Trapp (Natural England). 16.07.2012.

¹⁰ Alastair Peattie (Enfusion) telephone conversation with Helen Trapp (Natural England). 16.07.2012.

				<p>contribute positively towards green infrastructure, including the wider landscape context and strategic corridors between major assets and populations. Where new residential development will create, or add to, a need for publicly accessible green space or outdoor space for sports and recreation, this will be fully met in accordance with Policy INF5.</p> <ul style="list-style-type: none"> • INF5 - Social and Community Infrastructure - Where new residential development will create, or add to, a need for community facilities, it will be fully met as on-site provision and/or as a contribution to facilities or services off-site. • INF7 - Infrastructure Delivery - The Policy requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and 			
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				<p>supported by adequate and appropriate on- and/or off-site infrastructure and services. This includes community facilities, the protection of environmental assets and the potential for their enhancement and provision of Green Infrastructure including open space.</p> <p>The mitigation provided by JCS policies is considered sufficient to address the potential adverse effects of the policies alone on the integrity of the site.</p>				
<p>Changes to Water Quality and Levels through increased surface water run-off, discharges and abstraction. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A1, A2, A4, A5 and A6).</p>	<p>There are no pathways for impact given the elevation of the site and the Violet Click Beetles reliance on decaying timber.</p>	<p>The Violet Click Beetle relies upon decaying timber so if therefore not considered to be vulnerable to changes in water levels.</p>	No	<p>Not sensitive and pathways for LSE.</p>	No	<p>There is the potential for the JCS to act in-combination with a number of plans and programmes; however, the Violet Click Beetle relies upon decaying timber so if therefore not considered to be vulnerable to changes in water levels. As a result, it is unlikely that there will be significant effects.</p>	N/A	No
<p>Habitat loss and fragmentation</p>	<p>No development is proposed that would result in the direct or</p>	<p>The designated feature is sensitive to the loss of</p>	No	N/A	No	N/A	N/A	No

as a result of proposed development. Pre-Submission Draft JCS: SP1; SP2; and INF7.	indirect loss or fragmentation of designated land or supporting habitat.	supporting habitat; however, there are no pathways for impacts.						
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Lyppard Grange Ponds SAC								
Potential impacts of the Plan	Environmental Pathways	Is the site sensitive/vulnerable to these impacts?	Risk?	Potential avoidance/mitigation	LSE alone?	Potential impacts of other plans and programmes	Potential avoidance/mitigation	LSE in-comb?
Reduced air quality through increased traffic and emissions from buildings. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A4 and A6).	The site is on the outskirts of Worcester with no major roads (Motorways or A roads) within 200m of the site. It is therefore considered that there is no pathway for impacts as a result of short range atmospheric pollution. However, there is the potential for impacts as a result of increased diffuse (long range) atmospheric pollution.	The majority of the site is currently in a favourable condition and is not considered sensitive to atmospheric pollution.	No	Site is not considered sensitive to the impacts of atmospheric pollution.	No	There is the potential for the JCS to act in-combination with a number of plans and programmes; however, the majority of the site is currently in a favourable condition and given that the site is not considered sensitive to atmospheric pollution, it is unlikely that there will be significant effects.	N/A	No
Increased disturbance - recreational activity and noise and light pollution. Pre-Submission Draft JCS Policies: SP1; SP2; INF7 and SA1 (Allocations A4 and A8).	Given the location of the site within Worcester (approximately 17 km away) it is considered unlikely that proposed development will result in a significant increase of recreational activity or noise and light pollution at the European site.	The Natura 2000 data form for the site identifies that it is vulnerable to the effects of recreational pressure. The site is not considered sensitive to noise and light pollution. No pathway for LSE.	No	No pathways for LSE.	No	Given the distance of the site from the Plan area and mitigation provided by other plan policies it is considered unlikely that there will be significant in combination effects through increased recreation.	N/A	No
Changes to Water Quality and Levels	Given the location of proposed development there are no pathways for impacts on	Yes, changes in the water level of the ponds have the	Yes	Specific mitigation for water quality and levels is provided by Policy SD4	No	There is the potential for the policies to act in	Given the uncertainty around in-	?

<p>through increased surface water run-off, discharges and abstraction. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A1, A2, A4, A5 and A6).</p>	<p>surface water run-off or water quality at the site. The site is situated within the Seven Water Resource Zone; there is therefore the potential for increased levels of abstraction to affect the water level in the ponds.</p>	<p>potential to affect the Great Crested Newts that rely upon it during the breeding season (mid-March to mid-May).</p>		<p>(Sustainable Design and Construction), which requires proposals to demonstrate that development is designed to use water efficiently, will not adversely affect water quality and will not hinder the ability of a water body to meet the requirements of the Water Framework Directive. Policy SD15 (Health and Environmental Quality) protects and seeks improvements to environmental quality by requiring development to not result in unacceptable levels of water pollution, either alone or cumulatively, with respect to relevant national and EU limit values. Furthermore, Policy SD10 requires that any development that has the potential to have a significant impact on a European or International site will be subject to HRA. In addition, Policy S3 requires all development to achieve high standards / levels under BREEAM or Code For Sustainable Homes. These set minimum standards for water use and efficiency and credits can be earned by incorporating measures to reduce pollution, if the developer</p>		<p>combination with a number of the plans and programmes identified in Appendix 2 with regard to water abstraction.</p>	<p>combination effects the policies have been carried forward to AA.</p>	
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				<p>chooses to do so. This should reduce water abstraction and could reduce pollution.</p> <p>Furthermore Policy INF4 (Green Infrastructure) requires development to conserve and enhance Green Infrastructure which could help intercept pollutants and improve water quality.</p> <p>The mitigation provided by JCS policies and current regulatory processes (EA Review of Consents) are considered sufficient to address the potential adverse effects of the policies alone on the integrity of the site.</p>				
Habitat loss and fragmentation as a result of proposed development. Pre-Submission Draft JCS: SP1; SP2; and INF7.	The site is situated in the outskirts of Worcester, outside the Plan area; therefore no pathway for LSE.	The site is vulnerable to the loss or fragmentation of habitats. No pathway for LSE.	No	N/A	No	N/A	N/A	No

River Usk SAC								
Potential impacts of the Plan	Environmental Pathways	Is the site sensitive/vulnerable to these impacts?	Risk?	Potential avoidance/mitigation	LSE alone?	Potential impacts of other plans and programmes	Potential avoidance/mitigation	LSE in-comb?
Reduced air quality through increased traffic and emissions from buildings. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A4 and A6).	The River Usk is over 15 km from the JCS area and is unlikely to result in a significant increase in traffic on major roads within 200m of the site. There is therefore no pathway for impacts as a result of short range atmospheric pollution. Proposed development and associated activities have the potential to contribute to increased diffuse (long range) atmospheric pollution; however, given prevailing winds come from the south west, the location of the site to the Plan area (west) means that impacts are unlikely.	Yes, inputs of atmospheric nitrogen from increased levels of traffic can contribute to the increase of nutrients in the water and therefore eutrophication. However; given the location of the site and prevailing wind direction, there are no pathways for impact.	No	Given the direction of the prevailing wind it is considered that there are no pathways for impacts.	No	There is the potential for the Draft to act in-combination with a number of plans and programmes; however, given the direction of the prevailing wind, it is considered that there will not be significant effects.	N/A	No
Increased disturbance - recreational activity and noise and light pollution. Pre-Submission Draft JCS Policies: SP1; SP2; INF7 and SA1 (Allocations A4 and A8).	The River Usk is over 15 km from the JCS area; it is therefore unlikely that there will be a significant increase in recreational activity as a result of proposed development. The site lies outside the JCS area - there is therefore no pathway for increased levels of noise and light pollution.	Yes, the site is vulnerable to the impacts of recreational activity; however, given the distance of the site from the plan area there are no pathways for impact.	No	No pathways for LSE.	No	Given the distance of the site from the Plan area and mitigation provided by other plan policies it is considered unlikely that there will be significant in combination effects through increased recreation.	N/A	No
Changes to Water Quality and Levels	The site is in a different catchment and is approximately 15km away	Yes, water flow is key factor in maintaining the integrity of the site.	Yes	Specific mitigation for water quality and levels is provided by Policy SD4	No	There is the potential for the policies to act in	Given the uncertainty around in	?

<p>through increased surface water run-off, discharges and abstraction. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A1, A2, A4, A5 and A6).</p>	<p>from the Plan area; there are therefore no pathways for LSE as a result of reduced water quality. Increased abstraction has the potential to affect water levels at the site - water is transferred between resource zones by Welsh Water and Severn Trent Water.</p>			<p>(Sustainable Design and Construction), which requires proposals to demonstrate that development is designed to use water efficiently, will not adversely affect water quality and will not hinder the ability of a water body to meet the requirements of the Water Framework Directive. Policy SD15 (Health and Environmental Quality) protects and seeks improvements to environmental quality by requiring development to not result in unacceptable levels of water pollution, either alone or cumulatively, with respect to relevant national and EU limit values. Furthermore, Policy SD10 requires that any development that has the potential to have a significant impact on a European or International site will be subject to HRA. In addition, Policy S3 requires all development to achieve high standards / levels under BREEAM or Code For Sustainable Homes. These set minimum standards for water use and efficiency and credits can be earned by incorporating measures to reduce pollution, if the developer</p>		<p>combination with a number of the plans and programmes identified in Appendix 2 with regard to water abstraction.</p>	<p>combination effects the policies have been carried forward to AA.</p>	
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				<p>chooses to do so. This should reduce water abstraction and could reduce pollution.</p> <p>Furthermore Policy INF4 (Green Infrastructure) requires development to conserve and enhance Green Infrastructure which could help intercept pollutants and improve water quality.</p> <p>The mitigation provided by JCS policies and current regulatory processes (EA Review of Consents) are considered sufficient to address the potential adverse effects of the policies alone on the integrity of the site.</p>				
Habitat loss and fragmentation as a result of proposed development. Pre-Submission Draft JCS: SP1; SP2; and INF7.	No development is proposed that would result in the direct or indirect loss or fragmentation of designated land or supporting habitat.	There are no pathways for LSE.	No	N/A	No	N/A	N/A	No

River Wye SAC								
Potential impacts of the Plan	Environmental Pathways	Is the site sensitive/vulnerable to these impacts?	Risk?	Potential avoidance/mitigation	LSE alone?	Potential impacts of other plans and programmes	Potential avoidance/mitigation	LSE in-comb?
Reduced air quality through increased traffic and emissions from buildings. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A4 and A6).	The River Wye is just over 15 km from the JCS area and is unlikely to result in a significant increase in traffic on major roads within 200m of the site. There is therefore no pathway for impacts as a result of short range atmospheric pollution. Proposed development and associated activities have the potential to contribute to increased diffuse (long range) atmospheric pollution; however, given prevailing winds come from the south west, the location of the site to the Plan area (west) means that impacts are unlikely.	Yes, inputs of atmospheric nitrogen from increased levels of traffic can contribute to the increase of nutrients in the water and therefore eutrophication. However; given the location of the site and prevailing wind direction, there are no pathways for impact.	No	Given the direction of the prevailing wind it is considered that there are no pathways for impacts.	No	There is the potential for the JCS to act in-combination with a number of plans and programmes; however, given the prevailing wind direction and the location of the site in relation to proposed development within and surrounding the plan area, it is unlikely that there will be significant effects.	N/A	No
Increased disturbance - recreational activity and noise and light pollution. Pre-Submission Draft JCS Policies: SP1; SP2; INF7 and SA1 (Allocations A4 and A8).	The River Wye is just over 15 km from the JCS area; it is therefore unlikely that there will be a significant increase in recreational activity as a result of proposed development. The site lies outside the JCS area - there is therefore no pathway for increased levels of noise and light pollution.	Yes, the site is vulnerable to the impacts of recreational activity; however, given the distance of the site from the plan area there are no pathways for impact.	No	No pathways for LSE.	No	Given the distance of the site from the Plan area and mitigation provided by other plan policies it is considered unlikely that there will be significant in combination effects through increased recreation.	N/A	No
Changes to Water Quality	The site is in a different catchment and is	Yes, water flow is key factor in maintaining	Yes	Specific mitigation for water quality and levels is	No	There is the potential for the	Given the uncertainty	?

<p>and Levels through increased surface water run-off, discharges and abstraction. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A1, A2, A4, A5 and A6).</p>	<p>approximately 15 km away from the Plan area; there are therefore no pathways for LSE as a result of reduced water quality. Increased abstraction has the potential to affect water levels at the site - water is transferred between resource zones by Welsh Water and Severn Trent Water.</p>	<p>the integrity of the site.</p>		<p>provided by Policy SD4 (Sustainable Design and Construction), which requires proposals to demonstrate that development is designed to use water efficiently, will not adversely affect water quality and will not hinder the ability of a water body to meet the requirements of the Water Framework Directive. Policy SD15 (Health and Environmental Quality) protects and seeks improvements to environmental quality by requiring development to not result in unacceptable levels of water pollution, either alone or cumulatively, with respect to relevant national and EU limit values. Furthermore, Policy SD10 requires that any development that has the potential to have a significant impact on a European or International site will be subject to HRA. In addition, Policy S3 requires all development to achieve high standards / levels under BREEAM or Code For Sustainable Homes. These set minimum standards for water use and efficiency and credits can be earned by incorporating measures to reduce</p>		<p>policies to act in combination with a number of the plans and programmes identified in Appendix 2 on water levels.</p>	<p>around in combination effects the policies have been carried forward to AA.</p>	
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				<p>pollution, if the developer chooses to do so. This should reduce water abstraction and could reduce pollution.</p> <p>Furthermore Policy INF4 (Green Infrastructure) requires development to conserve and enhance Green Infrastructure which could help intercept pollutants and improve water quality.</p> <p>The mitigation provided by JCS policies and current regulatory processes (EA Review of Consents) are considered sufficient to address the potential adverse effects of the policies alone on the integrity of the site.</p>				
Habitat loss and fragmentation as a result of proposed development. Pre-Submission Draft JCS: SP1; SP2; and INF7.	No development is proposed that would result in the direct or indirect loss or fragmentation of designated land or supporting habitat.	There are no pathways for LSE.	No	N/A	No	N/A	N/A	No

Rodborough Common SAC								
Potential impacts of the Plan	Environmental Pathways	Is the site sensitive/vulnerable to these impacts?	Risk?	Potential avoidance/mitigation	LSE alone?	Potential impacts of other plans and programmes	Potential avoidance/mitigation	LSE in-comb?
Reduced air quality through increased traffic and emissions from buildings. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A4 and A6).	Roborough Common is just over 10 km from the JCS area and baseline information indicates that the majority of residents work within the JCS area, predominantly commuting between the three main settlements ¹¹ of Gloucester City, Cheltenham Town and Tewkesbury Town. This is not expected to change especially as further land will be provided for employment use and housing within the JCS area. Therefore, the policies are unlikely to result in a significant increase in traffic on major roads within 200m of the site. There is therefore no pathway for impacts as a result of short range atmospheric pollution. Proposed development and associated activities have the potential to contribute to increased diffuse (long range) atmospheric pollution; however, given prevailing winds come from the south west, the location of the site to the Plan area (south -	No, available information on the European site indicates it is not sensitive to the impacts of atmospheric pollution.	No	Not sensitive to atmospheric pollution and no pathways for impacts.	No	There is the potential for the JCS to act in-combination with a number of plans and programmes; however, given the prevailing wind direction and the location of the site in relation to proposed development within and surrounding the plan area, it is unlikely that there will be significant effects.	N/A	No

¹¹ ONS - Area Based Analysis, Commuting Patterns from the Annual Population Survey, Local Authorities, 2010 and 2011

	west) means that impacts are unlikely.							
Increased disturbance - recreational activity and noise and light pollution. Pre-Submission Draft JCS Policies: SP1; SP2; INF7 and SA1 (Allocations A4 and A8).	Roborough Common is just over 10 km from the JCS area; it is therefore unlikely that there will be a significant increase in recreational activity as a result of proposed development. The site lies outside the JCS area - there is therefore no pathway for increased levels of noise and light pollution.	Yes, it is sensitive to physical damage leading to erosion and also disturbance due to traffic as it is surrounded by a number of roads within 200 m. However, there are no pathways for LSE.	No	No pathways for LSE.	No	Given the distance of the site from the Plan area and mitigation provided by other plan policies it is considered unlikely that there will be significant in combination effects through increased recreation, light or noise.	N/A	No
Changes to Water Quality and Levels through increased surface water run-off, discharges and abstraction. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A1, A2, A4, A5 and A6).	The site is in the same catchment and although it is approximately 10 km away from the Plan area and therefore a potential pathway for LSE on water quality is unlikely. Increased abstraction has the potential to affect water levels at the site - water is transferred between resource zones by Thames Water and Severn Trent Water.	No, available information on the European site indicates it is not sensitive to the impacts of water quality and levels.	No	Not sensitive.	No	Given the distance of the site from the Plan area and mitigation provided by other plan policies it is considered unlikely that there will be significant in combination effects through increased abstraction.	N/A	No
Habitat loss and fragmentation as a result of proposed development. Pre-Submission Draft JCS: SP1; SP2; and INF7.	No development is proposed that would result in the direct or indirect loss or fragmentation of designated land or supporting habitat.	The designated feature is sensitive to the loss of supporting habitat; however, there are no pathways for LSE.	No	N/A	No	N/A	N/A	No

Severn Estuary SAC, SPA and Ramsar								
Potential impacts of the Plan	Environmental Pathways	Is the site sensitive/vulnerable to these impacts?	Risk?	Potential avoidance/mitigation	LSE alone?	Potential impacts of other plans and programmes	Potential avoidance/mitigation	LSE in-comb?
Reduced air quality through increased traffic and emissions from buildings. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A4 and A6).	The edge of the JCS area (also being the edge of Gloucester) lies approximately 10 km from the closest part of the European site at Frampton on Severn. The JCS alone is unlikely to result in a significant increase in traffic on major roads within 200m of the site. There is therefore no pathway for impacts as a result of short range atmospheric pollution. Proposed development and associated activities have the potential to contribute to increased diffuse (long range) atmospheric pollution; however, given prevailing winds come from the south west, the location of the site to the Plan area (south west) means that impacts are unlikely.	<p>The Critical Loads available on the APIS indicate that most of the habitats and species for which the SAC was designated are either not sensitive to atmospheric sources of nitrogen or sulphur or are indirectly affected by nitrogen in marine situations (leading to eutrophication). Nitrogen sources within the Severn Estuary are considered to be dominated by a combination of marine and fluvial sources rather than atmospheric sources, as with any estuary or major tidal river.</p> <p>Critical Loads for atmospheric nitrogen deposition are available for the saltmarsh and estuaries habitats for which the SAC is designated. For both habitats the modelled nitrogen</p>	No	Not sensitive to atmospheric pollution and no pathways for impacts.	No	There is the potential for the JCS to act in-combination with a number of plans and programmes; however, given the prevailing wind direction and the location of the site in relation to proposed development within and surrounding the plan area, it is unlikely that there will be significant effects.	N/A	No

		deposition rates are 12.88 kg N/ha/yr which is below the critical load (20-30 kg N/ha/yr for both habitats) ¹² . There is also a prediction that by 2020 deposition rates will have declined further, to 9.8 kg N/ha/yr, due to expected improvements in background air quality across the UK. Therefore it is not considered vulnerable/ sensitive to air quality issues.						
Increased disturbance - recreational activity and noise and light pollution. Pre-Submission Draft JCS Policies: SP1; SP2; INF7 and SA1 (Allocations A4 and A8).	The edge of the JCS area (also being the edge of Gloucester) lies approximately 10 km from the closest part of the European site at Frampton on Severn. It is considered unlikely that proposed development will result in a significant increase in recreational activity at the European site. The site lies outside the JCS area - there is therefore no pathway for increased levels of noise and light pollution.	Yes, the site is vulnerable to the impacts of recreational activity.	Yes	The previous HRA Screening assessment (December 2011) highlighted that it was difficult to judge the extent to which development in the JCS area would give rise to recreational trips to the Severn Estuary. However, given the distance of the site from the JCS area, the availability of closer open natural space and the mitigation provided by the JCS Policies is sufficient to rule out/ address any potential adverse recreational effects of the policies alone on the integrity of the site.	No	Given the distance of the site from the Plan area and mitigation provided by JCS policies it is considered unlikely that there will be significant in combination effects through increased recreation.	N/A	No

¹² Air Pollution Information System (2012) Site Relevant Critical Loads. Online at <http://www.apis.ac.uk/> [Accessed October 2013]

				<p>Mitigation provided by the JCS Policies is as follows:</p> <ul style="list-style-type: none"> • SD10 - Biodiversity and Geodiversity - states that the biodiversity and geological resource of the JCS area will be protected and enhanced in order to establish and reinforce ecological networks that are resilient to current and future pressures. The Policy also requires that any development that has potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment. • SD15 - Health and Environmental Quality - seeks high quality development that results in no unacceptable levels of air, noise, water, light, soil pollution or odour, either alone or cumulatively. Avoids any adverse impact from artificial light on intrinsically dark landscapes. • INF4 - Green Infrastructure - development is required to conserve 			
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				<p>and enhance Green Infrastructure (GI) assets in order to deliver a series of multifunctional, linked green corridors across the JCS area. Development proposals should consider and contribute positively towards green infrastructure, including the wider landscape context and strategic corridors between major assets and populations. Where new residential development will create, or add to, a need for publicly accessible green space or outdoor space for sports and recreation, this will be fully met in accordance with Policy INF5.</p> <ul style="list-style-type: none"> • INF5 - Social and Community Infrastructure - Where new residential development will create, or add to, a need for community facilities, it will be fully met as on-site provision and/or as a contribution to facilities or services off-site. • INF7 - Infrastructure Delivery - The Policy 			
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				requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and supported by adequate and appropriate on- and/or off-site infrastructure and services. This includes community facilities, the protection of environmental assets and the potential for their enhancement and provision of Green Infrastructure including open space.				
Changes to Water Quality and Levels through increased surface water run-off, discharges and abstraction. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A1, A2, A4, A5 and A6).	The site is in a different catchment and is approximately 10 km away from the Plan area. There are many water courses on the allocation sites and within the JCS area that eventually flow into the River Severn and therefore there are pathways for potential LSE on water quality. Increased abstraction has the potential to affect water levels at the site - water is transferred between resource zones by Welsh Water and Severn Trent Water.	Yes, water flow is key factor in maintaining the integrity of the site. The site is also vulnerable to contamination of synthetic and/or non-synthetic toxic compounds and changes in the level of nutrients and/ or organic compound loading	Yes	Specific mitigation for water quality and levels is provided by Policy SD4 (Sustainable Design and Construction), which requires proposals to demonstrate that development is designed to use water efficiently, will not adversely affect water quality and will not hinder the ability of a water body to meet the requirements of the Water Framework Directive. Policy SD15 (Health and Environmental Quality) protects and seeks improvements to environmental quality by	No	There is the potential for the policies to act in combination with a number of the plans and programmes identified in Appendix 2 with regard to surface water run-off, discharges and abstraction.	Given the uncertainty around in combination effects the policies have been carried forward to AA.	?

				<p>requiring development to not result in unacceptable levels of water pollution, either alone or cumulatively, with respect to relevant national and EU limit values. Furthermore, Policy SD10 requires that any development that has the potential to have a significant impact on a European or International site will be subject to HRA. In addition, Policy S3 requires all development to achieve high standards / levels under BREEAM or Code For Sustainable Homes. These set minimum standards for water use and efficiency and credits can be earned by incorporating measures to reduce pollution, if the developer chooses to do so. This should reduce water abstraction and could reduce pollution.</p> <p>Furthermore Policy INF4 (Green Infrastructure) requires development to conserve and enhance Green Infrastructure which could help intercept pollutants and improve water quality.</p> <p>The mitigation provided by JCS policies and current</p>			
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				regulatory processes (EA Review of Consents) are considered sufficient to address the potential adverse effects of the policies alone on the integrity of the site.				
Habitat loss and fragmentation as a result of proposed development. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A1, A2, A4, A5, and A6).	<p>The Severn Estuary is outside of the JCS area approximately 10 km away and as a result development in the JCS area is considered unlikely to have direct or indirect loss or fragmentation of designated land.</p> <p>The previous HRA Screening assessment (December 2011) highlighted that there could be potential for significant effects on this site through damage or disturbance to supporting habitats for the mobile species features such as migratory fish and otter. Some development still could have the potential to result in direct or indirect loss of supporting habitat given the presence of the River Severn and a number of its tributaries in the JCS area.</p>	The designated features are sensitive to the loss of supporting habitat.	Yes	<p>Pre-Submission JCS Policy SD10 seeks to protect and enhance the biodiversity and geological resource of the JCS area in order to establish and reinforce ecological networks that are resilient to current and future pressures. The Policy ensures that European Protected Species are safeguarded in accordance with the law and requires that any development that has potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment.</p> <p>Policy INF4 (Green Infrastructure) requires development to conserve and enhance Green Infrastructure (GI) assets in order to deliver a series of multifunctional, linked green corridors across the JCS area. Development proposals should consider and contribute positively towards green</p>	No	N/A	N/A	No

				<p>infrastructure, including the wider landscape context and strategic corridors between major assets and populations. Existing green infrastructure will be protected in a manner that reflects its contribution to ecosystem services (including biodiversity, landscape/townscape quality, the historic environment, public access, recreation and play) and the connectivity of the green infrastructure network. Development proposals that will have an impact on woodlands, hedges and trees will need to include a justification for why this impact cannot be avoided and should incorporate measures acceptable to the local planning authority to mitigate the loss. Mitigation should be provided on-site or, where this is not possible, in the immediate environs of the site.</p> <p>The mitigation provided by the JCS policies above is considered sufficient to address/ prevent LSEs alone on the site.</p>				
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Walmore Common SPA/ Ramsar								
Potential impacts of the Plan	Environmental Pathways	Is the site sensitive/ vulnerable to these impacts?	Risk?	Potential avoidance/ mitigation	LSE alone?	Potential impacts of other plans and programmes	Potential avoidance/ mitigation	LSE in-comb?
Reduced air quality through increased traffic and emissions from buildings. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A4 and A6).	<p>Walmore Common SPA and Ramsar site is situated approximately 2 km to the south west of the JCS boundary. The nearest major urban area is Gloucester, which is located approximately 4km to the east. A small proportion of the site lies in close proximity (within 200m) to the A48, passing to its east.</p> <p>There is Potential for proposed development to increase the level of traffic along the A48 although many of the strategic allocations/ urban extensions are situated to the north and west of Gloucester and around Tewkesbury and Cheltenham.</p> <p>However, given the small proportion of the site within 200m to the A48 it is unlikely that an increase in short range atmospheric pollution would be significant.</p> <p>Proposed development and associated activities have the potential to contribute to increased diffuse (long range)</p>	No, available information on the European site indicates it is not sensitive to the impacts of atmospheric pollution.	No	Not sensitive to atmospheric pollution and no pathways for impacts.	No	There is the potential for the JCS to act in-combination with a number of plans and programmes; however, given the prevailing wind direction and the location of the site in relation to proposed development within and surrounding the plan area, it is unlikely that there will be significant effects.	See previous avoidance/ mitigation column.	No

	atmospheric pollution; however, given prevailing winds come from the south west, the location of the site to the Plan area (south west) means that impacts are unlikely.							
Increased disturbance - recreational activity and noise and light pollution. Pre-Submission Draft JCS Policies: SP1; SP2; INF7 and SA1 (Allocations A4 and A8).	<p>Walmore Common SPA and Ramsar site is situated approximately 2 km to the south west of the JCS boundary. The nearest major urban area is Gloucester, which is located approximately 4km to the east which means there could be potential for increased recreational activity.</p> <p>The site lies outside the JCS area - there is therefore no pathway for increased levels of noise and light pollution.</p>	Yes, the site is vulnerable to the impacts of recreational activity.	Yes	<p>Mitigation provided by the JCS Policies is as follows:</p> <ul style="list-style-type: none"> SD10 - Biodiversity and Geodiversity - states that the biodiversity and geological resource of the JCS area will be protected and enhanced in order to establish and reinforce ecological networks that are resilient to current and future pressures. The Policy also requires that any development that has potential to have a likely significant effect on an international site will be subject to a Habitats Regulations Assessment. SD15 - Health and Environmental Quality - seeks high quality development that results in no unacceptable levels of air, noise, water, light, soil pollution or odour, either alone or cumulatively. Avoids any adverse impact 	No	Given the distance of the site from the Plan area and mitigation provided by plan policies it is considered unlikely that there will be significant in combination effects through increased recreation.	N/A	No

				<p>from artificial light on intrinsically dark landscapes.</p> <ul style="list-style-type: none"> • INF4 - Green Infrastructure - development is required to conserve and enhance Green Infrastructure (GI) assets in order to deliver a series of multifunctional, linked green corridors across the JCS area. Development proposals should consider and contribute positively towards green infrastructure, including the wider landscape context and strategic corridors between major assets and populations. Where new residential development will create, or add to, a need for publicly accessible green space or outdoor space for sports and recreation, this will be fully met in accordance with Policy INF5. • INF5 - Social and Community Infrastructure - Where new residential development will create, or add to, a need for community 				
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				<p>facilities, it will be fully met as on-site provision and/or as a contribution to facilities or services off-site.</p> <ul style="list-style-type: none"> • INF7 - Infrastructure Delivery - The Policy requires that where need is generated as a result of individual site proposals and/or as a consequence of cumulative impact, new development will be served and supported by adequate and appropriate on- and/or off-site infrastructure and services. This includes community facilities, the protection of environmental assets and the potential for their enhancement and provision of Green Infrastructure including open space. <p>The mitigation provided by JCS policies is considered sufficient to address the potential adverse effects of the policies alone on the integrity of the site.</p>				
Changes to Water Quality and Levels through increased	The site lies within the same catchment as the JCS area which could mean that there is potential for environmental pathway which could affect	Yes, the designated and supporting habitats are vulnerable to reduced water quality and levels.	Yes	Specific mitigation for water quality and levels is provided by Policy SD4 (Sustainable Design and Construction), which	No	There is the potential for the policies to act in combination with a number of the plans	Given the uncertainty around in combination effects the	?

<p>surface water run-off, discharges and abstraction. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A1, A2, A4, A5 and A6).</p>	<p>on water quality. Increased abstraction has the potential to affect water levels at the site as it is situated in the Severn Water Resource Zone.</p>			<p>requires proposals to demonstrate that development is designed to use water efficiently, will not adversely affect water quality and will not hinder the ability of a water body to meet the requirements of the Water Framework Directive. Policy SD15 (Health and Environmental Quality) protects and seeks improvements to environmental quality by requiring development to not result in unacceptable levels of water pollution, either alone or cumulatively, with respect to relevant national and EU limit values. Furthermore, Policy SD10 requires that any development that has the potential to have a significant impact on a European or International site will be subject to HRA. In addition, Policy S3 requires all development to achieve high standards / levels under BREEAM or Code For Sustainable Homes. These set minimum standards for water use and efficiency and credits can be earned by incorporating measures to reduce pollution, if the developer chooses to do so. This should reduce water</p>		<p>and programmes identified in Appendix 2 with regard to surface water run-off, discharges and abstraction.</p>	<p>policies have been carried forward to AA.</p>	
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				<p>abstraction and could reduce pollution.</p> <p>Furthermore Policy INF4 (Green Infrastructure) requires development to conserve and enhance Green Infrastructure which could help intercept pollutants and improve water quality.</p> <p>The mitigation provided by JCS policies and current regulatory processes (EA Review of Consents) are considered sufficient to address the potential adverse effects of the policies alone on the integrity of the site.</p>				
Habitat loss and fragmentation as a result of proposed development. Pre-Submission Draft JCS: SP1; SP2; and INF7.	No development is proposed that would result in the direct or indirect loss or fragmentation of designated land or supporting habitat.	There are no pathways for LSE.	No	N/A	No	N/A	N/A	No

Wye Valley and Forest of Dean Bat Sites SAC								
Potential impacts of the Plan	Environmental Pathways	Is the site sensitive/vulnerable to these impacts?	Risk?	Potential avoidance/mitigation	LSE alone?	Potential impacts of other plans and programmes	Potential avoidance/mitigation	LSE in-comb?
Reduced air quality through increased traffic and emissions from buildings. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A4 and A6).	Development proposed in the JCS will not result in a significant increase in traffic on major roads within 200m of the roosts. There is therefore no pathway for impacts as a result of short range atmospheric pollution. Proposed development and associated activities have the potential to contribute to increased diffuse (long range) atmospheric pollution; however, given prevailing winds come from the south west, the location of the site to the Plan area (west) means that impacts are unlikely.	No, available information on the European site indicates it is not sensitive to the impacts of atmospheric pollution ¹³ .	No	Not sensitive to atmospheric pollution and no pathways for impacts.	No	There is the potential for the Draft to act in-combination with a number of plans and programmes; however, given that the site is not considered sensitive to the impacts of atmospheric pollution and given the direction of the prevailing wind, it is considered that there will not be significant effects.	N/A	No
Increased disturbance - recreational activity and noise and light pollution. Pre-Submission Draft JCS Policies: SP1; SP2; INF7 and SA1 (Allocations A4 and A8).	The site is approximately 15 km away and is outside of the JCS area therefore given the distance there are unlikely to be any environmental pathways to affect recreational activity, noise and light pollution.	Yes, 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	No	No pathways for LSE.	No	Given the distance of the site from the Plan area and mitigation provided by other plan policies it is considered unlikely that there will be significant in combination effects through increased recreation.	N/A	No

¹³ CCW (Jan 2008) Core Management Plan for Wye Valley and Forest of Dean Bat SAC

		be considered. Any structures placed at cave entrances to prevent unauthorised access should not hinder the passage of bats. However, there are no pathways for LSE.						
Changes to Water Quality and Levels through increased surface water run-off, discharges and abstraction. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A1, A2, A4, A5 and A6).	The site is in a different catchment and is approximately 15 km away from the Plan area; there are therefore no pathways for LSE as a result of reduced water quality.	No, available information on the European site indicates it is not sensitive to the impacts on water quality or levels.	No	Not sensitive and pathways for LSE.	No	N/A	N/A	No
Habitat loss and fragmentation as a result of proposed development. Pre-Submission Draft JCS: SP1; SP2; and INF7.	No development is proposed that would result in the direct or indirect loss or fragmentation of designated land or supporting habitat. The previous HRA Screening assessment (December 2011) highlighted that there could be potential for significant effects on this site through disturbance of bat flight lines and foraging habitats within 10 km of the site. However, development advocated by the Plan is	There are no pathways for LSE.	No	N/A	No	N/A	N/A	No

	<p>focused in the existing urban area and in urban extensions and strategic allocations set out in Policy SA1 - the closest of which to the site is 15 km (Gloucester City). As a result it is unlikely that the development would impact upon bat foraging areas and flight lines.</p>							
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Wye Valley Woodlands SAC								
Potential impacts of the Plan	Environmental Pathways	Is the site sensitive/vulnerable to these impacts?	Risk?	Potential avoidance/mitigation	LSE alone?	Potential impacts of other plans and programmes	Potential avoidance/mitigation	LSE in-comb?
Reduced air quality through increased traffic and emissions from buildings. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A4 and A6).	Development proposed in the JCS will not result in a significant increase in traffic on major roads within 200m of the roosts. There is therefore no pathway for impacts as a result of short range atmospheric pollution. Proposed development and associated activities have the potential to contribute to increased diffuse (long range) atmospheric pollution; however, given prevailing winds come from the south west, the location of the site to the Plan area (west) means that impacts are unlikely.	Yes, critical load exceedences have been identified for both acid and nitrogen deposition.	No	Given the direction of the prevailing wind it is considered that there are no pathways for impacts.	No	There is the potential for the Draft to act in-combination with a number of plans and programmes; however, given the direction of the prevailing wind, it is considered that there will not be significant effects.	N/A	No
Increased disturbance - recreational activity and noise and light pollution. Pre-Submission Draft JCS Policies: SP1; SP2; INF7 and SA1 (Allocations A4 and A8).	Some of the SAC is accessible by foot where other areas are on steep cliffs and inaccessible. The woodlands are over 20 km from the JCS area. Given the distance of the site from the JCS area it is unlikely that proposed development will increase levels of noise and light pollution at the site.	Available information on the European site does not indicate that it is sensitive to the impacts of recreational activity ¹⁴ .	No	Not sensitive and no pathways for LSE.	No	Given the distance of the site from the Plan area and mitigation provided by other plan policies it is considered unlikely that there will be significant in combination effects through increased recreation.	N/A	No
Changes to Water Quality and Levels	The site is in a different catchment and is approximately 20 km away	The site management plan does not indicate that it is sensitive to	No	N/A	No	N/A	N/A	No

¹⁴ CCW (April 2008) Core Management Plan for Wye Valley Woodlands SAC.

<p>through increased surface water run-off, discharges and abstraction. Pre-Submission Draft JCS: SP1; SP2; INF7 and SA1 (Allocations A1, A2, A4, A5 and A6).</p>	<p>from the Plan area; there are therefore no pathways for LSE as a result of reduced water quality. Increased abstraction has the potential to affect water levels at the site - water is transferred between resource zones by Welsh Water and Severn Trent Water.</p>	<p>reduced water quality and levels.</p>						
<p>Habitat loss and fragmentation as a result of proposed development. Pre-Submission Draft JCS: SP1; SP2; and INF7.</p>	<p>No development is proposed that would result in the direct or indirect loss or fragmentation of designated land or supporting habitat.</p>	<p>There are no pathways for LSE.</p>	No	<p>N/A</p>	No	<p>N/A</p>	<p>N/A</p>	No

Appendix V: Habitats Regulations Assessment Consultation Commentary

HRA Screening Report of Gloucester, Cheltenham and Tewkesbury Joint Core Strategy 'Developing the Preferred Option Consultation Document' December 2011

Ref	Consultee Comments	Response (record of amendment to HRA)
Natural England (NE) (3rd October 2011) Sally King, Exeter land Use Team		
General comments	<p>I have focused on the issues you raise in the report regarding Bredon Hill SAC and Dixon Wood SAC:</p> <ul style="list-style-type: none"> Air pollution. I do not think we would be concerned about the direct local vehicular effect of the increased traffic from this strategy on these designated sites but we would ask that you are mindful of the UK's wider air quality and biodiversity commitments and adopt less polluting alternatives and policies to reduce air pollution where possible. Impact of increased recreation. I agree with the Screening Report with regard to Bredon Hill SAC but think that Dixon Wood SAC may be vulnerable to vandalism if development was located close by. The impact will depend on the location of new development. 	<p>Noted.</p> <p>Noted. Taken into account in Appendix IV.</p>
Countryside Council For Wales (CCW) (September 2011)		
1. Introduction	CCW welcomes that Gloucester City Council, Cheltenham Borough Council and Tewksbury Borough Council (the 'Joint Councils') have taken a precautionary approach to the assessment of the preferred options and, while not strictly necessary in term of the Conservation of Species and Habitats Regulations 2010 (as amended), have assessed all four of the preferred options in the joint Core Strategy.	Noted.
3. Analysis of the Joint Core Strategy	3.3 We do not necessarily agree with the conclusion that the vision and objectives do not provide sufficient information to be meaningfully screened, however, due to their general and aspirational nature it is reasonable to assume that they are unlikely to have any significant effects.	Noted – the vision and objectives have not be screened in the HRA for the Draft JCS 2013.
4. Identification of Relevant European Sites	4.3 We note the sites included within the screening assessment and that 5 sites have been identified relevant to Wales; the Wye Valley and Forest of Dean bat sites SAC, the River Wye SAC and the Severn Estuary SAC, SPA and Ramsar site. However, we do not agree with the justification given for not including additional, more distant, sites within the assessment in relation to potential water resources impacts. We would expect, given it is	<p>Agreed – the River Wye and River Usk SACs have been included in this HRA.</p> <p>Welsh Water Dwr</p>

Ref	Consultee Comments	Response (record of amendment to HRA)
	<p>connected to the River Wye through the South East Wales Conjunctive Use System, that the River Usk SAC should also be included in this screening assessment.</p> <p>It is not appropriate to rely on an existing HRA for a related Plan if there are indications that additional information is available that may negate or amend the conclusions of that assessment. In this instance, it is not clear whether the Severn Trent Water Resources Management plan has taken account of the Environment Agency's Review of Consents (RoC) process which indicated that changes to the licensing regime on both the River Usk and River Wye may be necessary to address potential water quantity impacts. While we appreciate that this is most likely to affect areas supplied by Dwr Cymru Welsh Water, there may be implications for Severn Trent and the Joint Councils as a result of changes that may be necessary to meet the requirements of the RoC. It may be possible to obtain confirmation from the Environment Agency and relevant water companies that these changes would not impact on water supply to the areas covered by the Plan, alone and in combination with other plans and projects (such as Hereford's LDF), but until such assurances are obtained both the Usk and the Wye SACs should be included in this Assessment as a precautionary measure. This would be consistent with the approach advocated by the West Midlands Regional Spatial Strategy prior to its withdrawal.</p>	<p>Cymru and Severn Trent and Thames Water WRMPs, in addition to the Environment Agency's Review of Consents Process has been taken into account.</p>
	<p>Table 4.1 Potential Impacts and Activities This table is a comprehensive list of potential impacts.</p>	Noted.
	<p>4.7 We welcome reference to the Air Pollution Information System (APIS).</p>	Noted.
5. Screening Assessment	<p>River Wye SAC</p> <p>5.73 Conservation objectives are available for the River Wye SAC and are contained in the Core Management Plan (CMP) for the Site (http://www.ccw.gov.uk/landscape--wildlife/protecting-our-landscape/special-sites-project.aspx); these should be referred to as appropriate in this assessment.</p> <p>5.74 – 5.76 For a full list of sensitivities and threats please refer to the conservation objectives contained in the CMP as outlined in 5.73. This is a reasonable but not comprehensive list and does not include issues such as disturbance to features such as otters and migratory fish, navigation etc.</p> <p>5.79 We welcome the reference to the water companies' Asset Management Planning process in relation to water quality but this also applies to water resources and the reference to the Review under the habitats Regulations should be further clarified. Much of this information is now available</p>	<p>Agreed – included in Appendix I.</p> <p>Agreed – included in Appendix I.</p> <p>Noted.</p>

Ref	Consultee Comments	Response (record of amendment to HRA)
	and should be referenced where relevant.	
	5.80 – 5.83 There is no clear justification for the statement that water abstraction is unlikely to have a significant effect on the River Wye SAC. We would expect to see a fuller consideration of the water resource demands of the Plan proposals and potential impacts on the River Wye SAC (and River Usk SAC) or justification as to why this is not an issue, particularly in combination with other plans and projects. See comments on section 4.3. It may be reasonable to suggest that if there is no hydrological connectivity between the development proposed in the Plan area and the River Wye catchment (note – not just the River Wye itself) then impacts related to surface water contamination would be unlikely, however, we would also wish to see demonstrated that any foul water treatment from the proposed developments also does not flow into the Wye system. If this is not the case, then an assessment of the potential impacts of additional foul water treatment, in terms of discharges and environmental capacities, should also be included.	Noted – please see Appendix IV and Section 4 in the main HRA report.
	5.84 While increased recreational pressure may result from the proposed development we agree that this is unlikely to lead to significant effects on the Welsh sections of the River Wye SAC, though a consideration of the potential impacts on mobile species such as the otter and also any ‘in combination’ effects with other plans and projects, should be included for completeness.	Noted – please see Appendix IV.
	5.85 & 5.86 See comments above. While CCW do not necessarily disagree with the conclusion of no likely significant effect on the River Wye SAC, we would wish to see further clarification and justification in relation to the potential water quality and water resources issues, before we could have confidence in this assessment.	Noted.
	Severn Estuary SAC, SPA and Ramsar Site	
	5.118 We welcome reference to the conservation objectives contained in the Severn Estuary “Regulation 33 package”. It should be noted for correctness that this is now covered under Regulation 35 of the amended 2010 Regulations.	Noted.
	5.124 CCW agree that, given the study area covered by the proposals is 10km upstream from the site boundary, direct impacts such as habitat loss or direct disturbance are unlikely to be significant. However, mobile species features, such as migratory fish and otter, move beyond the boundary of the site and damage or disturbance to supporting habitats outside the site may still have significant effects on the conservation status of the features themselves. We strongly recommend that this is covered in this report, particularly given the potential impacts identified in	Noted.

Ref	Consultee Comments	Response (record of amendment to HRA)
	<p>the following section 5.125.</p> <p>5.125 We largely agree that the majority of any potential impacts are likely to be indirect (subject to the comments on mobile species above). Air pollution is a complex issue and it is not straightforward to either assess or mitigate for potential impacts. Several features of the Seven Estuary suite of sites are potentially impacted by nutrient enrichment of which atmospheric inputs may be a factor (such as saltmarsh), though we note that the APIS system does not identify critical load exceedence at the current time for the Severn Estuary. As the development proposed by the Joint Councils has the potential to increase the levels of diffuse atmospheric loading then a precautionary approach should be adopted (this applies equally to the Wye Valley Woods SAC). We recommend that such a precautionary approach takes the form of policies and measures to limit and ideally reduce the overall impact of the Plan in terms of atmospheric inputs combined with a monitoring programme to ensure these measures are performing as expected. In real terms such policies are likely to be part of the Plan already (sustainable transport, climate change and energy efficiency policies) and monitoring can be based on existing air quality monitoring carried out by the authorities with a defined link to the HRA reporting. While we largely agree that the other impacts identified can not be meaningfully assessed at plan level and can be dealt with at project level, there should be at least some indication of the likely mitigation measures that will be necessary to ensure adverse effects can be avoided, cancelled or reduced at that time.</p>	Noted.
	<p>5.126 We welcome and largely agree with the key impacts identified as likely to lead to significant effects.</p>	Noted.
	<ul style="list-style-type: none"> Water quantity. We welcome the recognition that there may be water quantity issues resulting from the JCS for the Severn Estuary suite of sites and the reference to the, now withdrawn, West Midlands Regional Spatial Strategy. We also welcome the clear reference to the Severn Trent Water Resources Management Plan but reiterate our comments on section 4.3 in relation to the Review of Consents process and relying on other, and possibly out of date, HRAs. In the case of the Severn Estuary suite of sites, there are also potential in combination issues with the developing Welsh Water Dwr Cymru Water Resources Management Plan and the Thames Water WRMP. Given the high level of uncertainty, we strongly recommend a precautionary approach is taken and either this issue is taken forward for more detailed assessment or suitably precautionary caveats are inserted into 	Agreed.

Ref	Consultee Comments	Response (record of amendment to HRA)
	the Plan such as that stated for the Severn Trent WRMP itself or as recommended in the inspectors report for stage 3 of the West Midlands RSS.	
	<ul style="list-style-type: none"> We welcome the precautionary approach taken to water quality but it is not clear from this section of the report whether the intention is to take this forward for further assessment or include appropriate mitigation measures, clarification would, therefore, be welcomed. 	Noted and taken forward into AA.
	<ul style="list-style-type: none"> We welcome the precautionary approach being taken in relation to potential disturbance impacts, and agree these are likely to be primarily related to potential 'in combination' effects with other plans and projects rather than significant alone. 	Not taken forward and reasons given in Appendix IV.
	<p>Assessment of Scenarios We note that scenarios A and B do not identify any likely significant effects due to impacts on water quantity resulting from increased water resource demands. While we agree that, due to the lower levels of growth these scenarios represent, any impacts are less likely to be significant than scenarios C and D, given the points outlined above, it will still be necessary to further justify the conclusion of no likely significant effect for these options. We welcome that option C and D will require further assessment. We also note that all the options will require more detailed assessment in terms of water quality and recreational impacts.</p>	Noted – greater consideration given in Appendix IV and AA Section of the HRA Report (as appropriate).
	<p>Potential 'In Combination' Effects We recommend that this element of the assessment also considers Hereford LDF, Monmouthshire and Powys existing local Plans (and developing LDPs), Welsh Water Dwr Cymru and Severn Trent and Thames Water WRMPs, in addition to the Environment Agency's Review of Consents Process.</p>	Agreed and these have been taken into account and summaries are provided in Appendix II.
	<p>Conclusions We note the conclusion that it is not possible to rule out likely significant effects from any of the options on the Severn Estuary suite of sites at this stage.</p>	Noted.
	Wye Valley and Forest of Dean Bat Sites SAC	
	<p>5.168 Please note that conservation Objectives are available for the Welsh elements of the Wye Valley and Forest of Dean Bat sites in the Site Core Management Plan available on the CCW website at (http://www.ccw.gov.uk/landscape--wildlife/protecting-our-landscape/special-sites-project.aspx); and should be referenced in this assessment where relevant.</p>	
	<p>5.178 While the proposals in the JCS are spatially distant from the Welsh elements of the</p>	Noted – please see

Ref	Consultee Comments	Response (record of amendment to HRA)
	<p>Wye valley and Forest of Dean bat sites and therefore unlikely to lead to any significant effects on these locations, given that the populations of the individual roost sites are likely to interact, we welcome the precautionary approach that has been taken in relation to possible disturbance of flight lines and foraging habitat. We also welcome the detailed 'in combination' assessment that has been carried out in relation to this site.</p> <p>Wye Valley Woodlands SAC</p> <p>5.182 Please note that conservation Objectives are available for the Welsh elements of the Wye Valley woodlands SAC in the Site Core Management Plan, available on the CCW website at (http://www.ccw.gov.uk/landscape--wildlife/protecting-our-landscape/specialsites-project.aspx); and should be referenced in this assessment where relevant.</p> <p>5.189 We note that the Plan area is over 10km away from the nearest element of this site and that impacts on the bat features are, therefore, not likely to be significant alone given the nature of the proposed development. However, we would recommend that further consideration of potential 'in combination' effects is carried out as has been done in relation to the Wye Valley and Forest of Dean Bat Sites SAC.</p> <p>5.191 We note that there is critical load exceedence for both acid and nitrogen deposition for the Wye Valley Woodlands SAC. Therefore we feel a precautionary approach should be adopted in relation to air quality (see comments on section 5.125) and we do not agree with the assessment conclusion of no likely significant effect without further clarification to this point.</p>	<p>Appendix IV.</p> <p>Noted – included in Appendix I.</p> <p>Noted – please see Appendix IV.</p> <p>Noted – please see Appendix IV.</p>
<p>6. Conclusions and Next Steps</p>	<p>6.3 While we agree with many of the assessment conclusions we would wish to see further clarification of impacts on the River Wye (and River Usk) SAC and Wye valley Woodlands SAC. In addition we would also wish for further clarification of some of the potential impacts on the River Severn Suite of sites.</p>	<p>Noted.</p>
<p>7. Next Steps</p>	<p>7.4 We agree that most if not all of the significant effects identified in this assessment and the additional points raised above, should be able to be resolved, either through further clarification or more detailed justification of the assessment conclusions. However, some of the potential impacts are likely to need precautionary mitigation measures to be included in the JCS to ensure, which ever scenario is chosen, that it is not likely to lead to significant effects. We look forward to advising and commenting on these in due course.</p>	<p>Noted.</p>

HRA Report of Gloucester, Cheltenham and Tewkesbury Draft Joint Core Strategy October 2013

Ref	Consultee Comments	Response (record of amendment to HRA)
Natural England (NE) (26th November 2013) Amanda Grundy, Land Use Development Plan Network		
General Comments	<p>The findings of the Appropriate Assessment identified a number of uncertainties relating to water quantity and quality, air pollution and increased recreation and made recommendations regarding further more detailed assessment of projected traffic related to the A46 and potential effects on the Beechwoods SAC, and regarding water abstraction.</p> <p>While we accept many of the HRA findings and support its recommendations, we remain concerned about the effects of increased recreation on Cotswolds Beechwoods Special Area of Conservation (SAC). In our view, the HRA has not given due weight to this existing issue or the likely effect of an increase in visitors resulting from the implementation of the Plan. In particular we believe the extent to which existing visitor pressures are being addressed and how increases in such pressure might be addressed and resourced in the future needs further consideration.</p>	Noted. The HRA of the Joint Core Strategy is an iterative process, therefore further consideration and greater weight will be given to the potential for recreational impacts on the Cotswolds Beechwoods SAC through the future stages of the HRA and development of the Plan.
Section 4, Para 4.27	<p>The Cotswolds Commons and Beechwoods Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC) is largely contained within the JCS area and it is reasonable to assume that the greatest proportion of any increase in visitors would come from the JCS area. The Appropriate Assessment refers to advice from the Natural England Officer responsible for the Cotswold Beech Wood SAC regarding a risk from increasing recreational pressure, in particular from mountain biking.</p> <p>As advised by Natural England locally, the SAC already has high levels of use and an increasing number of tracks are being formed which are eroding ground flora, including the regrowth of new saplings.</p>	Noted, please see response above.
Section 4, Para 4.33	While it is fair to say that the voluntary restrictions for the use of mountain bike that have been negotiated with some cycle groups has helped to prevent the creation of tracks which are damaging vegetation, we do not consider the current action to be sufficient in itself to manage existing pressures, nor is it secured in the future.	Noted, please see response above.
General	We therefore advise that further consideration of development related pressures on the Cotswolds	Noted, please see

Ref	Consultee Comments	Response (record of amendment to HRA)
Comment	Beechwoods is needed and of the potential mitigation measures that could be introduced through plan policies.	response above.