South Gloucestershire Local Plan 2023 Phase 3: Towards a Preferred Strategy

HRA Screening Report

South Gloucestershire Council

Final report

Prepared by LUC

December 2023

Version	Status	Prepared	Checked	Approved	Date
1	Draft	H Ennis	K Sydney	K Nicholls	24.11.2023
2	Final	H Ennis	K Sydney	K Nicholls	07.12.2023

Land Use Consultants Limited
Registered in England. Registered number 2549296. Registered office: 250 Waterloo Road, London SE1 8RD. Printed on 100% recycled paper

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Introduction

1.1 LUC was commissioned by South Gloucestershire Council in February 2023 to carry out a Habitats Regulations Assessment (HRA) of its new Local Plan.

1.2 Following two Regulation 18 consultations on the Local Plan, referred to as the Phase 1 and Phase 2 Local Plan consultations, a HRA Scoping Report was produced in March 2023 and sent to Natural England and Natural Resources Wales. This HRA Screening Report builds upon that earlier work and assesses the effects of the Phase 3 South Gloucestershire Local Plan. This HRA report will be consulted upon alongside the Phase 3 Local Plan.

Background to the South Gloucestershire Local Plan

1.3 The South Gloucestershire Local Plan is a development plan document (DPD) that will relate to the whole administrative area of South Gloucestershire and cover the period from 2025 to 2040. The plan will eventually replace the adopted Core Strategy 2006-2027 (adopted in 2013), although a number of its policies will be 'saved' and incorporated into the new Local Plan. The Local Plan will also replace the Policies, Sites and Places Plan (adopted in 2017) and, where appropriate, policies from the Joint Waste Core Strategy (adopted in 2011).

1.4 South Gloucestershire Council has decided to review the Local Plan given the time that has elapsed since the Core Strategy and its spatial principles were examined. This decision also reflects the changes that have occurred both nationally (such as a change in national planning policy and guidance) and locally (including the Council's Climate Emergency declaration in July 2019).

1.5 Once adopted, the Local Plan will set out a new growth strategy for South Gloucestershire, describe where and how many new homes and jobs and how much infrastructure are to be provided as well as identifying areas for protection over the plan period. As part of this, the Local Plan will need to identify sites and locations where the housing and employment growth and supporting infrastructure required in the area should be located. It will also need to reflect the environmental sensitivities of the plan area and include an appropriate response to the declared Climate Emergency for South Gloucestershire.

1.6 The Phase 1 Local Plan was published for consultation between November 2020 and March 2021 and was the Council's first stage of presenting the issues and priorities for South Gloucestershire. In the Phase 2 Local Plan, which was published for consultation between February and April 2022, the Council sought to begin a more detailed discussion on where growth, change and protection might take place.

1.7 In the current Phase 3 Local Plan, the Council is consulting on the Local Plan objectives, the scale and type of development to be planned for, potential allocations, the emerging preferred strategy (and the alternative 'lenses' considered) as well as infrastructure requirements. The Phase 3 Local Plan also includes proposed policy wording in relation to topics including climate change, affordable homes, the economy and town centres.

The Requirement to Undertake Habitats Regulations Assessment of Development Plans

1.8 The requirement to undertake HRA of development plans was confirmed by the amendments to the Habitats Regulations published for England and Wales in 2007 **[See reference** 1**]**; the currently applicable version is the Habitats Regulations 2017, as amended **[See reference** 2**]**. When preparing the development plans, South Gloucestershire Council is therefore required by law

to carry out an HRA. South Gloucestershire Council can commission consultants to undertake HRA work on its behalf and this (the work documented in this report) is then reported to and considered by South Gloucestershire Council as the 'competent authority'. South Gloucestershire Council will consider this work and would usually only progress a Plan if it considers that the Plan will not adversely affect the integrity **[See reference 3]** of any 'European site', as defined below (the exception to this would be where 'imperative reasons of overriding public interest' can be demonstrated). The requirement for authorities to comply with the Habitats Regulations when preparing a Plan is also noted in the Government's online Planning Practice Guidance **[See reference 4]** (PPG).

1.9 HRA refers to the assessment of the potential effects of a development plan on one or more sites afforded the highest level of protection in the UK: Special Protection Areas (SPAs) and Special Areas of Conservation (SACs). These were classified under European Union (EU) legislation but since 1 January 2021 are protected in the UK by the Habitats Regulations 20172 (as amended). Although the EU Directives from which the UK's Habitats Regulations originally derived are no longer binding, the Regulations still make reference to the lists of habitats and species that the sites were designated for, which are listed in annexes to the EU Directives:

- SACs are designated for particular habitat types (specified in Annex 1 of the EU Habitats Directive **[See reference 5]**) and species (Annex II). The listed habitat types and species (excluding birds) are those considered to be most in need of conservation at a European level. Before EU exit day, designation of SACs also had regard to the coherence of the 'Natura 2000' network of European sites. After EU exit day, regard is had to the importance of such sites for the coherence of the UK's 'national site network'.
- SPAs are classified for rare and vulnerable birds (Annex I of the EU Birds Directive **[See reference 6]**), and for regularly occurring migratory species not listed in Annex I.

1.10 The term 'European sites' was previously commonly used in HRA to refer to 'Natura 2000' sites **[See reference 7]** and Ramsar sites (international

designated under the Ramsar Convention). However, a Government Policy Paper **[See reference** 8**]** on changes to the Habitats Regulations 2017 post-Brexit states that:

- Any references to Natura 2000 in the 2017 Regulations and in guidance now refer to the new 'national site network'.
- The national site network includes existing SACs and SPAs; and new SACs and SPAs designated under these Regulations.
- Designated Wetlands of International Importance (known as Ramsar sites) do not form part of the national site network. Many Ramsar sites overlap with SACs and SPAs and may be designated for the same or different species and habitats.

1.11 Although Ramsar sites do not form part of the new national site network, Government guidance **[See reference** 9**]** states that:

> "Any proposals affecting the following sites would also require an HRA because these are protected by government policy:
>
> - proposed SACs
> - potential SPAs
> - Ramsar sites - wetlands of international importance (both listed and proposed)
> - areas secured as sites compensating for damage to a European site."

1.12 Furthermore, the NPPF **[See reference** 10**]** and practice guidance **[See reference** 11**]** currently state that competent authorities responsible for carrying out HRA should treat Ramsar sites in the same way as SACs and SPAs. The legislative requirement for HRA does not apply to other nationally designated wildlife sites such as Sites of Special Scientific Interest or National Nature Reserves.

1.13 For simplicity, this report uses the term 'European site' to refer to all types of designated site for which Government guidance **[See reference** 12**]** requires an HRA.

1.14 The overall purpose of an HRA is to conclude whether or not a proposal or policy, or a whole development plan would adversely affect the integrity of the European site in question. This is judged in terms of the implications of the plan for a site's 'qualifying features' (i.e. those Annex I habitats, Annex II species, and Annex I bird populations for which it has been designated). Significantly, HRA is based on the precautionary principle. Where uncertainty or doubt remains, an adverse effect should be assumed.

Previous HRA Work

1.15 In 2018, a HRA Statement **[See reference** 13**]** on the South Gloucestershire Local Plan was prepared by the Council, which detailed the proposed HRA methodology and identified European Sites that could potentially be affected.

1.16 HRA work on the South Gloucestershire Local Plan then continued with an HRA Scoping Report that was produced by LUC in March 2023 and set out the proposed HRA methodology and identified European Sites that could potentially be affected by the Local Plan. The HRA Scoping Report concluded that the main issues that would need to be the focus of the HRA were:

- Physical damage/loss of habitat (functionally linked habitats) at Bath and Bradford on Avon Bats SAC;
- Non-physical disturbance at Bath and Bradford on Avon Bats SAC;
- Air pollution at Bath and Bradford on Avon Bats SAC; Avon Gorge Woodlands SAC, Wye Valley Woodlands SAC, Rodborough Common SAC and River Usk SAC; and
- Water quantity and quality at Wye Valley Woodlands SAC, River Usk SAC and Chew Valley SPA.

1.17 Severn Estuary SAC, SPA and Ramsar site and the River Wye SAC were also scoped in for all impact pathways.

1.18 This HRA report builds on and updates the information gathered at the Scoping stage, and presents HRA Screening conclusions for the Phase 3 Local Plan.

Structure of this Report

1.19 This chapter has introduced the requirement to undertake HRA of the Local Plan. The remainder of the report is structured as follows:

- Chapter 2: South Gloucestershire Local Plan Phase 3: 'Towards a Preferred Strategy' summarises relevant parts of the Phase 3 Local Plan which is the subject of this report.
- Chapter 3: Approach to HRA sets out the approach used and the specific tasks undertaken during HRA Screening and outlines the methodology that will be used for the Appropriate Assessment as required.
- Chapter 4: European Sites describes the European sites in and around South Gloucestershire and summarises their key vulnerabilities.
- Chapter 5: HRA Screening describes the findings of the screening stage of the HRA.
- Chapter 6: Conclusions and Next Steps summarises the HRA conclusions and describes the next steps to be undertaken.

Chapter 2

South Gloucestershire Local Plan Phase 3: ‘Towards a Preferred Strategy’

2.1 The South Gloucestershire Local Plan Phase 3: 'Towards a Preferred Strategy' (hereafter referred to as the 'Phase 3 Local Plan') sets out the objectives, scale and type of development to be planned for, potential allocations, emerging preferred strategy (and the alternative 'lenses' considered) and infrastructure requirements. The new Local Plan will cover a period up to 2040.

2.2 The Phase 3 Local Plan contains six objectives which reflect the Joint Partnership Agreement of May 2023 to:

> "Address the twin challenges of the climate and nature emergencies as well as the cost of living, with due regard to future generations in all decision making."

2.3 The three different strategy 'lenses' are alternative options considered by the Council for where new residential and employment development could be located:

- Lens 1 - No Green Belt Loss (up to 8,353 homes; 11 hectares employment land): Avoids development in the Green Belt but would put pressure on communities located outside of the Green Belt.
- Lens 2 - Urban Edge (up to 12,750 homes; 44.5 hectares employment land): Would focus development on areas which surround main urban

areas, namely the communities of the north and east fringes of Bristol and Severnside employment area.

- Lens 3 - Transport Corridors and Hubs (up to 11,890 homes; 6.6 hectares employment land): Focuses development along established key public transport routes and hubs.

2.4 As explained in the Local Plan, the three lenses enabled the Council to consider alternative locations for new homes and jobs, and to understand the opportunities and challenges of different sites and locations. The Emerging Preferred Strategy (EPS) is a combination of locations and sites identified through these three lenses and would result in the following growth:

- 7,580 new homes; and
- 43.4 hectares of new employment land.

2.5 The Emerging Preferred Strategy proposes the majority of development to the north and east fringes of Bristol as well as within Yate and Thornbury.

2.6 The Phase 3 Local Plan includes 14 new draft policies covering the following topics:

- Climate Change Mitigation, Adaptation and Resilience
- Energy Management in New Development
- Embodied Carbon
- Renewable and Low Carbon Energy Systems
- Community Energy
- Affordable Homes
- Sites for Gypsies and Travellers
- Sites for Traveling Showpeople
- Internal Space and Accessibility Standards
- Minerals

- Economy and Jobs
- Town Centres
- Strategic and Major Site Delivery Policy
- Stewardship Arrangements

2.7 The Phase 3 Local Plan states that the next version of the Local Plan (to be published for Regulation 19 consultation) will contain the following:

- Preferred spatial strategy and site allocations;
- Land to be safeguarded e.g. for transport and infrastructure;
- A full set of draft policies; and
- Confirmation of which policies in the adopted Local Plan will be saved.

2.8 HRA is an iterative process and therefore this assessment will be updated as the Local Plan evolves. The findings of the HRA will also inform the emerging Local Plan.

Chapter 3
Approach to HRA

Stages of HRA

3.1 The HRA of development plans is undertaken in stages (as described below) and should conclude whether or not a proposal would adversely affect the integrity of the European site in question.

3.2 LUC has been commissioned by South Gloucestershire Council to carry out HRA work on the Council's behalf, and the outputs will be reported to and considered by South Gloucestershire Council, as the competent authority, before adopting the Plan.

3.3 The HRA also requires close working with Natural England as the statutory nature conservation body **[See reference** 14**]** in order to obtain the necessary information, agree the process, outcomes and mitigation proposals. The Environment Agency, while not a statutory consultee for the HRA, is also in a strong position to provide advice and information throughout the process as it is required to undertake HRA for its existing licences and future licensing of activities.

Requirements of the Habitats Regulations

3.4 In assessing the effects of a Local Plan in accordance with Regulation 105 of the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations'), there are potentially two tests to be applied by the competent authority: a 'Significance Test', followed if necessary by an Appropriate Assessment which would inform the 'Integrity Test'. The relevant sequence of questions is as follows:

- Step 1: Under Reg. 105(1)(b), consider whether the plan is directly connected with or necessary to the management of the sites. If not, proceed to Step 2.
- Step 2: Under Reg. 105(1)(a), consider whether the plan is likely to have a significant effect on a European site, either alone or in combination with other plans or projects (the 'Significance Test'). If yes, proceed to Step 3.
    - Steps 1 and 2 are undertaken as part of Stage 1: HRA Screening, shown in Stages of HRA section below.
- Step 3: Under Reg. 105(1), make an Appropriate Assessment of the implications for the European site in view of its current conservation objectives (the 'Integrity Test'). In so doing, it is mandatory under Reg. 105(2) to consult Natural England, and optional under Reg. 105(3) to take the opinion of the general public.
    - This step is undertaken during Stage 2: Appropriate Assessment, shown in Stages of HRA section below.
- Step 4: In accordance with Reg. 105(4), but subject to Reg. 107, give effect to the land use plan only after having ascertained that the plan would not adversely affect the integrity of a European site.
    - This step follows Stage 2 where a finding of 'no adverse effect' is concluded. If it cannot be it proceeds to Step 5 as part of Stage 3 of the HRA process.
- Step 5: Under Reg. 107, if Step 4 is unable to rule out adverse effects on the integrity of a European site and no alternative solutions exist then the competent authority may nevertheless agree to the plan or project if it must be carried out for 'imperative reasons of overriding public interest' (IROPI).
    - This step is undertaken during Stage 3: Assessment where no alternatives exist and adverse impacts remain taking into account mitigation shown in Stages of HRA section below.

Typical Stages

3.5 Stages of HRA section below summarises the stages and associated tasks and outcomes typically involved in carrying out a full HRA of a development plan, based on various guidance documents **[See reference** 15**]**, **[See reference** 16**]**, **[See reference** 17**]**.

Stages of HRA

Stage 1: HRA Screening

Task

- Description of the development plan and confirmation that it is not directly connected with or necessary to the management of European sites.
- Identification of potentially affected European sites and their conservation objectives **[See reference** 18**]**.
- Assessment of likely significant effects of the development plan alone or in combination with other plans and projects, prior to consideration of avoidance or reduction ('mitigation') measures **[See reference** 19**]**.

Outcome

- Where effects are unlikely, prepare a 'finding of no significant effect report'.
- Where effects judged likely, or lack of information to prove otherwise, proceed to Stage 2.

Stage 2: Appropriate Assessment (where Stage 1 does not rule out likely significant effects)

Task

- Information gathering (development plan and European Sites **[See reference** 20**]**).
- Impact prediction.
- Evaluation of development plan impacts in view of conservation objectives of European sites.
- Where impacts are considered to directly or indirectly affect qualifying features of European sites, identify how these effects will be avoided or reduced ('mitigation').

Outcome

- Appropriate assessment report describing the plan, European site baseline conditions, the adverse effects of the plan on the European site, how these effects will be avoided or reduced, including the mechanisms and timescale for these mitigation measures.
- If effects remain after all alternatives and mitigation measures have been considered proceed to Stage 3.

Stage 3: Assessment where no alternatives exist and adverse impacts remain taking into account mitigation

Task

- Identify 'imperative reasons of overriding public interest' (IROPI).

- Demonstrate no alternatives exist.
- Identify potential compensatory measures.

Outcome

- This stage should be avoided if at all possible. The test of IROPI and the requirements for compensation are extremely onerous.

3.6 It is normally anticipated that an emphasis on Stages 1 and 2 of this process will, through a series of iterations, help ensure that potential adverse effects are identified and eliminated through the inclusion of mitigation measures designed to avoid or reduce effects. The need to consider alternatives could imply more onerous changes to a plan document. It is generally understood that so called ‘imperative reasons of overriding public interest’ (IROPI) are likely to be justified only very occasionally and would involve engagement with the Government.

Case Law

3.7 This HRA has been prepared in accordance with relevant case law findings, including most notably the 'People over Wind' and 'Holohan' rulings from the Court of Justice for the European Union (CJEU).

3.8 The People over Wind, Peter Sweetman v Coillte Teoranta (April 2018) judgment ruled that Article 6(3) of the Habitats Directive should be interpreted as meaning that mitigation measures should be assessed as part of an Appropriate Assessment and should not be taken into account at the screening stage. The precise wording of the ruling is as follows:

> "Article 6(3)… must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it

is not appropriate, at the screening stage, to take account of measures intended to avoid or reduce the harmful effects of the plan or project on that site."

3.9 In light of the above, the HRA screening stage does not rely upon avoidance or mitigation measures to draw conclusions as to whether the Local Plan could result in likely significant effects on European sites, with any such measures being considered at the Appropriate Assessment stage as relevant.

3.10 This HRA also considers the Holohan v An Bord Pleanala (November 2018) judgement which stated that:

"Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that an 'appropriate assessment' must, on the one hand, catalogue the entirety of habitat types and species for which a site is protected, and, on the other, identify and examine both the implications of the proposed project for the species present on that site, and for which that site has not been listed, and the implications for habitat types and species to be found outside the boundaries of that site, provided that those implications are liable to affect the conservation objectives of the site."

3.11 In undertaking this HRA, LUC has considered the potential for effects on species and habitats, including those not listed as qualifying features, to result in secondary effects upon the qualifying features of European sites, including the potential for complex interactions and dependencies. In addition, the potential for offsite impacts, such as through impacts to functionally linked habitats, and or species and habitats located beyond the boundaries of European site, but which may be important in supporting the ecological processes of the qualifying features, has also been considered in this HRA.

3.12 Similarly, effects on both qualifying and supporting habitats and species on functionally linked land (FLL; another term for functionally linked habitats) or habitat have been considered in the HRA, in line with the High Court judgment in RSPB and others v Secretary of State and London Ashford Airport Ltd [2014 EWHC 1523 Admin] (paragraph 27), which stated that:

> "There is no authority on the significance of the non-statutory status of the FLL. However, the fact that the FLL was not within a protected site does not mean that the effect which a deterioration in its quality or function could have on a protected site is to be ignored. The indirect effect was still protected. Although the question of its legal status was mooted, I am satisfied… that while no particular legal status attaches to FLL, the fact that land is functionally linked to protected land means that the indirectly adverse effects on a protected site, produced by effects on FLL, are scrutinised in the same legal framework just as are the direct effects of acts carried out on the protected site itself. That is the only sensible and purposive approach where a species or effect is not confined by a line on a map or boundary fence. This is particularly important where the boundaries of designated sites are drawn tightly as may be the UK practice."

3.13 In addition to this, the HRA takes into consideration the 'Wealden' judgement from the CJEU.

3.14 Wealden District Council v Secretary of State for Communities and Local Government, Lewes District Council and South Downs National Park Authority (2017) ruled that it was not appropriate to scope out the need for a detailed assessment for an individual plan or project based on the annual average daily traffic (AADT) figures detailed in the Design Manual for Roads and Bridges or the critical loads used by Defra or Environmental Agency without considering the in-combination impacts with other plans and projects.

3.15 In light of this judgement, the HRA therefore considers traffic growth based on the effects of development from the Local Plan in combination with other drivers of growth such as development proposed in neighbouring districts and demographic change.

3.16 The HRA also takes into account the Grace and Sweetman (July 2018) judgement from the CJEU which stated that:

"There is a distinction to be drawn between protective measures forming part of a project and intended avoid or reduce any direct adverse effects that may be caused by the project in order to ensure that the project does not adversely affect the integrity of the area, which are covered by Article 6(3), and measures which, in accordance with Article 6(4), are aimed at compensating for the negative effects of the project on a protected area and cannot be taken into account in the assessment of the implications of the project."

"As a general rule, any positive effects of the future creation of a new habitat, which is aimed at compensating for the loss of area and quality of that habitat type in a protected area, are highly difficult to forecast with any degree of certainty or will be visible only in the future."

"A mitigation strategy may only be taken into account at AA (a.6(3)) where the competent authority is "sufficiently certain that a measure will make an effective contribution to avoiding harm, guaranteeing beyond all reasonable doubt that the project will not adversely affect the integrity of the area". Otherwise it falls to be considered to be a compensatory measure to be considered under a.6(4) only where there are "imperative reasons of overriding public interest"."

3.17 The Appropriate Assessment of the Local Plan will therefore only consider the existence of measures to avoid or reduce its direct adverse effects (mitigation) if the expected benefits of those measures are beyond reasonable doubt at the time of the assessment.

Identifying Types of Potential Impact from the Local Plan

3.18 Development such as new homes, employment space and infrastructure that is associated with development plans has the potential to impact upon European sites in a variety of ways. The following potential impacts could arise as a result of the types of development provided for by a local plan:

- Physical loss of/damage to habitat;
- Non-physical disturbance (noise, vibration and light);
- Non-toxic contamination;
- Air pollution;
- Recreation pressure; and
- Changes to hydrology including water quality and quantity.

3.19 For each of the Local Plan's policies, consideration is given to the type of development the policy could result in, impacts that could arise from that type of development, and then whether there is an impact pathway to any European sites sensitive to that impact, as described below. Where a policy provides for a range of scales of development, depending on the spatial option pursued, consideration is given to any difference in potential scale of impact.

Identifying European Sites that may be Affected and their Conservation Objectives

3.20 In order to begin the search of European sites that could potentially be affected by a development, it is established practice in HRA to consider sites within the local planning authority area covered by the plan, and other sites that may be affected beyond this area.

3.21 A distance of 15 kilometres from the boundary of the plan area is typically used in the first instance to identify European sites with the potential to be affected by the proposals within a development plan. Consideration is then given to whether any more distant European sites may be functionally connected to the plan area, for example through hydrological pathways or recreational visits by residents. The 15 kilometres distance has been agreed with Natural England for HRAs elsewhere and is considered precautionary.

3.22 The assessment also takes into account areas that may be functionally linked to the European sites. The term 'functional linkage' can be used to refer to the role or 'function' that land or other habitats beyond the boundary of a European site might fulfil in supporting the species populations for which the site was designated or classified. Such an area is therefore 'linked' to the site in question because it provides a (potentially important) role in maintaining or restoring a protected population at favourable conservation status.

3.23 While the boundary of a European site will usually be drawn to include key supporting habitat for a qualifying species, this cannot always be the case where the population for which a site is designated or classified is particularly mobile. Individuals of the population will not necessarily remain in the site all the time. Sometimes, the mobility of qualifying species is considerable and may extend so far from the key habitat that forms the SAC or SPA that it would be entirely impractical to attempt to designate or classify all of the land or sea that

may conceivably be used by the species **[See reference** 21**]**. HRA therefore considers whether any nearby (or linked) European sites make use of functionally linked habitats, and the impacts that could affect those habitats.

3.24 Detailed information about each European site is provided in Appendix B, described with reference to Standard Data Forms for the SPAs and SACs, and Natural England's Site Improvement Plans **[See reference** 22**]**. Natural England's conservation objectives **[See reference** 23**]** and any supplementary advice on conserving and restoring site features for the SPAs and SACs have also been reviewed. All of the conservation objectives state that site integrity must be maintained or restored by maintaining or restoring the habitats of qualifying features, the supporting processes on which they rely, and populations of qualifying species.

3.25 Together, the text of the Local Plan and information on the European sites have been used to confirm that the plan is not directly connected to or necessary for the management of any of the sites (Screening stage 3).

Assessment of 'Likely Significant Effects'

3.26 As required under Regulation 105 of the Conservation of Habitats and Species Regulations 2017 **[See reference** 24**]** (as amended) (the 'Habitats Regulations'), an assessment has been undertaken of the 'likely significant effects' of the Plan. The assessment has been prepared in order to identify which policies or site allocations would be likely to have a significant effect on European sites.

3.27 Consideration has been given to the potential for the development proposed to result in significant effects of the types listed within paragraph 3.22.

Interpretation of 'Likely Significant Effect'

3.28 Relevant case law helps to interpret when effects should be considered as a Likely Significant Effect (LSE), when carrying out HRA of a land use plan.

3.29 In the Waddenzee case **[See reference** 25**]**, the European Court of Justice ruled on the interpretation of Article 6(3) of the Habitats Directive (translated into Reg. 102 in the Habitats Regulations), including that:

> An effect should be considered 'likely' "if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site" (para 44). An effect should be considered 'significant', "if it undermines the conservation objectives" (para 48). Where a plan or project has an effect on a site "but is not likely to undermine its conservation objectives, it cannot be considered likely to have a significant effect on the site concerned" (para 47).

3.30 An opinion delivered to the Court of Justice of the European Union **[See reference** 26**]** commented that:

> "The requirement that an effect in question be 'significant' exists in order to lay down a de minimis threshold. Plans or projects that have no appreciable effect on the site are thereby excluded. If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill."

3.31 This opinion (the ‘Sweetman’ case) therefore allows for the authorisation of plans and projects whose possible effects, alone or in combination, can be considered ‘trivial’ or de minimis; referring to such cases as those “which have no appreciable effect on the site”. In practice such effects could be screened out as having no Likely Significant Effect; they would be ‘insignificant’.

3.32 The HRA screening assessment therefore considers whether the Local Plan policies could have likely significant effects either alone or in combination.

Screening Assessment

3.33 A risk-based approach, involving the application of the precautionary principle, has been adopted in the assessment, such that a conclusion of 'no significant effect' has only been reached where it is considered unlikely, based on current knowledge and the information available, that a Local Plan policy or site allocation would have a significant effect on a European site.

3.34 A screening matrix has been prepared (Appendix C) that considers the potential for likely significant effects resulting from each policy in the Phase 3 Local Plan, and the site allocations that may contribute to each type of impact. A 'traffic light' approach has been used in the screening matrix to record the likely impacts of each policy on European sites and their qualifying habitats and species, using the colour categories shown below. Consideration was given to whether the policy will result in development and therefore could result in an impact on a European Site.

Table 3.1: Screening matrix colour code

Colour	Description
Red	There are likely to be significant effects (Appropriate Assessment required).
Amber	There may be significant effects, but this is currently uncertain (Appropriate Assessment required).
Green	There are unlikely to be significant effects (Appropriate Assessment not required).

3.35 The screening assessment is conducted without taking mitigation (e.g. embedded in policy) into account, in accordance with the 'People over Wind' judgment.

3.36 For some types of impacts, the potential for likely significant effects has been determined on a proximity basis, using GIS data to determine the proximity of potential development locations to the European sites that are the subject of the assessment. However, there are many uncertainties associated with using set distances as there are very few standards available as a guide to how far impacts will travel. Therefore, where assumptions have been made, these are set out in Chapter 5.

In-combination Effects

3.37 Regulation 105 of the Habitats Regulations 2017 requires an Appropriate Assessment where "a land use plan is likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and is not directly connected with or necessary to the management of the site". Therefore, the Screening assessment must consider whether any impacts identified from the Local Plan may combine with other plans or projects to give rise to significant effects in-combination.

3.38 Where the Local Plan is likely to have an effect on its own e.g. due to water pollution (due to impact pathways being present) but it is not likely to be significant, the in-combination assessment at Screening stage needs to determine whether there may also be the same types of effect from other plans or projects that could combine with the Local Plan to produce a significant effect. If so, this likely significant effect (e.g. water pollution) arising from the Local Plan in combination with other plans or projects, would then need to be considered through the Appropriate Assessment stage to determine if water pollution would have an adverse effect on integrity of the relevant European site. Where the screening assessment concludes that there is no impact pathway between development proposed in the Local Plan and the conditions necessary to maintain qualifying features of a European site, then there will be no in-combination effects to assess at the Screening or Appropriate Assessment stage. Where the screening assessment concludes that likely significant effects from the Local Plan alone cannot be ruled out, this potential effect is carried forward for more detailed consideration (including of in-combination effects) at the Appropriate Assessment stage and no consideration of in-combination effects is necessary at the Screening stage. This approach accords with recent guidance on HRA **[See reference** 27**]**.

3.39 The in-combination assessment will focus on planned growth (including housing, employment, transport, minerals and waste) around the affected site, or along the impact corridor, for example, if impacts could arise as a result of changes to a waterway, then planned growth in local authorities along that waterway will be considered. Where relevant, any strategic projects in the area that could have in-combination effects with the Local Plan will also be identified and reviewed.

3.40 The online HRA Handbook suggests the following plans and projects may be relevant to consider as part of the in-combination assessment:

- Applications lodged but not yet determined, including refusals subject to an outstanding appeal or legal challenge;
- Projects subject to periodic review e.g. annual licences, during the time that their renewal is under consideration;

- Projects authorised but not yet started;
- Projects started but not yet completed;
- Known projects that do not require external authorisation;
- Proposals in adopted plans; and
- Proposals in draft plans formally published or submitted for final consultation, examination or adoption.

3.41 The need for in-combination assessment also arises at the Appropriate Assessment stage, as discussed in the Appropriate Assessment section below.

Appropriate Assessment

3.42 Following the screening stage, if likely significant effects on European sites are unable to be ruled out, the plan-making authority is required under Regulation 105 of the Habitats Regulations to make an 'Appropriate Assessment' of the implications of the plan for European sites, in view of their conservation objectives. Appropriate Assessment should consider the impacts of the plan (either alone or in combination with other projects or plans) on the integrity of European sites with respect to their conservation objectives and to their structure and function This will involve detailed consideration of plans and projects with the potential for in-combination effects, where relevant.

3.43 Where likely significant effects in-combination cannot be ruled out at the screening stage, the Appropriate Assessment will gather the information necessary to consider these, for example traffic data for air pollution, or housing provisions and major site allocations in neighbouring authorities for recreation pressure.

3.44 Appropriate Assessment will also identify potential mitigation measures where adverse effects on integrity cannot be ruled out.

Assessing the Effects on Site Integrity

3.45 A site's integrity depends on it being able to sustain its 'qualifying features' (i.e. the habitats and species for which it has been designated) and to ensure their continued viability. The Holohan judgement also clarifies that effects on species and habitats not listed as qualifying features, but which could result in secondary effects upon the qualifying features of European sites also need to be considered. The Appropriate Assessment, if required, will build upon the information set out in Appendix B of this report, to consider the characteristics of supporting habitats and species that could be affected by impacts identified at the screening stage.

3.46 A high degree of integrity at a site is considered to exist where the potential to meet a site's conservation objectives is realised and where the site is capable of self-repair and renewal with a minimum of external management support.

3.47 A conclusion needs to be reached as to whether or not the Local Plan would adversely affect the integrity of a European site. Assessing effects on a site's integrity involves considering whether the predicted impacts of the Local Plan policies and/or sites (either alone or in combination) have the potential to:

- Cause delays to the achievement of conservation objectives for the site;
- Interrupt progress towards the achievement of conservation objectives for the site;
- Disrupt those factors that help to maintain the favourable conditions of the site;
- Interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site;
- Cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem;

- Change the dynamics of relationships that define the structure or function of the site (e.g. relationships between soil and water, or animals and plants);
- Interfere with anticipated natural changes to the site;
- Reduce the extent of key habitats or the population of key species;
- Reduce the diversity of the site;
- Result in disturbance that could affect the population, density or balance between key species;
- Result in fragmentation; and
- Result in the loss of key features **[See reference** 28**]**.

3.48 The conservation objectives for each SAC and SPA (Appendix B) are generally to maintain the qualifying features in favourable condition. Natural England does not define conservation objectives for Ramsar sites but these can often be inferred from those for co-located SAC or SPA features. The Site Improvement Plans for each site provide a high level overview of the issues (both current and predicted) affecting the condition of the designated features on the site(s) and outline the priority measures required to improve the condition of the features. Supplementary Advice to the Conservation Objectives is also available from Natural England which provides the ecological characteristics of designated species and habitats within a European Site. However, supplementary advice is not available for all European Sites. An Appropriate Assessment draws on these to help to understand what is needed to maintain the integrity of the European sites.

3.49 For each European site where an uncertain or likely significant effect is identified in relation to the Local Plan, the Appropriate Assessment sets out the potential impacts and makes a judgement (based on the information available) on whether the impact will have an adverse effect on the integrity of the site. Consideration is given to the potential for mitigation measures to be implemented that could reduce the likelihood or severity of the potential impacts such that there would not be an adverse effect on the integrity of the European site.

Chapter 4

European Sites

4.1 This chapter identifies European sites in South Gloucestershire and the surrounding area, which have potential to be affected by proposed development within the Local Plan and which will be considered as part of the HRA.

Identification of European Sites which may be Affected by the Local Plan

4.2 In order to initiate the search of European sites that could potentially be affected by a Local Plan, it is established practice in HRAs to consider European sites within the local planning authority area covered by the Local Plan, and other sites that may be affected beyond this area.

4.3 A distance of 15 kilometres was used to identify European sites likely to be affected by impacts relating to development in South Gloucestershire. In addition to this, consideration was also given to whether there are European sites that may be connected to the plan area beyond this distance, for example through hydrological pathways or recreational visits by residents of neighbouring boroughs. The HRA also considers the potential for impacts on habitats that are outside of European sites' designated areas but are functionally linked, for example areas used by bird populations for which a SPA/Ramsar site is designated.

4.4 In this case, European sites beyond 15 kilometres of South Gloucestershire do not need to be considered and have been screened out within this HRA as there are no potential pathways by which they could be likely significant effects as a result of any development proposed through the Local Plan. The European

sites beyond 15 kilometres are not connected to the plan area and are not likely to be adversely affected due to their distance from the plan area.

4.5 European sites identified for inclusion in the HRA are listed below in Table 4.1 and shown on the map in Appendix A. Detailed information about each site is provided in Appendix B.

European Sites to be Considered in the HRA of Local Plan

Special Areas of Conservation (SAC)

Table 4.1: European Sites for the Special Areas of Conservation (SAC)

European Site	Closest Distance/Location from South Gloucestershire Boundary
Severn Estuary SAC	Within the Plan area
Bath and Bradford on Avon Bats SAC	3.0 kilometres southeast
River Wye SAC	3.2 kilometres northeast
Avon Gorge Woodlands SAC	4.4 kilometres southwest
Wye Valley and Forest of Dean Bat Sites SAC	5.7 kilometres northwest
Wye Valley Woodlands SAC	5.9 kilometres north
Rodborough Common SAC	14.6 kilometres northeast
River Usk SAC	14.2 kilometres west

Special Protection Areas (SPA)

Table 4.2: European Sites for the Special Protection Areas

European Site	Closest Distance/Location from South Gloucestershire Boundary
Severn Estuary SPA	Within the Plan area
Chew Valley Lake SPA	11.3 kilometres south

Ramsar Sites

Table 4.3: European Sites for the Ramsar sites

European Site	Closest Distance/Location from South Gloucestershire Boundary
Severn Estuary Ramsar site	Within the Plan area

Functionally Linked Habitats

4.6 Habitat loss from development in areas outside of the European site boundaries may also result in likely significant effects where that habitat contributes towards maintaining the interest feature for which the European site is designated for. This includes land that may provide offsite movement corridors or foraging and sheltering habitat for mobile species such as birds, bats and fish. European sites susceptible to the indirect effects of habitat loss are restricted to those sites with qualifying species that rely on offsite habitat. These are:

- Severn Estuary SAC (fish);

- Severn Estuary SPA and Ramsar site (birds);
- Bath and Bradford on Avon Bats SAC (bats);
- River Wye SAC (fish and freshwater invertebrates);
- Wye Valley and Forest of Dean Bat Sites SAC (bats);
- Wye Valley Woodlands SAC (bats);
- River Usk SAC (fish); and
- Chew Valley Lake SPA (birds).

Bats

4.7 The following SACs are designated for supporting populations of bats:

- Bath and Bradford on Avon Bats SAC (Greater horseshoe bat Rhinolophus ferrumequinum, Bechstein's bat Myotis bechsteinii and Lesser horseshoe bat Rhinolophus hipposideros);
- Wye Valley Woodlands SAC (Greater horseshoe bat Rhinolophus ferrumequinum); and
- Wye Valley and Forest of Dean Bat Sites SAC (Greater horseshoe bat Rhinolophus ferrumequinum and Lesser horseshoe bat Rhinolophus hipposideros).

4.8 Loss of habitat, disturbance to and deteriorating habitats has been identified as a potential threat to these SACs and their bat species. The designated bat features use functionally linked habitats surrounding the above SACs to forage, commute and use for seasonal migration into the wider countryside.

4.9 Different bat species are considered to have different requirements of areas within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost. Guidance

from the Bat Conservation Trust **[See reference** 29**]** term this area 'Core Sustenance Zones' (CSZ). These are show in Table 4.4 below.

Table 4.4: Distance from bat roosts in which functionally linked habitats could occur

Species	Bat Conservation Trust Core-Sustenance Zones (radius)
Greater horseshoe bat	3 kilometres
Bechstein's bat	3 kilometres **[See reference** 30**]**
Lesser horseshoe bat	2 kilometres

Birds

4.10 Severn Estuary SPA is designated for non-breeding bewick's swan Cygnus columbianus bewickii, common shelduck Tadorna Tadorna, gadwall Anas strepera, dunlin Calidris alpina alpina, common redshank Tringa tetanus, and greater white-fronted goose Anser albifrons albifrons. Severn Estuary Ramsar site is designated for its assemblages of international importance which include: bewick's swan Cygnus columbianus bewickii, common shelduck Tadorna Tadorna, gadwall Anas strepera, dunlin Calidris alpina alpina, common redshank Tringa tetanus, greater white-fronted goose Anser albifrons albifrons, and Waterfowl.

4.11 Chew Valley Lake SPA is designated for non-breeding northern shoveler Anas clypeata. The conservation objective supplementary advice **[See reference** 31**]** for Chew Valley Lake SPA identifies that there may be a functional link between this SPA and the Severn Estuary SPA, SAC and Ramsar site. To identify habitats used by birds from the Severn Estuary designated sites, Natural England commissioned report RP02966 **[See reference** 32**]** relating to wintering waterfowl high tide roosts on the Severn Estuary SSSI/SPA. This states that:

> "More obvious links between designated and un-designated land in the study area have been found along the estuary… These areas, as well as others along the estuary and beyond… that are outside of the SPA but which are used by SPA bird populations, are all examples of Functionally Linked Land."

4.12 The report references a 'Functionally Linked Land' report **[See reference** 33**]** by Link Ecology also commissioned by Natural England which identifies key foraging/supporting fields around the Severn Estuary. The Link Ecology Report confirms that a number of the qualifying bird species of the Severn Estuary SPA/Ramsar travel away from the designated site and makes use of habitats some distance from the SPA/Ramsar site (for example in Gloucestershire and Worcestershire) for grazing/roosting. The study looked at some data from South Gloucestershire, but states that:

> "Other actual or potential FLL sites further afield, may need to be determined by a wider consultation with local birdwatchers who regularly watch sites away from the estuary in Gloucestershire and South Gloucestershire, but also potentially in areas around Bristol and in Gwent."

4.13 Habitats that could be used by the qualifying species of the Severn Estuary SPA/Ramsar site include **[See reference** 34**]** inland lakes, flood pasture/meadow, marsh, rivers and grassland.

Fish and Freshwater Invertebrates

4.14 The Severn Estuary SAC is designated for supporting sea lamprey Petromyzon marinus, river lamprey Lampetra fluviatilis, and twaite shad Alosa fallax. The River Wye SAC is designated for supporting white-clawed (or Atlantic stream) crayfish Austropotamobius pallipes, sea lamprey Petromyzon

marinus, brook lamprey Lampetra planeri, river lamprey Lampetra fluviatilis, allis shad Alosa alosa, twaite shad Alosa fallax, atlantic salmon Salmo salar, and bullhead Cottus gobio. The River Usk SAC is designated for supporting sea lamprey Petromyzon marinus; brook lamprey Lampetra planeri; river lamprey Lampetra fluviatilis; twaite shad Alosa fallax; atlantic salmon Salmo salar; bullhead Cottus gobio; and allis shad Alosa alosa.

4.15 The Severn Estuary Ramsar site is important for migratory fish. Species include salmon Salmo salar, sea trout Salmo trutta, sea lamprey Petromyzon marinus, river lamprey Lampetra fluviatilis, allis shad Alosa alosa, twaite shad Alosa fallax, and eel Anguilla anguilla. The fish of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. The site is important as a feeding and nursery ground for many fish species particularly allis shad Alosa alosa and twaite shad Alosa fallax which feed on mysid shrimps in the salt wedge.

4.16 The Severn Estuary is a key migration route to their spawning grounds in the many tributaries that flow into the estuary. Salmon, river lamprey, twaite shad, allis shad, sea trout, eel, and sea lamprey are migratory and therefore have the potential to be dependent upon watercourses located outside the boundaries of the SAC but with functional hydrological connectivity. The brook lamprey and bullhead are reliant on a mosaic of aquatic habitats, potentially including areas outside of the relevant SAC boundaries. The River Wye and the River Usk both flow into the Severn Estuary.

Chapter 5

HRA Screening

5.1 The purpose of HRA Screening is to identify the likely significant effects of the Phase 3 Local Plan and identify the scope of any Appropriate Assessment work required. The elements of the Local Plan Phase 3 document that have been screened are the Emerging Preferred Strategy (EPS) and the policies. The alternative lenses considered are not screened as they are not proposed to be taken forward in the Local Plan. The Screening matrix which presents the assessment in full is contained within Appendix C.

HRA Screening of Policies

5.2 The following policies from the Phase 3 Local Plan have been screened in for further assessment in the Appropriate Assessment, at the next stage of plan-making:

- Renewable and Low Carbon Energy Systems
- Community Energy
- Sites for Gypsies and Travellers
- Sites for Traveling Showpeople
- Minerals
- Economy and Jobs
- Town Centres

5.3 In addition, all of the potential development locations considered in the Emerging Preferred Strategy (EPS) are screened in. The sites will be finalised at the next stage of Plan-making (Regulation 19). Therefore, further HRA Screening will be required to be undertaken at that time.

HRA Screening by Impact

Physical Damage/Loss of Habitat

5.4 Any development resulting from the Phase 3 Local Plan would take place within the Plan area; therefore only European sites within the South Gloucestershire boundary could be affected through physical damage or loss of habitat from within the site boundaries. Severn Estuary SPA, SAC and Ramsar site are the only European sites located within South Gloucestershire and the only sites with the potential for onsite habitat to be directly affected by physical damage and/or loss from development.

5.5 The EPS does not provide for development that would fall within the boundaries of the Severn Estuary SPA, SAC or Ramsar site. However, in theory, a number of policies within the Phase 3 Local Plan (see paragraph 5.2) could result in development outside the identified locations and therefore within the Severn Estuary SAC, SPA or Ramsar site boundaries. It is likely that, in practice, development will not be permitted within a European site, for example as a result of other policies in the Plan; however, the Phase 3 Local Plan is not a full draft of the Plan, and in line with People Over Wind Judgement, mitigation cannot be taken into account at Screening stage. Impacts on Severn Estuary SAC, SPA and Ramsar site have therefore been screened in on a precautionary basis. Impacts on the Severn Estuary SAC could also indirectly affect the River Wye SAC and River Usk SAC as it provides functionally linked habitats for these sites (see 'functionally linked habitats', below).

There is the potential for likely significant effects at Severn Estuary SAC, SPA and Ramsar site as a result of physical damage or loss of habitat (onsite). The River Wye SAC and River Usk SAC could also be affected, indirectly, as a result of functional linkages.

Functionally Linked Habitats

Bats

5.6 Wye Valley Woodlands SAC and Wye Valley and Forest of Dean Bat Sites SAC was scoped out for loss of functionally linked habitats given their distance from the South Gloucestershire boundary (5.9 kilometres and 5.7 kilometres respectively) and the core sustenance zones for their qualifying species (2 kilometres and 3 kilometres; see Table 4.4): functionally linked habitats used by bats from these sites will not be present in the Plan area.

5.7 Bath and Bradford on Avon Bats SAC is within 3 kilometres of the South Gloucestershire boundary and therefore just within the area in which functionally linked habitat could occur (core sustenance zone of 3 kilometres).

5.8 The EPS provides for development that would be located beyond the Core Sustenance Zones for the greater horseshoe bat, Bechstein's bat and lesser horseshoe bat which are the qualifying species for the Bath and Bradford on Avon Bats SAC. However, the policies listed in paragraph 5.2 could in theory permit development outside of the locations identified in the spatial options; this impact has therefore been screened in as a precaution.

There is the potential for likely significant effects at Bath and Bradford on Avon Bats SAC due to physical damage or loss of functionally linked habitats used by bats from European sites.

Birds

5.9 Functionally linked habitats used by birds from the Severn Estuary SPA/Ramsar site (and potentially also Chew Valley Lake SPA, indirectly) may

occur within the Plan area; therefore there is the potential for physical damage or loss of habitat to affect these bird populations.

5.10 The EPS proposes development near to Pilning and Easter Compton, around 2 kilometres from the Severn Estuary SPA and Ramsar Site. If development occurs on habitats such as inland lakes, flood pasture/meadow, marsh, rivers and grassland used by birds from the SPA/Ramsar site, then there is the potential for significant effects.

There is the potential for likely significant effects at Severn Estuary SPA/Ramsar (and Chew Valley Lake SPA, indirectly) due to physical damage or loss of functionally linked habitats used by birds from these European sites.

Fish and Freshwater Invertebrates

5.11 Severn Estuary SAC and Ramsar site are within South Gloucestershire, and the River Wye SAC and the River Usk are hydrologically connected to the Severn Estuary. Watercourses such as the Pill and Pickedmoor Lane Rhine connect the Plan area to the estuary and may provide habitats that are functionally linked to the Severn Estuary SAC. These watercourses are unlikely to provide functionally linked habitats for the River Wye SAC and River Usk, although the Severn Estuary itself does. Therefore, indirect effects on functionally linked habitat for the Wye and Usk are referenced in relation to direct impacts on the Severn Estuary SAC.

5.12 Through the EPS, development is proposed on the outskirts of Pilning,Easter Compton and Thornbury. Pilning, Easter Compton and Thornbury are close to The Pill and Pickedmoor Lane Rhine. Development is also proposed at Olveston, through the EPS, which is hydrologically connected to the Severn Estuary. In addition, development could occur outside these areas, under the policies listed in paragraph 5.2.

There is the potential for likely significant effects at Severn Estuary SPA, SAC and Ramsar site due to physical damage or loss of functionally linked habitats used by fish and freshwater invertebrates from this European site.

Non-physical Disturbance (noise, vibration, visual disturbance and light)

5.13 Noise and vibration effects, e.g. during the construction of new housing or other development, are most likely to disturb bird species and are thus a key consideration with respect to European sites where birds are the qualifying features, although such effects may also impact upon some mammals and fish species.

5.14 Artificial lighting at night (e.g. from street lamps, flood lighting and security lights) is most likely to affect bat populations and some nocturnal bird species, and therefore have an adverse effect on the integrity of European sites where bats or nocturnal birds are a qualifying feature. Some bird species which are not strictly nocturnal, such as the curlew can also be adversely affected by artificial lighting.

5.15 Visual disturbance will only affect species that respond to visual cues such as fish, birds, reptiles and mammals that depend on sight. However, Natural England has confirmed (see Appendix D) that visual disturbance in relation to birds is unlikely to occur beyond 200m.

5.16 It has been assumed (on a precautionary basis and based on our experience of previous HRAs and consultation with Natural England) that the effects of noise, vibration, visual disturbance and light pollution are capable of causing an adverse effect if development takes place within 500m of a European site (or functionally linked habitats) with qualifying features sensitive to these disturbances.

5.17 Severn Estuary SAC, SPA and Ramsar site are the only European sites within South Gloucestershire or within 500m of the Plan area (although the Severn Estuary is also functionally linked to the River Wye SAC and River Usk SAC). A review of the EPS determined that none of the potential development locations are within 500m of the Severn Estuary SAC, SPA and Ramsar Site. However, as stated above, the policies listed in paragraph 5.2 could in theory result in development outside of the development locations identified to date. This impact has therefore been screened in as a precaution.

There is the potential for likely significant effects at Severn Estuary SAC, SPA and Ramsar site as a result of non-physical disturbance (onsite). The River Wye SAC and River Usk SAC could also be affected, indirectly, as a result of functional linkages.

Functionally Linked Habitats

Bats

5.18 Bath and Bradford on Avon Bats SAC is located approximately 3 kilometres from South Gloucestershire. Bath and Bradford on Avon Bats SAC is designated for the greater horseshoe bat, Bechstein's bat and the lesser horseshoe bat. The greater horseshoe bat and Bechstein's bat have a core sustenance zone of 3 kilometres and therefore there is potential for functionally linked habitats for these bat species to be present within South Gloucestershire. The EPS does not propose development within 3 kilometres of Bath and Bradford on Avon Bats SAC. However, a number of the policies (paragraph 5.2) within the Phase 3 Local Plan could in theory result in development outside these locations. This impact is therefore screened in as a precaution.

There is the potential for likely significant effects at Bath and Bradford on Avon Bats SAC due non-physical disturbance of functionally linked habitats used by bats from these European sites.

Birds

5.19 Functionally linked habitats used by birds from the Severn Estuary SPA and Ramsar site (and also Chew Valley Lake SPA) may occur within the Plan area, although the locations of these habitats are not currently known. In theory, therefore, any of the Plan's policies resulting in development (paragraph 5.2) and the EPS could therefore result in non-physical disturbance of habitats used by these bird populations.

5.20 This impact has therefore been screened in on a precautionary basis.

There is the potential for likely significant effects at Severn Estuary SPA/Ramsar (and Chew Valley Lake SPA, indirectly) due to non-physical disturbance of functionally linked habitats used by birds from these European sites.

Fish and Freshwater Invertebrates

5.21 Development may occur within 500m of watercourses linked to the Severn Estuary SAC, however it is unlikely that non-physical disturbance would be of a scale to disturb fish or freshwater invertebrates in non-designated watercourses to the extent that the conservation objectives of the SAC cannot be met.

There are no likely significant effects associated with non-physical disturbance of functionally linked habitats used by fish or freshwater invertebrates. This impact has been screened out.

5.22 All other European sites are located over 500m from that Plan area at the closest point; do not have functionally linked habitats within 500m of South Gloucestershire; and/or, do not support species likely to be significantly affected as a result of noise, vibration and light pollution.

Bird Strike

5.23 Wind turbines, which would be permitted by two of the policies in the Phase 2 Local Plan, have the potential to impact upon birds from the Severn Estuary SPA/Ramsar site (and potentially the Chew Valley Lake SPA if linked). This impact therefore requires further assessment.

There is the potential for likely significant effects at Severn Estuary SPA/Ramsar and Chew Valley Lake SPA as a result of bird strike.

Non-toxic Contamination

5.24 Non-toxic contamination can include the creation of dust which can smother habitats preventing natural processes, and may also lead to effects associated with increased sediment and dust which can potentially affect the turbidity of aquatic habitats, and can also contribute to nutrient enrichment which can lead to changes in the rate of vegetative succession and habitat composition.

5.25 The effects of non-toxic contamination are most likely to be significant if development takes place within 500m of a European site with qualifying features sensitive to these disturbances, such as riparian and wetland habitats, or sites designated for habitats and plant species. This is the distance that, in our experience, provides a robust assessment of effects in plan-level HRA and meets with the agreement of Natural England.

5.26 Non-toxic contamination could arise as a result of the Local Plan policy Minerals, which plans for increased extraction at three existing quarries in Tytherington, Wickwar and Chipping Sodbury. These are all more than 5 kilometres from the Severn Estuary and are unlikely to result in significant dust/non-toxic contamination at the European site.

There are no likely significant effects associated with non-toxic contamination at European sites. This impact has therefore been screened out.

Functionally Linked Habitats

5.27 Non-toxic contamination such as air pollution (see below) has the potential to affect functionally linked habitats, although it is not considered likely that there would be significant effects on an European sites due to air pollution at a functionally linked habitat.

5.28 Non-toxic contamination at a functionally linked habitat would need to be large in scale to prevent a European site's conservation objectives from being met.

There are no likely significant effects associated with non-toxic contamination of functionally linked habitats used by species from European sites. This impact has therefore been screened out.

Air Pollution

5.29 Air pollution is most likely to affect European sites where plant, soil and water habitats are the qualifying features, but some qualifying animal species may also be affected, either directly or indirectly, by deterioration in habitat as a result of air pollution. Deposition of pollutants to the ground and vegetation can alter the characteristics of the soil, affecting pH and nitrogen levels, which can then affect plant health, productivity and species composition.

5.30 In terms of vehicle traffic, nitrogen oxides (NOx, i.e. NO and NO2) are considered to be the key pollutants. Deposition of nitrogen compounds may lead to both soil and freshwater acidification, and NOx can cause eutrophication of soils and water.

5.31 Based on the Highways Agency Design Manual for Road and Bridges (DMRB) **[See reference** 35**]** LA105 Air Quality (which was produced to provide advice regarding the design, assessment and operation of trunk roads including motorways), it is assumed that air pollution from roads is unlikely to be significant beyond 200m from the road itself. Where increases in traffic volumes are forecast, this 200m buffer needs to be applied to the relevant roads in order to make a judgement about the likely geographical extent of air pollution impacts.

5.32 The DMRB Guidance for the assessment of local air quality in relation to highways developments provides criteria that should be applied at the screening stage of an assessment of a plan or project, to ascertain whether there are likely to be significant impacts associated with routes or corridors.

Based on the DMRB guidance, affected roads which should be assessed are those where:

- Daily traffic flows will change by 1,000 AADT (Annual Average Daily Traffic) or more; or
- Heavy duty vehicle (HDV) flows will change by 200 AADT or more; or
- Daily average speed will change by 10 kilometres per hour or more; or
- Peak hour speed will change by 20 kilometres per hour or more; or
- Road alignment will change by 5 metres or more.

5.33 Where significant increases in traffic are possible on roads within 200m of European sites, traffic forecast data may be needed to determine if increases in vehicle traffic are likely to be significant. In line with the Wealden judgment **[See reference** 36**]**, the traffic growth considered by the HRA should be based on the effects of development provided for by the Local Plan in combination with other drivers of growth such as development proposed in neighbouring authorities and demographic change.

5.34 It has been assumed that only those roads forming part of the primary road network (motorways and 'A' roads) are likely to experience any significant increases in vehicle traffic as a result of development (i.e. greater than 1,000 AADT). As such, where a site is within 200m of only minor roads, no significant effect from traffic-related air pollution is considered to be the likely outcome.

5.35 The key commuting corridors for new housing and employment development within South Gloucestershire will likely include the M4, M48, M5, M32, M49, A46, A4174, A4175, A4017, A432, A403 and A420. The European sites within 15 kilometres of South Gloucestershire that are also within 200m of a strategic road are:

- Severn Estuary SAC, SPA and Ramsar site (M4, M48, M49, A403);
- Bath and Bradford on Avon Bats SAC (A4);
- River Wye SAC (A466);

- Avon Gorge Woodlands SAC (A369, A4);
- Wye Valley Woodlands SAC (A466);
- Rodborough Common SAC (A46); and
- River Usk SAC (M4, A449, A40, A479).

5.36 All of the development proposed in the Phase 3 Local Plan could increase traffic on the roads within 200m of the European sites, either alone or in combination with other plans. Therefore, further assessment (based initially on traffic data) is required to understand the potential for likely significant effects.

5.37 All other European sites are situated over 200m from key strategic roads and are therefore scoped out.

There is the potential for likely significant effects at Severn Estuary SAC, SPA and Ramsar site, Bath and Bradford on Avon Bats SAC, River Wye SAC, Avon Gorge Woodlands SAC, Rodborough Common SAC, or River Usk SAC due air pollution.

Functionally Linked Habitats

5.38 Air pollution also has the potential to affect functionally linked habitats, although it is not considered likely that there would be significant effects on any European sites due to air pollution at a functionally linked habitat.

5.39 Air pollution at a functionally linked habitat would need to be large in scale to prevent a European site's conservation objectives from being met.

There are no likely significant effects predicted as a result of air pollution at functionally linked habitats used by species from European sites.

Recreation

5.40 Recreational activities and human presence can result in significant effects on European sites as a result of erosion and trampling, associated impacts such as fire and vandalism or disturbance to sensitive features, such as birds through both terrestrial and water-based forms of recreation (visual disturbance is assessed in 'non-physical disturbance', above).

5.41 The Local Plan will result in housing growth and associated population increase within South Gloucestershire. The EPS proposes the delivery of 7,580 new homes. In addition, policies relating to Sites for Gypsies and Travellers and Sites for Travelling Showpeople could result in new residential development, adding to population growth in South Gloucestershire.

5.42 European sites with qualifying bird species are likely to be particularly susceptible to recreational disturbances, for example from walking, dog walking, angling, illegal use of off-road vehicles and motorbikes, wildfowling, and water sports. An increase in recreational pressure from development therefore has the potential to disturb bird populations of SPA and Ramsar sites as a result of both terrestrial and water-based recreation.

5.43 In addition, recreation can physically damage habitat as a result of trampling and also through erosion associated with boat wash and terrestrial activities such as use of vehicles.

5.44 Each European site can be thought of as having a 'Zone of Influence' (ZOI) within which increases in population would be expected to result in likely significant effects. ZOIs are usually established following targeted visitor surveys and the findings are therefore typically specific to each European site (and often to specific areas within a European site). The findings are likely to be influenced by a number of complex and interacting factors and therefore it is not always appropriate to apply a generic or non-specific ZOI to a European Site. This is particularly the case in relation to coastal European sites, which have the potential to draw large number of visitors from areas much further afield.

5.45 In contrast to coastal European sites, the ZOI for non-coastal European sites are typically less variable, with visitors travelling from areas more local to the site. Although these sites are unique in their own right, they do not have the same draw as coastal sites and with recreational activities more easily managed and directed to alternative greenspace in the area. Using a precautionary approach and based on the findings of the Thames Basin Heath Delivery Framework, a ZOI of 7 kilometres was applied to all non-coastal European sites where alternative ZOI were not known. Given the sensitivities of the Thames Basin Heath SPA to recreational pressure, it was deemed appropriate to use the same ZOI in this assessment. The report produced by LUC 'Further Work on Recreation Pressures on European Sites in the West of England **[See reference** 37**]** (2019) considers the 7 kilometres ZOI with regards to recreational impacts on European sites appropriate.

5.46 In relation to the Severn Estuary SPA, SAC and Ramsar site, there are a number of published and unpublished reports in relation to recreational pressure. These include the Severn Estuary (Stroud District) Visitor Survey Report **[See reference** 38**]**.

5.47 The ZOI will be based on the 'Further Work on Recreational Pressures on European Sites in the West of England' report as it is the latest evidence on visitor numbers. The Severn Estuary (Stroud District) Visitor Survey Report was published in 2022 with a ZOI of 10.4 kilometres.

5.48 Existing visitor survey work available for some European sites is summarised in Table 5.1 below.

Table 5.1: Zone of Influence (ZOI) derived from existing visitor survey work

European Site	ZOI
Severn Estuary SAC, SPA and Ramsar site	10.4 kilometres **[See reference** 39**]**

European Site	ZOI
Bath and Bradford on Avon Bats SAC	n/a
River Wye SAC	7 kilometres (assumed as detailed in paragraph 5.48)
Avon Gorge Woodlands SAC	7 kilometres (assumed as detailed in paragraph 5.48)
Wye Valley and Forest of Dean Bat Sites SAC	7 kilometres
Wye Valley Woodlands SAC	7 kilometres (assumed as detailed in paragraph 5.48) **[See reference** 40**]**
Rodborough Common SAC	3.8 kilometres **[See reference** 41**]**
River Usk SAC	7 kilometres (assumed as detailed in paragraph 5.48)
Chew Valley Lake SPA	7 kilometres (assumed as detailed in paragraph 5.48)

5.49 Bath and Bradford upon Avon Bats SAC has very limited public access as much of it is in locked caves. Recreational disturbance does occur but relates to one-off events such as vandalism and bonfires at the mine entrances. However, the site is well managed to reduce disturbance from recreational pressure. Bath and Bradford upon Avon SAC has therefore been scoped out.

5.50 Wye Valley Woodlands SAC lies 5.9 kilometres from South Gloucestershire. Wye Valley and Forest of Dean Bat Sites SAC lies 5.7 kilometres from South Gloucestershire. The Greater and Lesser horseshoe bats are particularly vulnerable to disturbance during breeding and hibernation. However, Greater and Lesser horseshoe bats breed and hibernate in underground sites with very limited public access. Wye Valley Woodlands SAC has additional qualifying features that are susceptible to disturbance as a result of recreational pressure. However, a review of the EPS found no proposed development locations within 7 kilometres of Wye Valley Woodlands SAC and therefore the site has been scoped out of further assessment.

5.51 The Zoi for Avon Gorge Woodlands SAC is 7 kilometres, which extends into the southern part of South Gloucestershire. No residential development is proposed within the ZOI of this site, which has therefore been scoped out of further assessment.

5.52 Recreational pressure at Chew Valley Lake SPA is complex. Recreational activities on the lake include sailing and angling. The sailing is via membership at the Chew Valley Lake Sailing Club, and angling is managed by Bristol Water Fisheries. As such, growth in the population across South Gloucestershire will not necessarily correlate to an increase in sailing activity or fishing. Issues do remain with regards to trespass and disturbance from dog walkers in sensitive area. However, Chew Valley SPA is located 11.3 kilometres from South Gloucestershire and has therefore been scoped out.

5.53 The River Wye SAC has a ZOI that extends into South Gloucestershire. River Wye SAC has qualifying features that are susceptible to disturbance as a result of recreational pressure. However, a review of the EPS determined that no proposed development locations fall within the ZOI for River Wye SAC and therefore the site has been scoped out.

5.54 The Severn Estuary is popular with a wide range of recreational activities, including walking and water sports. The EPS involves development locations that would fall within the ZOI for the Severn Estuary SAC, SPA and Ramsar Site. Public access and recreational activities have been identified as a threat to the qualifying features of Severn Estuary SAC, SPA and Ramsar site and these sites have therefore been scoped in.

5.55 Other European sites that do not have a recreational ZOI that extends into South Gloucestershire and can therefore be screened out of further assessment are:

- River Usk SAC; and
- Rodborough Common SAC.

There is the potential for likely significant effects at Severn Estuary SAC, SPA and Ramsar Site and River Wye SAC due to recreation pressure.

Functionally Linked Habitats

5.56 Recreation pressure also has the potential to affect functionally linked habitats, although it is not considered likely that there would be significant effects on any European sites due to recreation pressure at a functionally linked habitat.

5.57 Similarly to air pollution, recreation pressure at a functionally linked habitat would need to be large in scale to prevent a European site's conservation objectives from being met.

There are no likely significant effects predicted as a result of recreation pressure at functionally linked habitats used by species from European sites.

Water Quantity and Quality

5.58 The following sites have qualifying features that have potential to be sensitive to changes in water quantity or quality and are hydrologically connected to the Plan area:

- Severn Estuary SAC and SPA/Ramsar site (and functionally linked habitats);
- River Wye SAC (linked to the Severn but upstream);
- Wye Valley Woodlands SAC (via the River Wye and therefore upstream of the Severn);

- River Usk SAC (linked to the Severn but upstream); and
- Chew Valley Lake SPA (supplies water to South Gloucestershire).

5.59 Avon Gorge Woodlands SAC, Bath and Bradford on Avon Bats SAC and Wye Valley and Forest of Dean Bat Sites SAC were scoped out as their qualifying features are not considered sensitive to changes in water quantity or quality.

5.60 Due to the lack of hydrological connectivity with South Gloucestershire, Rodborough Common SAC has also been scoped out of further assessment.

5.61 Changes in water quantity or quality can affect European sites via the following impact pathways, considered further in the sections below:

- Increased demand for water, reducing water quantity or flow in waterbodies;
- Increased need for water treatment, resulting in discharge of water into waterbodies and changes in water quality (e.g. nutrient load); and
- Pollution from direct run-off, e.g. during construction, reducing water quality.

Increased Demand for Water

5.62 Mains water is supplied to South Gloucestershire by Bristol Water. The Mendip Hill reservoirs, the River Severn and the Gloucester and Sharpness Canal provide the water supply for Bristol Water. The Mendip Hill reservoirs includes Chew Valley Lake SAC; therefore abstraction for water supply has the potential to this SAC. However, although the River Severn and Gloucester and Sharpness Canal flow into the Severn Estuary (SAC, SPA and Ramsar site), abstraction from these is unlikely to significantly affect water levels in the tidal estuary (or the River Usk SAC and River Wye SAC upstream of the estuary).

5.63 The Site Improvement Plan for Chew Valley Lake SAC states that changes in water levels at the site can significantly impact upon the suitability of the site for northern shoveler which is a qualifying feature for the SAC.

5.64 Bristol Water's latest Water Resources Management Plan (WRMP) covers the period up to 2045 and was published in 2019 **[See reference** 42**]**. The WRMP says that any changes in demand for water can be addressed in the short to medium term by reducing leaks. In October 2022, a Draft Water Resources Management Plan 2024 **[See reference** 43**]** was published, which anticipates that there will be more than enough water supply between 2025 and 2080, although it is not currently known what quantum of development was assumed from South Gloucestershire.

5.65 All of the Phase 3 Local Plan policies that will result in residential or employment development could increase demand for water in South Gloucestershire, and therefore potentially impact upon water levels at Chew Valley Lake SAC.

There is the potential for likely significant effects at Chew Valley Lake SPA due to increased demand for water.

Increased Need for Water Treatment

5.66 The discharge of wastewater can affect habitats by altering water quality, for example through nutrient enrichment. Nutrient pollution can cause eutrophication, leading to algal blooms which disrupt normal ecosystem function and cause major changes in the aquatic community, for example by reducing levels of oxygen within the water.

5.67 Wastewater from South Gloucestershire is treated at wastewater treatment works along the Severn Estuary (SAC, SPA and Ramsar site) at Aust and

Redwick, and on watercourses that flow into the Severn Estuary, for example at Tockington and Alveston.

5.68 Wessex Water deals with drainage and wastewater with South Gloucestershire. There is currently a Drainage and Wastewater Management Plan **[See reference** 44] (DWMP) in place to ensure that the sewage system is effective and maintained. Over the next 25 years work will be undertaken to ensure that the public sewage system (including storm overflow) meets demand. The DWMP indicates that the majority of South Gloucestershire falls within areas where there is sufficient infrastructure to deal with issues in the sewage system. In some parts of South Gloucestershire near Bristol, further infrastructure is required to provide the capacity required for anticipated growth in the region.

There is the potential for likely significant effects at Severn Estuary SAC, SPA and Ramsar site due to the increased need for water treatment.

Direct Pollution

5.69 Direct pollution may occur if development is very close to a European site (in this case the Severn Estuary SAC, SPA or Ramsar site) or watercourses connected to it.

5.70 The EPS does not propose development in close proximity to the Severn Estuary or upstream of the Severn Estuary. However, the policies listed in paragraph 5.2 could in theory permit development outside these locations. Therefore, as a precautionary measure, the Severn Estuary SAC, SPA and Ramsar site have been screened in.

There is the potential for likely significant effects at Severn Estuary SAC, SPA and Ramsar site due to direct pollution.

Functionally Linked Habitats

5.71 Impacts from changes to water quality or quantity are most likely to affect functionally linked wetland habitats or watercourses, for example:

- The rhines and small watercourses that flow into the Severn Estuary SAC, SPA and Ramsar, which could be affected by direct pollution if development occurs near them, or by increased wastewater treatment that discharges into them; and
- The River Severn and Gloucester and Sharpness Canal, which may be functionally linked to the SAC, SPA or Ramsar (fish or birds) and be affected by increased water abstraction.

5.72 The Phase 3 Local Plan will increase demand for water supply (which may increase abstraction) and treatment and could result in development close to watercourses flowing in the Severn Estuary.

There is the potential for likely significant effects at habitats used by birds, fish or freshwater invertebrates from the Severn Estuary SAC, SPA and Ramsar site, due to the increased need for water treatment or abstraction, or direct pollution.

Summary of HRA Screening

5.73 Table 5.2 summarises the Screening conclusions regarding whether there is a potential impact pathway in relation to each broad impact type to occur for each European site as a result of the Phase 3 Local Plan. The table indicates whether there are:

- Likely significant effects;
- No impact pathway (no effects); or

- No significant effects (impact pathways, but effects will be small in scale).

5.74 Where there is no impact pathway (no effect), the cells are shaded in grey colour.

5.75 Policies and development locations section below then summarises the policies and development locations that could contribute to likely significant effects, and which will therefore require Appropriate Assessment.

Table 5.2: Summary of HRA Screening conclusions by impact type

European Site	Physical Damage/ Loss of Habitat	Non-physical Disturbance	Bird Strike	Non-toxic Contamination	Air Pollution	Recreation	Water Quantity/ Quality
Severn Estuary SAC	Likely significant effects (incl. functionally linked habitats)	Likely significant effects (on-site only)	No impact pathway (no effect)	No impact pathway (no effect)	Likely significant effects (on-site only)	Likely significant effects (on-site only)	Likely significant effects (incl. functionally linked habitats; water treatment/direct pollution)
Severn Estuary SPA/ Ramsar site	Likely significant effects (incl. functionally linked habitats)	Likely significant effects (on-site only)	Likely significant effects (incl. functionally linked habitats)	No impact pathway (no effect)	Likely significant effects (on-site only)	Likely significant effects (on-site only)	Likely significant effects (incl. functionally linked habitats; water treatment/direct pollution)

European Site	Physical Damage/ Loss of Habitat	Non-physical Disturbance	Bird Strike	Non-toxic Contamination	Air Pollution	Recreation	Water Quantity/ Quality
Chew Valley Lake SPA	Likely significant effects (incl. functionally linked habitats)	Likely significant effects (incl. functionally linked habitats)	Likely significant effects (incl. functionally linked habitats)	No impact pathway (no effect)	No impact pathway (no effect)	No impact pathway (no effect)	Likely significant effects (on-site only; water demand)
Bath and Bradford on Avon Bats SAC	Likely significant effects (functionally linked habitats only)	Likely significant effects (functionally linked habitats only)	No impact pathway (no effect)	No impact pathway (no effect)	Likely significant effects (on-site only)	No impact pathway (no effect)	No impact pathway (no effect)
River Wye SAC	Likely significant effects (functionally linked habitats only)	Likely significant effects (functionally linked habitats only)	No impact pathway (no effect)	No impact pathway (no effect)	Likely significant effects (on-site only)	Likely significant effects (on-site only)	No impact pathway (no effect)
Avon Gorge Woodlands SAC	No impact pathway (no effect)	No impact pathway (no effect)	No impact pathway (no effect)	No impact pathway (no effect)	Likely significant effects	No impact pathway (no effect)	No impact pathway (no effect)
Wye Valley and Forest of Dean Bat Sites SAC	No impact pathway (no effect)	No impact pathway (no effect)	No impact pathway (no effect)	No impact pathway (no effect)	No impact pathway (no effect)	No impact pathway (no effect)	No impact pathway (no effect)

European Site	Physical Damage/ Loss of Habitat	Non-physical Disturbance	Bird Strike	Non-toxic Contamination	Air Pollution	Recreation	Water Quantity/ Quality
Wye Valley Woodlands SAC	No impact pathway (no effect)	No impact pathway (no effect)	No impact pathway (no effect)	No impact pathway (no effect)	No impact pathway (no effect)	No impact pathway (no effect)	No impact pathway (no effect)
Rodborough Common SAC	No impact pathway (no effect)	No impact pathway (no effect)	No impact pathway (no effect)	No impact pathway (no effect)	Likely significant effects	No impact pathway (no effect)	No impact pathway (no effect)
River Usk SAC	Likely significant effects (functionally linked habitats only)	Likely significant effects (functionally linked habitats only)	No impact pathway (no effect)	No impact pathway (no effect)	Likely significant effects (on-site only)	No impact pathway (no effect)	No impact pathway (no effect)

Policies and Development Locations Contributing to Likely Significant Effects

Physical Damage/Loss of Habitat (at European sites and functionally linked habitats)

Relevant Policies

- Renewable and Low Carbon Energy Systems
- Community Energy
- Sites for Gypsies and Travellers
- Sites for Traveling Showpeople
- Economy and Jobs
- Town Centres

Relevant Development Locations within the Spatial Options

- Development on Severn Estuary SAC, SPA and Ramsar site or at habitats (of unknown location) used by birds/fish from the European sites.
- Development proposed through the EPS near to Pilning and Easter Compton and Thornbury. Development proposed near to Pilning and Easter Compton is located approximately 2 kilometres and Thornbury 4.3 kilometres form the Severn Estuary SAC, SPA and Ramsar site.

Non-physical Disturbance (at European sites and functionally linked habitats)

Relevant Policies

- Renewable and Low Carbon Energy Systems
- Community Energy
- Sites for Gypsies and Travellers
- Sites for Traveling Showpeople
- Economy and Jobs
- Town Centres

Relevant Development Locations within the Spatial Options

- Development within 500m of the Severn Estuary SAC, SPA and Ramsar site or habitats (of unknown location) used by birds/fish from the European sites.
- Development proposed through the EPS near to Pilning, Easter Compton and Thornbury. Development proposed near to Pilning and Easter Compton is located approximately 2 kilometres and Thornbury 4.3 kilometres form the Severn Estuary SAC, SPA and Ramsar site.

Bird Strike

Relevant Policies

- Renewable and Low Carbon Energy Systems
- Community Energy

Relevant Development Locations within the Spatial Options

- Wind turbines: None (in the spatial options).

Non-toxic Contamination (at European sites and functionally linked habitats)

Relevant Policies

- Minerals

Relevant Development Locations within the Spatial Options

- Minerals development close to the Severn Estuary SAC, SPA and Ramsar: None (in the spatial options).

Air Pollution (at European sites and functionally linked habitats)

Relevant Policies

- Minerals
- Sites for Gypsies and Travellers
- Sites for Traveling Showpeople
- Economy and jobs
- Town centres

Relevant Development Locations within the Spatial Options

- All locations proposed through the EPS (alone and in-combination).

Recreational Pressure (at European sites and functionally linked habitats)

Relevant Policies

- Sites for Gypsies and Travellers
- Sites for Traveling Showpeople

Relevant Development Locations within the Spatial Options

- The EPS proposes residential development within the west of South Gloucestershire. This area falls under the ZOI for Severn Estuary.

Water Quantity/Quality (at European sites and functionally linked habitats)

Relevant Policies

- Sites for Gypsies and Travellers
- Sites for Traveling Showpeople
- Economy and Jobs
- Town Centres

Relevant Development Locations within the Spatial Options

- Water abstraction/treatment: All locations proposed through the EPS (alone and in-combination).
- Direct pollution: Development close to the Severn Estuary or watercourses upstream, e.g. development proposed through the EPS near to Pilning, Easter Compton and Thornbury. Development proposed near Pilning and Easter Compton is located approximately 2 kilometres and Thornbury 4.3 kilometres form the Severn Estuary SAC, SPA and Ramsar site.

Chapter 6

Conclusion and Next Steps

6.1 The HRA Screening has found that there are likely significant effects on European sites associated with the Emerging Preferred Strategy and some of the draft policies set out in the Phase 3 Local Plan. Once the site allocations are confirmed at the next stage of Plan-making, further HRA Screening work will be undertaken to determine the potential for adverse impacts on European Sites as a result of development arising from any new/revised policies and confirmed site allocations. The assessment is necessarily precautionary at this stage as the Local Plan is incomplete, and because Screening cannot take mitigation into account.

6.2 The HRA Screening has identified potential likely significant effects in relation to the following impacts, as summarised in Table 5.2 in the previous chapter:

- Physical damage and loss of habitat;
- Non-physical disturbance (noise, vibration, visual disturbance and light pollution);
- Bird strike;
- Air pollution;
- Recreation; and
- Changes to water quantity or quality.

6.3 The following policies and the Emerging Preferred Strategy have been screened in and could result in likely significant effects on European sites:

- Renewable and Low Carbon Energy Systems
- Community Energy
- Sites for Gypsies and Travellers

- Sites for Travelling Showpeople
- Minerals
- Economy and Jobs
- Town Centres

6.4 Due to the high-level nature of the current Phase 3 Local Plan, Appropriate Assessment will be undertaken at the next stage of plan-making once the HRA Screening has been updated to reflect the Local Plan's full list of policies and site allocations. Appropriate Assessment will consider whether the above likely significant effects will, in light of mitigation and avoidance measures, result in adverse effects on integrity of the European sites.

Traffic Data and Air Quality Assessment

6.5 Road traffic modelling will be required to provide baseline, future 'do minimum' (a future baseline / reference case, i.e. with other background growth and committed developments) and 'with Local Plan development' traffic flows (AADT). This should be carried out in line with DMRB guidance LA105 Air Quality **[See reference** 45**]** to identify the 'affected road network', i.e. roads within 200m of a European site that will experience and increase in traffic flows above the screening threshold.

6.6 If AADT thresholds are exceeded for the Local Plan alone or in combination with other plans or projects, then air quality modelling will be required to understand the effects of increased traffic flows on air pollution, in line with IAQM guidance **[See reference** 46**]**. This will inform and understanding of whether the Plan will result in an adverse effect on integrity of the European sites, as well as avoidance and mitigation measures if required. Ecological input (for example to understand localised conditions within a European site) may also be required.

6.7 Traffic modelling should be undertaken once site allocations have been confirmed for the Local Plan.

Next Steps

6.8 HRA is an iterative process and as such is expected to be updated in light of newly available evidence and comments from key consultees. As part of consultation on the Phase 3 Local Plan this report will be subject to consultation with Natural England and Natural Resources Wales, as well as the Environment Agency, to confirm that the conclusions of the assessment are considered appropriate at this stage of plan-making.

LUC

December 2023

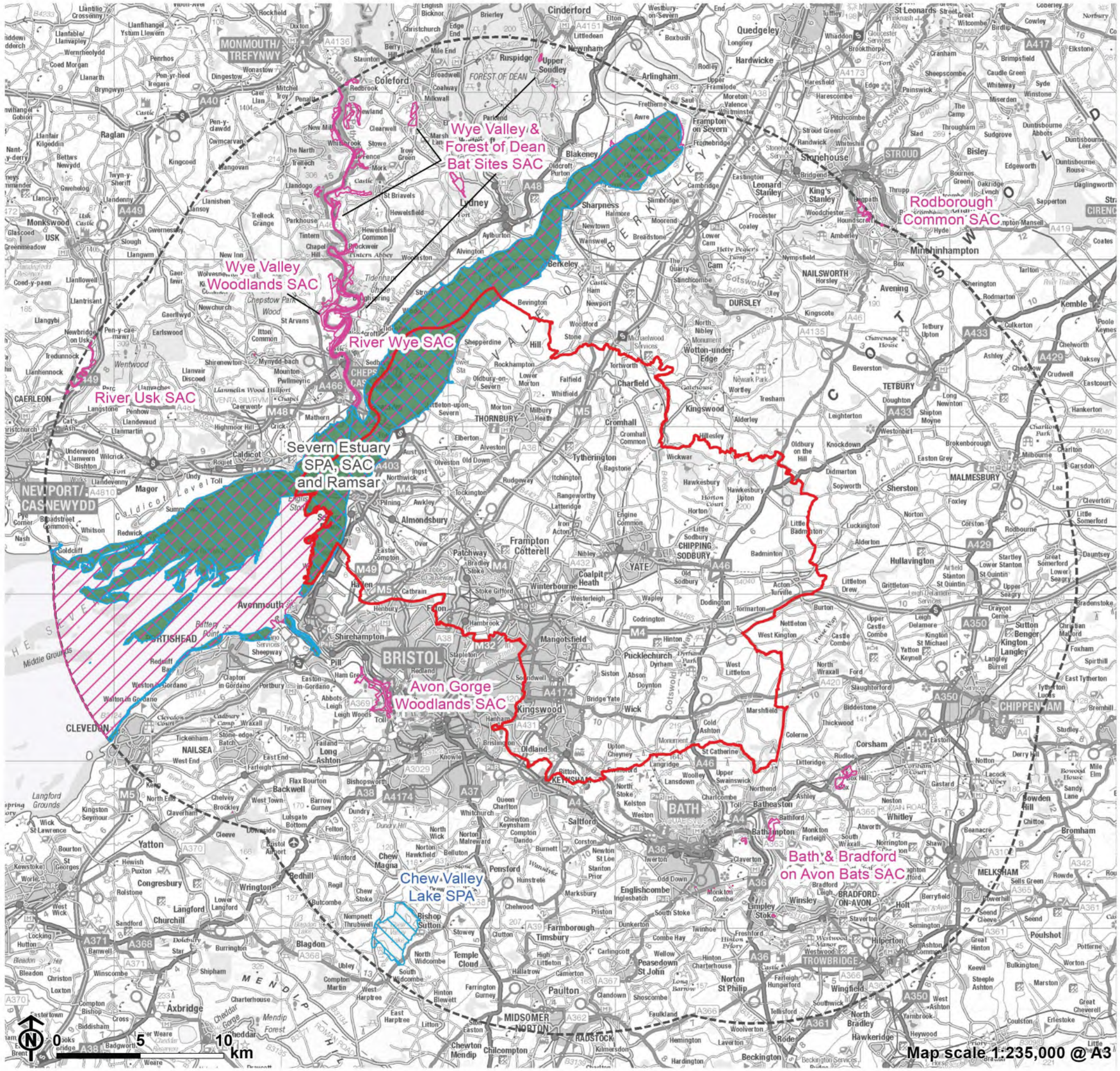
Appendix A

European Sites within 15 kilometres of South Gloucestershire

South Gloucestershire Council Local Plan
Habitat Regulations Assessment
South Gloucestershire Council

LUC

Figure A.1: European sites within 15km of South Gloucestershire



CB:HS. EB:shayler_h
LUC 10698_001_r0_EuropeanSites_A3L_Accessible
07/03/2023.
Source: NE, NRW

Appendix B

European Site Information

European Site Information

Severn Estuary SAC

- The Severn Estuary is located between Wales and England in south-west Britain. It is a large estuary with extensive intertidal mud-flats and sand-flats, rocky platforms and islands. Saltmarsh fringes the coast backed by grazing marsh with freshwater ditches and occasional brackish ditches. The subtidal seabed is rock and gravel with subtidal sandbanks. The site also supports reefs of the tube forming worm Sabellaria alveolata.
- The estuary's classic funnel shape, unique in the UK, is a factor causing the Severn to have one of the highest tidal ranges in the world. A consequence of the large tidal range is an extensive intertidal zone, one of the largest in the UK. The tidal regime results in plant and animal communities typical of the extreme physical conditions of liquid mud and tide-swept sand and rock. The species-poor intertidal invertebrate community includes high densities of ragworms, lugworms and other invertebrates forming an important food source for passage and wintering waders and fish.
- The site is of importance during the spring and autumn migration periods for waders, as well as in winter for large numbers of waterbirds, especially swans, ducks and waders. The fish fauna is very diverse with more than 110 species identified. The site is of particular importance for migratory fish.

Qualifying Features

- Annex I habitats that are a primary reason for selection of this site:
  - Estuaries
  - Mudflats and sandflats not covered by seawater at low tide
  - Atlantic salt meadows (Glauco-Puccinellietalia maritimae)

- Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:
  - Sandbanks which are slightly covered by sea water all the time
  - Reefs
- Annex II species that are a primary reason for selection of this site:
  - Sea lamprey Petromyzon marinus
  - River lamprey Lampetra fluviatilis
  - Twaite shad Alosa fallax

Area

- 73,714.11 hectares

Key Vulnerabilities

- The Site Improvement Plan **[See reference** 47**]** identifies the following pressures and threats to the SAC:
  - Public Access/Disturbance – Public access and recreation (including third party activities) may have an impact on bird species sensitive to disturbance, causing displacement from feeding, roosting and moulting areas, and if severe could affect long term survival and population numbers and distributions within the Estuary.
  - Physical Modification – Modification to water courses and barriers to Annex II migratory fish (and those included in the fish assemblage) in the tributary rivers are preventing completion of the life cycle and potentially altering the hydrodynamics of the site.
  - Impacts of Development – Strategic planning issue. More rigorous assessment of cumulative, in-combination and offsite impacts (drainage, disturbance, runoff, impacts on managed realignment etc) on sensitive bird species and other habitats and species may be

required, given the range of planned development within and adjacent to the Estuary (including residential, transport, energy and other industrial developments).

- Coastal Squeeze – As sea levels rise, man-made defences are constraining the natural roll back of estuarine habitats, causing squeeze and loss of habitat and having impacts on species dependent upon those habitats (birds: feeding/ roosting, and fish: feeding/ nursery and shelter areas).Change in land management.
- Change in Land Management – Changes in management and use of grassland and saltmarsh habitat within and bordering the estuary. Changes in ownership and other land practices can result in changes in management and use of land (e.g. changes in grazing practice) which affects species composition, habitat availability, and quality of saltmarsh habitats and use of land for other activities that may cause damage or disturbance.
- Changes in Species Distributions – There is a risk of significant changes in estuarine populations (including declines in some SPA bird populations) in parts of the Estuary resulting from climate change and other man-made and natural modifications to on and offsite environments. In many cases the causes of the changes to species distribution are unknown.
- Water Pollution – There is uncertainty over water quality in the Estuary due to diffuse (including agricultural) or direct pollution (e.g. industrial, sewage treatment works, thermal, radioactive).
- Air Pollution: Impact of Atmospheric Nitrogen Deposition – Activities around the Estuary include fertiliser application, potentially dairy and poultry production, road traffic, industry (including power stations), and shipping which are all sources of nitrogen pollution. Nitrogen deposition exceeds site relevant critical loads, with potential impacts on vegetation structure and diversity.
- Marine Consents and Permits: Minerals and Waste – The cumulative impacts of aggregate extraction, maintenance dredging and disposal can have adverse impacts on features. While most activity is regulated

under marine licences, cumulative effects are not always fully considered.

- Fisheries: Recreational Marine and Estuarine – Further information is required on the levels and location of activity and potential impact of recreational bait digging and recreational fishing/angling. There are unknown impacts in the vicinity of potentially sensitive roosting and feeding areas, and on intertidal reef habitats.
- Fisheries: Commercial Marine and Estuarine – Dredges (inc. hydraulic), benthic trawls and seines are categorised as 'red' for the reef features (specifically the sub-feature Sabellaria spp. reef) as part of Defra's revised approach to commercial fisheries management in European Marine Sites (EMS).
- Invasive Species – There are recent reports of marine invasive non-native species (the Australian barnacle Austrominius modestus, mitten crab Eriocheir sinensis, and the Pacific oyster Crassostrea gigas) in the Estuary (or the Bristol Channel). These could have an impact on native species and habitats but the abundance and impact in the Severn Estuary of these species is unclear.
- Marine Litter – The marine environment is a sink for man-made litter which often originates from rivers. Impacts are not fully understood.
- Marine Pollution Incidents – Marine pollution incidents and responses to such incidents have the potential for significant negative impacts on the site and its features.

Conservation Objectives

- Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:
  - The extent and distribution of qualifying natural habitats and habitats of qualifying species;

- The structure and function (including typical species) of qualifying natural habitats;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
- The populations of qualifying species; and,
- The distribution of qualifying species within the site.

Non-qualifying Habitats and Species upon which the Qualifying Habitats and/or Species Depend

The qualifying habitats rely upon water quality/quantity.

- River lamprey
  - Habitat preferences - Freshwater and wetlands.
  - Diet - Aquatic fauna.
- Sea lamprey
  - Habitat preferences - Marine, although spawns in freshwater rivers, requiring clean gravel or silt/sand for borrowing juveniles.
  - Diet - Aquatic fauna.
- Twaite shad
  - Habitat preferences - Marine, although spawns in freshwater rivers, requiring deep pools.
  - Diet - Aquatic fauna.

Bath and Bradford on Avon Bats SAC

- The SAC as a whole supports 15% of the UK population of Greater Horseshoe bats Rhinolophus ferrumequinum, internationally-significant populations of Lesser Horseshoe Rhinolophus hipposideros and Bechstein's bats Myotis bechsteinii.
- The SAC comprises four component sites: Brown's Folly, Box Mine, Winsley Mines, and Combe Down and Bathampton Down Mines. These are distributed over a wide geographical area to the south and east of Bath and have different known bat usages, which over the whole of the SAC include breeding, hibernation, swarming and dispersal. The sites are all abandoned limestone mines and some include areas of supporting habitat: broadleaved woodland and species rich calcareous grassland. The surrounding landscape provides feeding and commuting opportunities between the component SSSIs, other SAC sites and other undesignated roosts which is vital in supporting the bats throughout their life cycle. Features of significance within the wider landscape are watercourses, woodland, grazed pasture, hay meadows, hedgerows, linear trees and scrub.

Qualifying Features

- Annex II species that are a primary reason for selection of this site:
  - Greater horseshoe bat Rhinolophus ferrumequinum
  - Bechstein's bat Myotis bechsteinii
- Annex II species present as a qualifying feature, but not a primary reason for site selection:
  - Lesser horseshoe bat Rhinolophus hipposideros

Area

- 106.45 hectares

Key Vulnerabilities

- The Site improvement Plan **[See reference** 48**]** identifies the following pressures and threats to the SAC:
  - Planning Permission – There is currently no formal way of assessing the cumulative impacts of 'high disturbance' level surveys (e.g. mist netting, harp trapping, radiotracking) being carried out outside the SAC boundary which may have cumulative impacts on the features of the SAC. Similarly, there is no formal way of assessing cumulative impacts on the SAC from permissions granted by the different competent authorities.
  - Change in Land Management – Land ownership is fragmented and management has lapsed, particularly around the urban fringe of Bath.
  - Direct Impact from Third Parties – One-off acts of vandalism or impacts of recreational pursuits could have a devastating effect if done in close proximity to roosting bats.
  - Feature Location/Extent/Condition Unknown – There is a lack of knowledge about the population of Bechstein's bat within the SAC and lack of data for their relationship to roosts, foraging and commuting within the wider landscape. This is a risk because it is difficult to determine the impacts of plans and projects on Bechstein's bat.
  - Offsite Habitat Availability/Management – There is a lack of knowledge as to usage of the wider landscape by the SAC species. Lack of knowledge compromises the ability to respond appropriately to threats such as development pressure and opportunities such as the use of agri-environment schemes in locations that will most greatly benefit bats.
  - Public Access/Disturbance – There is continuous long-term disturbance by visitors, however the sites are managed in such a way that it does not present a significant pressure unless the volume and frequency of visitors were to increase. The threat to the sites come from one-off events such as: fire juggling near to the maternity colony;

use of aerosol spray paints underground; use of fuel of any type underground, and bonfires at the mine entrances.

- Change to Site Condition – Mine instability is particularly relevant at entrances where a collapse could make it unusable by bats. A collapse is likely to alter the entrance dimensions thereby affecting ventilation, temperature and humidity within the mines, and/or may cause bats to be killed or become entrapped. Due to mine instability it is also difficult to monitor bats effectively.
- Inappropriate Designation Boundary – Several undesignated sites support important populations of SAC bats. Some of these are under threat, and others are located in areas/landscapes where they could be offered greater protection and enhanced management of surrounding habitats if they were known to be special sites.

Conservation Objectives

- Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:
  - The extent and distribution of the habitats of qualifying species;
  - The structure and function of the habitats of qualifying species;
  - The supporting processes on which the habitats of qualifying species rely;
  - The populations of qualifying species; and,
  - The distribution of qualifying species within the site.

Non-qualifying Habitats and Species upon which the Qualifying Habitats and/or Species Depend

- Greater horseshoe bat

  - Habitat preferences - While in the past they would frequent caves to roost, they now normally choose the roofs of old buildings, such as barns and churches. After emerging at night, the bats tend to hunt along linear features such as woodland edges and hedgerows.
  - Diet - Moths, beetles, caddisflies, craneflies and gnats all make up the diet of the greater horseshoe bat.
- Bechstein's bat
  - Habitat preferences - They live in mature woodland and are often found close to water bodies.
  - Diet - It has a diet of invertebrates, but favours moths - many of which are also associated with woodland.
- Lesser horseshoe bat
  - Habitat preferences - These bats normally roost in old buildings, barns and churches and feed along woodland edges, hedgerows, wetlands and over pasture.
  - Diet - Moths, midges, flies and spiders.

River Wye SAC

- The River Wye SAC covers 250 kilometres of relatively natural and unmodified main river with a near-natural fluvio-geomorphological regime. The upland reaches, from the source in Powys, has a bryophyte dominated vegetation which progresses into extensive water crowfoot Ranunculus beds in the lowland reaches in England.
- The lower 23 kilometres is transitional habitat to the confluence with the Severn Estuary. The river supports a number of internationally important migratory fish, including Atlantic Salmon, Lamprey and Shad species. Otters are widespread.

Qualifying Features

- Annex I habitats:
  - Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation; Rivers with floating vegetation often dominated by water-crowfoot
  - Transition mires and quaking bogs; Very wet mires often identified by an unstable 'quaking' surface
- Annex II species:
  - White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes
  - Sea lamprey Petromyzon marinus
  - Brook lamprey Lampetra planeri
  - River lamprey Lampetra fluviatilis
  - Allis shad Alosa alosa
  - Twaite shad Alosa fallax
  - Atlantic salmon Salmo salar
  - Bullhead Cottus gobio
  - Otter Lutra lutra

Area

- 2,147.64 hectares

Key Vulnerabilities

- The Site Improvement Plan **[See reference** 49**]** identifies the following pressures and threats to the SAC:

- Water Pollution - Water quality is important for all SAC species and habitats, e.g. high water quality is vital to the breeding success of Salmon. Point sources of concern are relatively localised e.g. mining waste, raised metals concentrations and phosphates. Sedimentation and diffuse pollution are key issues in the catchment including upland acidification (affecting river pH values). Implementation of a Diffuse Water Pollution Plan and Nutrient Management Plan is necessary. Pesticides have been a concern historically e.g. pyrethroids, cypermethrin and metaldahydes. Current and future changes in cropping patterns across the catchment could cumulatively impact on the water quality, predominantly through diffuse pollution e.g. planting maize to feed biodigesters, siting of potato fields, irrigation needs, levels of poultry manure. The promotion of sustainable farming practice throughout the catchment is required to help address this.
- Physical Modification – This is a relatively near natural river system and needs to be maintained as such. Small scale development has occurred throughout the river and is impacting on hydromorphology and character. Ongoing work to the riverbank eases public access but causes localised erosion issues. A series of weirs on the Lugg affect the natural hydromoprhology. River Restoration Plans have been prepared for the Wye and Lugg and these need to be implemented. Gravel input from the upper catchment is reduced due to the Elan Reservoirs, and low bankside tree cover may minimise the input of large woody debris necessary within a healthy river system.
- Invasive Species – Himalayan Balsam, Japanese Knotweed, Giant Hogweed and hybrids are present throughout the catchment and these require control. In addition a management strategy is required for Signal crayfish which are also present within the catchment and SAC. To prevent other invasive species, for example, killer/demon shrimps reaching the catchment, a biosecurity strategy is required.
- Hydrological Changes – Urban drainage and new development can affect the hydrology. Poor siting of infrastructure causes excessive (and silt laden) run-off. e.g. new windfarm or forestry track. Woody debris in the river system is of benefit to fish but is limited by lack of tree cover. Bankside grazing generally limits tree cover which, with

other factors such as climate change, could lead to an associated water temperature increase over time. Cattle and sheep have free access to the river, throughout the year, in many places so extensification of grazing stock would be beneficial. The planting of tree belts and strategic use of appropriate fencing on vulnerable land will help improve runoff.

- Forestry and Woodland Management – Gauging appropriate management levels is difficult but there is a need to balance management and risks with fisheries management, navigation and flood risk management. Tree cover is highly variable across the catchment. Clearfell/management of upland conifer plantations can lead to sediment and nitrate release which is a concern. A floodplain forest LIFE partnership bid to improve management of Upper Wye (Wales) is being developed. In addition the Lower Wye (England) would benefit from further tree planting.
- Fisheries: Freshwater – The management of banks and vegetation by river users is not always compatible with the SAC features e.g. digging steps and mowing banks. In channel management of gravels may impact the river habitat. Angling is managed via bylaws e.g. compulsory catch and release of salmon year round on the Wye and Shad fishing is not permitted. The potential to license those that hire boats may help highlight environmental considerations.
- Fisheries: Fish Stocking – Fish stocking is continuing at present. Fish hatcheries are being phased out by National Resources Wales (NRW).
- Water Abstraction – Water flow does not follow the near natural pattern because of the effects of Elan reservoirs and the releases made from the dams. Work is underway (UWAG) to assess and agree a revised set of reservoir release rules that will require changes to the operating agreement. More natural flushing and migration flows are proposed. There is a potential impact on hydro-morphology and ecology due to regular higher than natural flows. There is a need to integrate environmental requirements with the need for public water supply and agriculture. Necessary changes will be made to both river regulation and abstraction licences to ensure that the best use of water resources

is made to balance these needs. Winter storage reservoirs for agriculture are encouraged and the Environment Agency is awaiting Defra guidance on the regulation of trickle irrigation.

- Public Access/Disturbance – The high usage of the river by canoeists and anglers has the potential to cause disturbance to SAC species and habitats as well as the supporting or dependant flora and fauna.
- Air Pollution: Impact of Atmospheric Nitrogen Deposition – Nitrogen deposition exceeds site relevant critical loads with respect to the SAC's transition mire habitat located in Wales.
- Inappropriate Scrub Control – Increased scrub and woodland is affecting the structure and compostion of the transitional mire and quaking bog at Colwyn Brook Marshes. This appears to indicate drying out due to a change in hydrological processes/wetland structure function and/or vegetation succession due to a change in grazing pressure.
- Undergrazing – Undergrazing is affecting the structure and composition of the transitional mire and quaking bog feature at Colwyn Brook Marshes and may be contributing to further scrub encroachment and vegetation succession.
- Transportation and Service Corridors – Produce a site management statement which ensures that the SAC features are taken into account when undertaking works on Network Rail's assets.

Conservation Objectives

- Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:
  - The extent and distribution of qualifying natural habitats and habitats of qualifying species;

- The structure and function (including typical species) of qualifying natural habitats;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which qualifying natural habitats and habitats of qualifying species rely;
- The populations of qualifying species; and
- The distribution of qualifying species within the site.

Non-qualifying Habitats and Species upon which the Qualifying Habitats and/or Species Depend

The qualifying habitats rely upon water quality/quantity.

- River lamprey
  - Habitat preferences - Freshwater and wetlands.
  - Diet - Aquatic fauna.
- Sea lamprey
  - Habitat preferences - Marine, although spawns in freshwater rivers, requiring clean gravel or silt/sand for borrowing juveniles.
  - Diet - Aquatic fauna.
- Twaite shad
  - Habitat preferences - Marine, although spawns in freshwater rivers, requiring deep pools.
  - Diet - Aquatic fauna.
- White-clawed (or Atlantic stream) crayfish
  - Habitat preference - Diverse variety of clean aquatic habitats but especially favours hard-water streams and rivers.

- Diet - Omnivorous crustacean species and eat everything from invertebrates to carrion, water plants and dead organic matter.

- Brook lamprey
  - Habitat preference - Requires clean gravel beds for spawning and soft marginal silt or sand for the ammocoete larvae. It spawns mostly in parts of the river where the current is not too strong.
  - Diet - Feeds when in its larval form, filtering detritus and other organic matter from the water.
- Atlantic salmon
  - Habitat preference - Spawning takes place in shallow excavations called redds, found in shallow gravelly areas in clean rivers and streams where the water flows swiftly. The young that emerge spread out into other parts of the river. After a period of 1-6 years the young salmon migrate downstream to the sea as 'smolts'.
  - Diet - Juveniles feed on insects, invertebrates and sometimes plankton. Adult fish feed on small fish, predominantly capelin.
- Bullhead
  - Habitat preference - Appears to favour fast-flowing, clear shallow water with a hard substrate (gravel/cobble/pebble) and is frequently found in the headwaters of upland streams.
  - Diet - Feeding on invertebrates, such as mayfly and caddisfly larvae, and the eggs of other fish.
- Otter
  - Habitat preference - Occurs in a wide range of ecological conditions, including inland freshwater and coastal areas
  - Diet - Feed on fish and crustaceans, with river otters feeding on prey like freshwater fish, mussels, crabs, crayfish and frogs, and saltwater otters eating marine prey such as shellfish, sea urchins and shrimp.
- Allis shad

- Habitat preference - Migrates between freshwater and saltwater throughout Europe.
- Diet - Plankton and tiny invertebrates when young, eats small crustaceans and hunts small fish when older.

Avon Gorge Woodland SAC

- The Avon Gorge Woodlands SAC is good example of Tilio-Acerion forests in south-west England. It is important because of the high concentration of small-leaved lime Tilia cordata and the presence of rare whitebeams Sorbus spp., including at least two which are unique to the Avon Gorge (S. bristoliensis and S. wilmottiana), and other Nationally Scarce plants, such as Angular Solomon's-seal Polygonatum odoratum.
- The associated species-rich transitions to scrub and herb-rich calcareous open limestone grassland often found on cliff ledges support a high number of Nationally Rare and Scarce species, such as Bristol rock-cress Arabis scabra, round-headed leek ('Bristol onion') Allium sphaerocephalon and honewort Trinia glauca. Part of the Leigh Woods side of the SAC is considered to be important remnant wood pasture habitat which was managed as a wood pasture for many hundreds of years. This is shown by the presence of large numbers of veteran pollards, which are also highly likely to be important for saproxylic invertebrates.

Qualifying Features

- Annex 1 habitat:
  - Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia); Dry grasslands and scrublands on chalk or limestone
  - Tilio-Acerion; forests of slopes, screes and ravines; Mixed woodland on base-rich soils associated with rocky slopes

Area

- 151.07 hectares

Key Vulnerabilities

- The Site Improvement Plan **[See reference** 50**]** identifies the following pressures and threats to the SAC:
  - Invasive Species – Non-native species (including: certain Cotoneaster spp.; Holm oak Quercus ilex; Viburnum tinus Viburnum Laurustinus; Buddleia; Everlasting Pea Lathyrus latifolius; Alexanders Smyrnium olusatrum; Japanese knotweed Fallopia japonica; Himalayan balsam Impatiens glandulifera; Onion sp. Alliums spp.; Turkey oak Quercus cerris) and other species are present across the site. The Cotoneasters and other invasive species have a tendency to spread quickly and form dense mats which smother out areas of the SAC grassland and smaller rare species. Holm oak is evergreen, casting heavy shade and is growing more quickly than many native trees – it has the potential to affect plant species associated with Tilio-Acerion woodland habitats as well as shading out grassland. Effective methods of elimination and control are currently being undertaken in certain parts of the site but a coordinated approach is needed across the whole site (particularly on the North Somerset side within land owned by Networkrail, the Trustees of the Wills Estate and Suspension Bridge Trusts). On the Leigh Woods side of the Gorge (mainly in the Forestry Commision managed area) there are other problems with Rhododendron, Cherry laurel Prunus laurocerasus and various planted stands of Conifer Spp. And these will need to be considered as part of an invasive species plan. Native species of shrub and tree are also considered a major threat to the open limestone grassland habitats and there is a constant need for control across the site. Additional consideration needs to be given to the issue of deer and grey squirrel damage which is a potential issue affecting regeneration of the Leigh Woods side of the Gorge.
  - Undergrazing – Grazing has been introduced into two parts of the site but the vast majority of it is ungrazed at present. The majority of the

North Somerset side is ancient woodland and not in need of grazing. But the open quarries on the North Somerset side and further areas of the grassland on the Bristol side need to be looked at in terms of sustainable management options – grazing animals being one of them (although this will need very careful planning, consideration, funding and ongoing management). The lack of grazing on these open areas is resulting in loss of habitat, pressure from scrub/invasive species and the need for expensive mechanical management.

- Public Access/Disturbance – The site suffers major pressures from public access. Most legal access isn't a problem and the main issues result from inappropriate and often illegal access, an example of which is the use of the steep side of the Gorge on the North Somerset side for downhill mountain biking. Other negative aspects of access ranges from overall visitor pressure to vandalism. Future close monitoring and security work is needed involving various parties, to ensure the site remains protected. 'Legal' or permitted access still needs close monitoring and engagement to ensure that no damage to sensitive SAC habitats occurs. There is increasing pressure to encourage more people onto the site to appreciate it. This could quite conceivably increase over the coming years due to increased interest and a desire to engage further. There are many opportunities to improve safe multi-user access to certain areas of both sides of the Gorge, and also further possibilities to link both sides together by promoted routes. The understanding of the National and European significance of the site through engagement, promotion and interpretation is key to its sustainable use. Clearly the SAC features should be at the forefront of all future public engagement and access decisions. Nitrogen deposition from dog fouling could lead to further specific local impacts.
- Disease – Ash Dieback Chalara fraxinea has the potential to dramatically affect the overall structure of the Avon Gorge woodland. Ash is not a feature of the SAC woodland but a major component of the high forest structure. The relatively recent death of several of the mature (and young) rare whitebeam trees on both the North Somerset and Bristol side of the Gorge is of significant concern and needs further investigation.

- Changes in Species Distribution – Over the years there have been local changes in species populations and distributions (including some significant fluctuations in population sizes). The 2010 Condition Assessment identified several specific plant species where populations had reduced to worrying levels. Although this is likely to be caused mainly by scrub and invasive species and the other issues highlighted in this document (disturbance from public access, development, disease and pollution), the changes could also be attributed to climate change. It is not clear whether national changes in species distribution driven by climate change will affect Avon Gorge but the assumption is that this could be highly likely. Some work has been initiated with the Bristol Botanical garden to look into a species recovery programme for some of the plants affected and this needs further investigation. A programme of whitebeam spp. monitoring and future management should be developed in partnership with Bristol University and national experts.
- Air Pollution: Impact of Atmospheric Nitrogen Deposition – Nitrogen deposition exceeds site-relevant critical loads. The site is situated on the edge of a city and there are major roads and other transport routes currently running directly through and adjacent to it. The effect of these, general urban pollution and the amount of atmospheric nitrogen deposition has not been fully studied but it is likely to be a potential issue for the SAC features currently and in the long term. Pollution influences from Avonmouth and Severnside should also be considered due to the relatively close proximity to the site.

Conservation Objectives

- Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:
  - The extent and distribution of qualifying natural habitats;

- The structure and function (including typical species) of qualifying natural habitats; and
- The supporting processes on which qualifying natural habitats rely.

Non-qualifying Habitats and Species upon which the Qualifying Habitats and/or Species Depend

- Semi-natural dry grasslands and scrubland facies: on calcareous substrates
  - Festuco-Brometalia grasslands are found on thin, well-drained, lime-rich soils associated with chalk and limestone. They occur predominantly at low to moderate altitudes in England and Wales, extending locally into upland areas in northern England, Scotland and Northern Ireland. Most of these calcareous grasslands are maintained by grazing.
- Tilio-Acerion forests of slopes, screes and ravines
  - The habitat type typically occurs on nutrient-rich soils that often accumulate in the shady micro-climates towards the bases of slopes and ravines. Therefore, it is found on calcareous substrates associated with coarse scree, cliffs, steep rocky slopes and ravines.

Wye Valley Woodlands SAC

- The woodlands of the lower Wye Valley form one of the most important areas for woodland conservation in Britain (comparable with the Caledonian pinewoods, the oceanic oakwoods of Western Britain, the New Forest and the mixed coppices of East Anglia).
- Semi-natural woodland is extensive and virtually continuous along the Wye gorge and overlie a variety of geological strata and soils. Most woods are a rich mixture of stand-types, which are believed to be similar in composition to the original natural woods of the valley, with some of them rare and very localised e.g. the Lime-Sessile Oak stands on limestone,

Beech stands on both acid and alkaline soils in which Lime (Tilia spp.), Elm (Ulmus spp.), Oak (Quercus spp.) and other species share dominance. Tilio-Acerion (Lime and Ash) and Taxus (Yew) woodlands types are also features of the site.

- In addition many rare and local plant species are present, including some of the rarest native tree species, e.g. large-leaved lime (Tilia platyphyllos), whitebeams (Sorbus spp.) and trees close to the edge of their European range, e.g. hornbeam (Carpinus betulus) and beech (Fagus sylvatica). Furthermore, these woods sit in a matrix of unimproved grassland and other semi-natural habitats which support a number of other notable plant species. The Wye Valley Woodlands also provide an important foraging resource for the local population of lesser horseshoe bats which are known to hibernate in various disused mines and structures throughout the woodlands.

Qualifying Features

- Annex I habitats:
  - Asperulo-Fagetum beech forests. (Beech forests on rich to neutral soils)
  - Taxus baccata woods of the British Isles. (Yew-dominated woodland)
  - Tilio-Acerion forests of slopes, screes and ravines. (Mixed woodland on base-rich soils associated with rocky slopes)
- Annex II species:
  - Lesser horseshoe bat Rhinolophus hipposideros

Area

- 913.32 hectares

Key Vulnerabilities

- The Site Improvement Plan **[See reference** 51**]** identifies the following pressures and threats to the SAC:
  - Deer – There is an increasing population of deer within the gorge woodlands and also within the wider area of the Forest of Dean. Due to the excessive levels of browsing on a range of woodland plants, the natural regeneration of many species is being affected adversely. The formation of the Deer Initiative in an attempt to cull deer and to reduce numbers has proved ineffective to date. There are a small number of fenced enclosures in some woodland which demonstrate the dramatic effect on the vegetation when deer are excluded.
  - Forestry and Woodland Management – The woodlands along the gorge have been managed as coppice for centuries to support the local mining and quarrying industries. This form of management has been abandoned to any great extent and many stands are reverting to closed canopy high forest. It is possible that the rich species mix was, in part, a result of this form of management preventing any one species from dominating. In addition, some areas were probably also managed as a form of wood-pasture. Open space and associated species also need to considered. Woodland management practices undertaken as part of Forest Design Plans and woodland management plans need to better reflect the requirements needed to sustain the SAC features, namely the rich diversity of stand-types and species including bats. In particular, much traditional coppicing has been abandoned with a gradual change to high forest and loss of open space.
  - Invasive Species – A variety of invasive species are present including Himilayan balsam, Perwinkle, Japanese knotweed and Cherry laurel. In some places regeneration from planted conifers occurs. Mature Sycamore trees may require control in some instances.
  - Habitat Connectivity – The SAC (and its component woodland SSSIs) are a mere selection of the semi-natural woodlands in the area on both sides of the Wye gorge and on the Dean plateau. The addition of other areas of semi-natural woodland or restoration of PAWS (plantations on

ancient woodland sites) to the SSSI series would allow linkages to be made to assist migration of species especially in the light of climate change and allow improved ecosystem functioning. Additional information is required on the extent and distribution of woodland types and associated vegetation communities in the area.

- Species Decline – The SAC's Tilio-Acerion forest feature includes a number of locally uncommon plants and several uncommon Sorbus species. Data on these plant species from the time of initial designation are now considered insufficient, especially with regard to their distribution and location. It is considered that habitat loss, due to inappropriate management, has resulted in declines or losses of some of these species. Survey is needed to identify and to locate these species in order to inform management. With regard to the Sorbus species, there has been extensive revision of existing species with many new species having been identified recently, indicating that this area is an important site for Sorbus diversity and evolution.
- Air Pollution: Impact of Atmospheric Nitrogen Deposition – Nitrogen deposition exceeds site relevant critical loads.
- Disease – Tree diseases such as ash dieback and sudden oak death, in particular, pose a serious threat to the species structure of the Wye Valley woodlands.
- Public Access/Disturbance – Visitor use can result in erosion and damage to ground flora, recreation activities such as climbing can damage delicate cliff face communities and in particular the cliff face Sorbus species. Lesser horseshoe bats sometime breed in underground sites. Bats are particularly vulnerable to disturbance whilst breeding; they have only a single young every year, and so disturbing a maternity colony can have a significant adverse impact on the area’s bat population. They are also vulnerable during hibernation, as frequent disturbance from torpor leads to a reduced chance of surviving the winter. Most of the entrances have grills to deter access. If these become damaged, unauthorised access by cavers can occur. By ensuring grills are in place and efficiently repaired when damaged and by educating caving groups this problem can be minimised.

Conservation Objectives

- Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:
  - The extent and distribution of qualifying natural habitats and habitats of qualifying species;
  - The structure and function (including typical species) of qualifying natural habitats;
  - The structure and function of the habitats of qualifying species;
  - The supporting processes on which qualifying natural habitats and habitats of qualifying species rely;
  - The populations of qualifying species; and
  - The distribution of qualifying species within the site.

Non-qualifying Habitats and Species upon which the Qualifying Habitats and/or Species Depend

The qualifying habitats rely upon soil quality and water quality/quantity.

- Lesser horseshoe bat
  - Habitat preference - These bats normally roost in old buildings, barns and churches and feed along woodland edges, hedgerows, wetlands and over pasture.
  - Diet - Moths, midges, flies and spiders.

Wye Valley and Forest of Dean Bat Sites SAC

- This complex of sites on the border between England and Wales contains, at the time of listing, by far the greatest concentration of lesser horseshoe bat in the UK, totalling about 26% of the national population. It features an exceptional breeding population. In addition, it supports a significant population of greater horseshoe bat in the northern part of its range. The site contains the main maternity roost and hibernacula for this species in this area.

Qualifying Features

- Annex II species:
  - Lesser horseshoe bat Rhinolophus hipposideros
  - Greater horseshoe bat Rhinolophus ferrumequinum

Area

- 144.82 hectares

Key Vulnerabilities

- The Site Improvement Plan **[See reference** 52**]** identifies the following pressures and threats to the SAC:
  - Physical Modification – The SAC comprises of a series of 13 hibernation and maternity roost sites ranging from caves, buildings, churches, a disused railway tunnel, and mines. Roosting bats have precise microclimate requirements and are sensitive to small changes in conditions such as temperature and humidity. The microclimate of roosts in buildings, bridges and caves can be adversely affected by structural deterioration, repair and renovation or other factors. As many of the maternity roost sites are in inhabited privately owned buildings

they are vulnerable to disturbance. It is important that there is appropriate advice, support and monitoring provided at roost sites.

- Public Access/Disturbance – Greater horseshoe bats and lesser horseshoe bats are vulnerable to disturbance during hibernation, as frequent disturbance from torpor leads to a reduced chance of surviving the winter. They are also vulnerable to disturbance whilst breeding; they have only a single young every year, and so disturbing a maternity colony can have a significant adverse impact on the area's bat population. Most of the entrances to underground hibernacula and maternity roosts have grills to deter access. If these become damaged, unauthorised access by cavers and others can occur.
- Habitat Connectivity – Feeding areas around the SAC's maternity roosts are especially important for the bats, as they provide food during the spring and summer months for pregnant and lactating females as well as for the young on their early foraging flights. Neither breeding females nor young can fly as far as non-breeding adults, which range over a wide area, so a good feeding area within a radius of about 4 kilometres around the maternity roosts is critical for the long-term survival of the site's population. Juvenile Greater horseshoe bats forage on dung beetles extensively, so factors affecting quality of dung such as cattle numbers and use of pesticides can also impact on populations. Unimproved pasture and woodland are important habitats for sustaining dung beetle, chafer and large moth populations. Linear landscape features such as hedgerows are also important. A landscape of permanent pasture and ancient woodland, linked with an abundance of tall bushy hedges, is the ideal habitat as it provides both their insect food and the linear features used as flight paths. The effective conservation of the Greater horseshoe bat depends on the sensitive management of the farmed and forested landscape around maternity roosts and other sites used by the bats. Cumulatively, changes in agricultural management including: abandonment of grazing land; use of particular pesticides; hedgerow removal; conversion of pasture to arable; and inappropriate forest management can impact both bat species.

Conservation Objectives

- Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:
  - The extent and distribution of the habitats of qualifying species;
  - The structure and function of the habitats of qualifying species;
  - The supporting processes on which the habitats of qualifying species rely;
  - The populations of qualifying species; and
  - The distribution of qualifying species within the site.

Non-qualifying Habitats and Species upon which the Qualifying Habitats and/or Species Depend

- Greater horseshoe bat
  - Habitat preference - While in the past they would frequent caves to roost, they now normally choose the roofs of old buildings, such as barns and churches. After emerging at night, the bats tend to hunt along linear features such as woodland edges and hedgerows.
  - Diet - Moths, beetles, caddisflies, craneflies and gnats all make up the diet of the greater horseshoe bat.
- Lesser horseshoe Bat
  - Habitat preference - These bats normally roost in old buildings, barns and churches and feed along woodland edges, hedgerows, wetlands and over pasture.
  - Diet - Moths, midges, flies and spiders.

Rodborough Common SAC

- Rodborough Common is the most extensive area of semi-natural dry grasslands surviving in the Cotswolds of central southern England, and represents CG5 Bromus erectus – Brachypodium pinnatum 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 II habitats:
  - Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia). (Dry grasslands and scrublands on chalk or limestone)

Area

- 109.27 hectares

Key Vulnerabilities

- The Site improvement Plan **[See reference** 53**]** identifies the following pressures and threats to the SAC:
  - Undergrazing – Undergrazing is an issue due to the reliance on the rights of commoners to turn out cattle. The number of stock have dropped over the years to the point that additional cattle now need to be electric fenced on to the most species-rich areas on the slopes. It is the lower slopes that are the most species-rich and are suffering from a lack of grazing.

- Public Access/Disturbance – The common is very close to Stroud and recreational use has greatly increased over the past few decades. This has created many new paths and parking areas which cause soil compaction to the detriment of the surrounding sward. Dog faeces is a particular issue which also damages the sward . New and proposed housing continues to add to the problem.
- Air Pollution: Risk of Atmospheric Nitrogen Deposition – Nitrogen deposition exceeds the site-relevant critical load for ecosystem protection and hence there is a risk of harmful effects, but the sensitive features are currently considered to be in favourable condition on the site.

Conservation Objectives

- Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:
  - The extent and distribution of qualifying natural habitats;
  - The structure and function (including typical species) of qualifying natural habitats; and
  - The supporting processes on which qualifying natural habitats rely.

Non-qualifying Habitats and Species upon which the Qualifying Habitats and/or Species Depend

- The qualifying habitats rely upon soil quality and water quality/quantity.

River Usk SAC

- 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.

Qualifying Features

- Annex II species that are a primary reason for selection of this site:
  - Sea lamprey Petromyzon marinus
  - Brook lamprey Lampetra planeri
  - River lamprey Lampetra fluviatilis
  - Twaite shad Alosa fallax
  - Atlantic salmon Salmo salar
  - Bullhead Cottus gobio
  - Otter Lutra lutra
- Annex II species present as a qualifying feature, but not a primary reason for site selection:
  - Allis shad Alosa alosa
- Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:
  - Water courses of plain to montane levels with the Ranunculion

Area:

- 967.97 hectares

Key Vulnerabilities

Pressures and Threats:

- Barriers - Physical modification of barriers is required where depth/velocity/duration of flows is unsuitable to allow passage. Management to reduce or remove the effect of this barrier is a high priority for the River Usk SAC. Barriers resulting from vibration, chemicals, low dissolved oxygen and artificially high sediment levels must be prevented at key times (generally March to June).
- Development - Development pressure in the lower catchment can cause temporary physical, acoustic, chemical and sediment barrier effects. 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).
- Noise - The impact of acoustic (i.e. noise/vibration) and sediment/chemical barriers arising from plans or projects. When arising from construction or other development related activities it may be necessary to restrict the timing of such activities. 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 migration.
- Flow - The impact of flow depletion resulting from a small number of major abstractions. Flow targets have been set which are considered likely to significantly reduce or remove the impacts on SAC features. There are also requirements for screening of intakes to reduce or remove the impact of impingement and entrainment on juvenile fish migrating downstream.
- Entrainment - Entrainment in water abstractions directly impacts on population dynamics through reduced recruitment and survival rates.

- Fishing - Anglers occasionally fish for shad, and they are sometimes taken in quite large numbers. Commercial fishermen also take shad as a by-catch, with whitebait and shrimp fishing being of particular concern. 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.
- Pollution - Sources of diffuse pollution and siltation are from agriculture, including fertiliser run-off, livestock manure, silage effluent and soil erosion from ploughed land. Among toxic pollutants, sheep dip and silage effluent present a particular threat to aquatic animals in this predominantly rural area.
- Tree management - Maintenance of intermittent tree cover in conjunction with retention of woody debris helps to ensure that habitat conditions are suitable. At least 50% high canopy cover to the water course/banks should be maintained, where appropriate.
- Invasive Non-native Plants - Giant hogweed, Himalayan balsam and Japanese knotweed should be actively managed to control their spread and hopefully reduce their extent in the SAC.
- The Natura 2000 Standard Data Form for the Site also indicates the following additional pressures/threats:
  - Grazing; and
  - Other ecosystem modifications.

Conservation Objectives

- Conservation objectives **[See reference** 54**]** :
  - The capacity of the habitats in the SAC to support each feature at near-natural population levels, as determined by predominantly unmodified ecological and hydro morphological 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

- Flow regime, water quality and physical habitat should be maintained in, or restored as far as possible to, a nearnatural state, in order to support the coherence of ecosystem structure and function across the whole area of the SAC.
- All known breeding, spawning and nursery sites of species features should be maintained as suitable habitat as far as possible, except where natural processes cause them to change.
- Flows, water quality, substrate quality and quantity at fish spawning sites and nursery areas will not be depleted by abstraction, discharges, engineering or gravel extraction activities or other impacts to the extent that these sites are damaged or destroyed.
- The river planform and profile should be predominantly unmodified. Physical modifications having an adverse effect on the integrity of the SAC, including, but not limited to, revetments on active alluvial river banks using stone, concrete or waste materials, unsustainable extraction of gravel, addition or release of excessive quantities of fine sediment, will be avoided.
- River habitat SSSI features should be in favourable condition. In the case of the Usk Tributaries SSSI, the SAC habitat is not underpinned by a river habitat SSSI feature. In this case, the target is to maintain the characteristic physical features of the river channel, banks and riparian zone.
- Artificial factors impacting on the capability of each species feature to occupy the full extent of its natural range should be modified where necessary to allow passage, e.g. weirs, bridge sills, acoustic barriers.
- Natural factors such as waterfalls, which may limit the natural range of a species feature or dispersal between naturally isolated populations, should not be modified.

- Flows during the normal migration periods of each migratory fish species feature will not be depleted by abstraction to the extent that passage upstream to spawning sites is hindered. Flow objectives for assessment points in the Usk Catchment Abstraction Management Strategy will be agreed between EA and CCW as necessary.
- 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.
- Levels of water quality parameters that are known to affect the distribution and abundance of SAC features will be agreed between EA and CCW for each Water Framework Directive water body in the Usk SAC, and measures taken to maintain pollution below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process given in Annex 3 of this document.
- Potential sources of pollution not addressed in the Review of Consents, such as contaminated land, will be considered in assessing plans and projects.
- Levels of suspended solids will be agreed between EA and CCW for each Water Framework Directive water body in the Usk SAC. Measures including, but not limited to, the control of suspended sediment generated by agriculture, forestry and engineering works, will be taken to maintain suspended solids below these levels.
- The population of the feature in the SAC is stable or increasing over the long term.
- The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms e.g. Suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions e.g. Food supply. Suitable habitat need not be present throughout the SAC but where present must be secured for the

foreseeable future. Natural factors such as waterfalls may limit the natural range of individual species.

- 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.

Non-qualifying Habitats and Species upon which the Qualifying Habitats and/or Species Depend

The qualifying habitats rely upon soil quality and water quality/quantity.

- River lamprey
  - Habitat preferences - Freshwater and wetlands.
  - Diet - Aquatic fauna.
- Sea lamprey
  - Habitat preferences - Marine, although spawns in freshwater rivers, requiring clean gravel or silt/sand for borrowing juveniles.
  - Diet - Aquatic fauna.
- Twaite shad
  - Habitat preferences - Marine, although spawns in freshwater rivers, requiring deep pools.
  - Diet - Aquatic fauna.
- Brook lamprey
  - Habitat preference - Requires clean gravel beds for spawning and soft marginal silt or sand for the ammocoete larvae. It spawns mostly in parts of the river where the current is not too strong.
  - Diet - Feeds when in its larval form, filtering detritus and other organic matter from the water.
- Atlantic salmon

- Habitat preference - Spawning takes place in shallow excavations called redds, found in shallow gravelly areas in clean rivers and streams where the water flows swiftly. The young that emerge spread out into other parts of the river. After a period of 1-6 years the young salmon migrate downstream to the sea as 'smolts'.
- Diet - Juveniles feed on insects, invertebrates and sometimes plankton. Adult fish feed on small fish, predominantly capelin.

- Bullhead
  - Habitat preference - Appears to favour fast-flowing, clear shallow water with a hard substrate (gravel/cobble/pebble) and is frequently found in the headwaters of upland streams.
  - Diet - Feeding on invertebrates, such as mayfly and caddisfly larvae, and the eggs of other fish.
- Otter
  - Habitat preference - Occurs in a wide range of ecological conditions, including inland freshwater and coastal areas.
  - Diet - Feed on fish and crustaceans, with river otters feeding on prey like freshwater fish, mussels, crabs, crayfish and frogs, and saltwater otters eating marine prey such as shellfish, sea urchins and shrimp.
- Allis shad
  - Habitat preference - Migrates between freshwater and saltwater throughout Europe.
  - Diet - Plankton and tiny invertebrates when young, eats small crustaceans and hunts small fish when older.

Severn Estuary SPA

- See Severn Estuary SAC for further information.

Qualifying Features

- Non breeding:
  - Bewick's swan Cygnus columbianus bewickii
  - Common shelduck Tadorna Tadorna
  - Gadwall Anas strepera
  - Dunlin Calidris alpina alpina
  - Common redshank Tringa totanus
  - Greater white-fronted goose Anser albifrons albifrons
- Waterbird assemblage: Bewick's swan, greater white-fronted goose, common shelduck, gadwall, dunlin, and common redshank.

Area

- 25,000 hectares

Key Vulnerabilities

- The Severn Estuary Site improvement Plan **[See reference** 55**]** covers both the Severn Estuary SPA and Severn Estuary SAC. See Severn Estuary SAC for further information.

Conservation Objectives

- Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:
  - The extent and distribution of the habitats of the qualifying features;
  - The structure and function of the habitats of the qualifying features;

- The supporting processes on which the habitats of the qualifying features rely;
- The population of each of the qualifying features; and
- The distribution of the qualifying features within the site.

Non-qualifying Habitats and Species upon which the Qualifying Habitats and/or Species Depend

The qualifying habitats rely upon water quality/quantity.

- Bewick's swan
  - Habitat preference - Freshwater, farmland, coastal, wetlands.
  - Diet - Potatoes, grain, aquatic plants and grasses.
- Common shelduck
  - Habitat preference - Coastal areas, inland reservoirs and gravel workings.
  - Diet - Invertebrates, small shellfish and aquatic snails.
- Gadwall
  - Habitat preference - Marshes, lakes, and on migration also rivers and estuaries.
  - Diet - Leaves, shoots, mostly while swimming with head under water.
- Dunlin
  - Habitat preference - Tundra, moor, heath, and on migration estuaries and coastal habitat.
  - Diet - Insects, snails and worms.
- Common redshank
  - Habitat preference - Rivers, wet grassland, moors and estuaries.

  - Diet - Invertebrates, especially earthworms, cranefly larvae (inland) crustaceans, molluscs, marine worms (estuaries).
- Greater white-fronted goose
  - Habitat preference - Farmland grassland marine and intertidal wetland.
  - Diet - Grass, clover, grain, winter wheat and potatoes.

Chew Valley Lake SPA

- Chew Valley Lake SPA is located south of Bristol and is the largest artificial freshwater lake in South West England. It is a large, shallow reservoir with peripheral areas of reedbeds, carr woodland and neutral grassland. The water conditions are eutrophic and open water plant communities are rather sparse. The open water of the reservoir and its margins are of high value for wintering waterbirds, specifically overwintering northern shoveler Anas clypeata.

Qualifying Features

- Northern shoveler Anas clypeata (non-breeding)

Area

- 575.94 hectares

Key Vulnerabilities

- The Site improvement Plan **[See reference** 56**]** identifies the following pressures and threats to the SPA:
  - Hydrological Changes – The site is owned and managed by Bristol Water Plc to supply drinking water to the city of Bristol and surrounding area. There is evidence that water levels can significantly impact upon

the suitability of the site for shoveler (a relationship indicated by Wetland Bird Survey data). This issue is affected both by annual changes in rainfall and the functioning of the reservoir.

- Public Access/Disturbance – Large numbers of people use the area for recreational activities including fishing for trout and pike, sailing, and walking. There are existing refuge areas and conditions applied to maintain suitable habitat, but it is uncertain whether this is sufficient.

Conservation Objectives

- Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:
  - The extent and distribution of the habitats of the qualifying features;
  - The structure and function of the habitats of the qualifying features;
  - The supporting processes on which the habitats of the qualifying features rely;
  - The population of each of the qualifying features; and
  - The distribution of the qualifying features within the site.

Non-qualifying Habitats and Species upon which the Qualifying Habitats and/or Species Depend

- Northern shoveler
  - Habitat preference - Shallow lakes, marsh, reedbed and wet meadow.
  - Diet - Omnivorous, esp. small insects, crustaceans, molluscs, seeds; filters particles with sideways sweeping of bill.

Severn Estuary Ramsar

- The estuary's classic funnel shape, unique in Britain, is a factor causing the Severn to have the second-largest tidal range in the world (after the Bay of Fundy, Canada). This tidal regime results in plant and animal communities typical of the extreme physical conditions of liquid mud and tide swept sand and rock. The species-poor invertebrate community includes high densities of ragworms, lugworms and other invertebrates forming an important food source for passage and wintering waders.
- A further consequence of the large tidal range is the extensive intertidal zone, one of the largest in the UK, comprising mudflats, sand banks, shingle, and rocky platforms.
- Glassworts and annual sea-blite colonise the open mud, with beds of all three species of eelgrass Zostera 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.

Qualifying Features

- Criterion 1: Due to immense tidal range (second-largest in world), this affects both the physical environment and biological communities.
    - Habitats Directive Annex I features present on the Ramsar site include: H1110 Sandbanks which are slightly covered by sea water all the time H1130 Estuaries H1140 Mudflats and sandflats not covered by seawater at low tide H1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae).
- Criterion 3: Due to unusual estuarine communities, reduced diversity and high productivity.
- Criterion 4: This site is important for the run of migratory fish between sea and river via estuary. Species include salmon Salmo salar, sea trout

Salmo trutta, sea lamprey Petromyzon marinus, river lamprey Lampetra fluviatilis, allis shad Alosa alosa, twaite shad Alosa fallax, and eel Anguilla anguilla.

- It is also of particular importance for migratory birds during spring and autumn.

- Criterion 5: Assemblages of international importance:
  - Species with peak counts in winter: 70919 waterfowl (5 year peak mean 1998/99-2002/2003)
- Criterion 6: Species/populations occurring at levels of international importance:
  - Bewick's swan Cygnus columbianus bewickii
  - Common shelduck Tadorna tadorna
  - Gadwall Anas strepera
  - Dunlin Calidris alpina alpina
  - Common redshank Tringa totanus
  - Greater white-fronted goose Anser albifrons albifrons
- Qualifying Species/populations (as identified at designation):
  - Criterion 8: The fish of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. Salmon Salmo salar, sea trout Salmo trutta, sea lamprey Petromyzon marinus, river lamprey Lampetra fluviatilis, allis shad Alosa alosa, twaite shad Alosa fallax, and eel Anguilla anguilla 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 Alosa alosa and twaite shad Alosa fallax which feed on mysid shrimps in the salt wedge.

Area

- 24,701 hectares

Key Vulnerabilities

- The Information Sheet **[See reference** 57**]** on Ramsar Sites identifies the following pressures and threats to the Ramsar site:
  - Dredging
  - Erosion
  - Recreational/tourism disturbance

Conservation Objectives

- None available.

Non-qualifying Habitats and Species upon which the Qualifying Habitats and/or Species Depend

- See Severn Estuary SPA.

Appendix C

Screening Matrix

C.1 The matrix below show which types of impacts on European sites could potentially result from each of the policies in the Phase 3 Local Plan. In the Emerging Preferred Strategy Section below, where a policy is not expected to have a particular type of impact, the relevant cell is shaded green. Where a policy could potentially have a certain type of impact, this is shown in orange. Policies that could provide mitigation for adverse effects on European sites are identified in explanatory text highlighted grey. The last section of each policies matrix sets out the nature of potential significant effects if they were to arise. Where uncertain or likely significant effects are identified, these are required to be considered further via Appropriate Assessment.

Emerging Preferred Strategy

Possible significant effects but uncertain.

Likely Activities (operation) to Result as a Consequence of the Proposal

- Residential development
- Employment development
- Changes in traffic
- Water abstraction/discharge

Potential Effects if Proposal Implemented

- Physical damage/loss of habitat
- Non-physical disturbance
- Air pollution (vehicle emissions)
- Recreation pressure
- Changes in water quality/quantity

Is the policy likely to have significant effects and therefore need to be scoped into the Appropriate Assessment?

- Yes. The quantum and location of development proposed means that there is potential for effects such as habitat loss or disturbance including functionally linked habitat, air pollution, recreation pressure and changes in water quality/quantity. Although there are no sites included in the EPS which are located within the boundaries of European sites, development would take place within 2 kilometres of the Severn Estuary SAC, SPA and Ramsar site and could potentially occur in locations that are functionally linked to European sites.

Climate Change Mitigation, Adaptation and Resilience

Unlikely to be significant effects.

Likely Activities (operation) to Result as a Consequence of the Proposal

- None; this policy sets out how development proposals should mitigate greenhouse gas emissions and adapt to climate changes and will not result in development.

Potential Effects if Proposal Implemented

- None.

Is the policy likely to have significant effects and therefore need to be scoped into the Appropriate Assessment?

- No. This policy requires developments to achieve a water efficient standard of no more than 110 litres per person per day, and encourages development that provides for sustainable transport rather than car journeys. This policy may therefore contribute to mitigation for effects relating to changes in water quantity or quality, and air pollution.

Energy Management in New Development

Unlikely to be significant effects.

Likely Activities (operation) to Result as a Consequence of the Proposal

- None; this policy sets out requirements in relation to managing energy use in development and will not result in development.

Potential Effects if Proposal Implemented

- None.

Is the policy likely to have significant effects and therefore need to be scoped into the Appropriate Assessment?

- No.

Embodied Carbon

Unlikely to be significant effects.

Likely Activities (operation) to Result as a Consequence of the Proposal

- None; this policy sets out requirements in relation to embodied carbon and provisions for offsetting any shortfall in targets with contributions to renewable energy projects but will not itself result in development.

Potential Effects if Proposal Implemented

- None.

Is the policy likely to have significant effects and therefore need to be scoped into the Appropriate Assessment?

- No.

Renewable and Low Carbon Energy Systems

Possible significant effects but uncertain.

Likely Activities (operation) to Result as a Consequence of the Proposal

- Renewable energy development

Potential Effects if Proposal Implemented

- Physical damage/loss of habitat
- Non-physical disturbance
- Bird strike

Is the policy likely to have significant effects and therefore need to be scoped into the Appropriate Assessment?

- Yes. This policy supports proposals for renewable energy generation, including wind and solar energy generation. Depending on the location of development, this policy may contribute to effects such as loss of habitat (including functionally linked habitat), disturbance or bird strike (wind turbines).

Community Energy

Possible significant effects but uncertain.

Likely Activities (operation) to Result as a Consequence of the Proposal

- Renewable energy development

Potential Effects if Proposal Implemented

- Physical damage/loss of habitat
- Non-physical disturbance
- Bird strike

Is the policy likely to have significant effects and therefore need to be scoped into the Appropriate Assessment?

- Yes. This policy supports proposals for small scale renewable energy generation, including wind and solar energy generation. Depending on the location of development, this policy may contribute to effects such as loss of habitat (including functionally linked habitat), disturbance or bird strike (wind turbines).

Affordable Homes

Unlikely to be significant effects.

Likely Activities (operation) to Result as a Consequence of the Proposal

- None; this policy sets out requirements in relation to affordable housing but will not itself result in development.

Potential Effects if Proposal Implemented

- None.

Is the policy likely to have significant effects and therefore need to be scoped into the Appropriate Assessment?

- No.

Sites for Gypsies and Travellers

Possible significant effects but uncertain.

Likely Activities (operation) to Result as a Consequence of the Proposal

- Residential development
- Changes in traffic
- Water abstraction/discharge

Potential Effects if Proposal Implemented

- Physical damage/loss of habitat
- Non-physical disturbance
- Air pollution (vehicle emissions)
- Recreation pressure
- Changes in water quality/quantity

Is the policy likely to have significant effects and therefore need to be scoped into the Appropriate Assessment?

- Yes. The quantum of residential development proposed is likely to be small-scale (just development coming forward for the Gypsy and Traveller population). However, the locations of development are unknown there is potential for effects on as loss or disturbance including functionally linked habitat, air pollution, recreation pressure and changes in water quality/quantity.

Sites for Traveling Showpeople

Possible significant effects but uncertain.

Likely Activities (operation) to Result as a Consequence of the Proposal

- Residential development
- Changes in traffic
- Water abstraction/discharge

Potential Effects if Proposal Implemented

- Physical damage/loss of habitat
- Non-physical disturbance
- Air pollution (vehicle emissions)

- Recreation pressure
- Changes in water quality/quantity

Is the policy likely to have significant effects and therefore need to be scoped into the Appropriate Assessment?

- Yes. The quantum of residential development proposed is likely to be small-scale (just development coming forward for the Gypsy and Traveller population). However, the locations of development are unknown there is potential for effects on as loss or disturbance including functionally linked habitat, air pollution, recreation pressure and changes in water quality/quantity.

Internal Space and Accessibility Standards

Unlikely to be significant effects.

Likely Activities (operation) to Result as a Consequence of the Proposal

- None; this policy sets out requirements in relation to the housing space standards and will itself not in development.

Potential Effects if Proposal Implemented

- None.

Is the policy likely to have significant effects and therefore need to be scoped into the Appropriate Assessment?

- No.

Minerals

Possible significant effects but uncertain.

Likely Activities (operation) to Result as a Consequence of the Proposal

- Aggregate extraction
- Changes in traffic (incl. HGVs)

Potential Effects if Proposal Implemented

- Air pollution (dust and vehicle emissions)
- Non-toxic contamination

Is the policy likely to have significant effects and therefore need to be scoped into the Appropriate Assessment?

- Yes. This policy permits additional minerals extraction at existing sites and therefore has the potential to contribute to effects relating to air pollution.

Economy and Jobs

Possible significant effects but uncertain.

Likely Activities (operation) to Result as a Consequence of the Proposal

- Employment development
- Changes in traffic
- Water abstraction/discharge

Potential Effects if Proposal Implemented

- Physical damage/loss of habitat
- Non-physical disturbance
- Air pollution (vehicle emissions)
- Changes in water quality/quantity

Is the policy likely to have significant effects and therefore need to be scoped into the Appropriate Assessment?

- Yes. This policy defines the overall quantum of employment land and development locations (currently unknown). Employment development has the potential to contribute to effects relating to changes in in water quality/quantity and air pollution as well as more location-specific effects such as loss or disturbance including functionally linked habitat.

Town Centres

Possible significant effects but uncertain.

Likely Activities (operation) to Result as a Consequence of the Proposal

- Retail development
- Town centre development

Potential Effects if Proposal Implemented

- Physical damage/loss of habitat
- Non-physical disturbance
- Air pollution (vehicle emissions)

Is the policy likely to have significant effects and therefore need to be scoped into the Appropriate Assessment?

- Yes. This policy supports retail development and town centre development including the potential for new town centres to be created and therefore has the potential to contribute to effects relating to changes in in water quality/quantity and air pollution as well as more location-specific effects such as loss or disturbance including functionally linked habitat.

Strategic and Major Site Delivery Policy

Unlikely to be significant effects.

Likely Activities (operation) to Result as a Consequence of the Proposal

- None; this policy sets requirements for landowners and developer partners in relation to strategic development allocations but will not itself result in development.

Potential Effects if Proposal Implemented

- None.

Is the policy likely to have significant effects and therefore need to be scoped into the Appropriate Assessment?

- No.

Stewardship Arrangements

Unlikely to be significant effects.

Likely Activities (operation) to Result as a Consequence of the Proposal

- None; this policy sets out requirements for major development that includes landscaping and public realm to include a management and maintenance strategy but will not itself result in development.

Potential Effects if Proposal Implemented

- None.

Is the policy likely to have significant effects and therefore need to be scoped into the Appropriate Assessment?

- No.

Appendix D

Record of Consultation

Response to the Comments Received on the HRA Scoping Report (March 2023)

Respondent: Natural England

Representation

- We consider that the HRA scoping report provides a clear and methodical overview of the approach that will be taken to the assessment of potential effects of the new local plan on European designated sites. We are satisfied that the topics that have been scoped in/out are the right ones and that the European sites that could be affected by the new local plan have been identified.

LUC's Response

- No update required

Respondent: Natural England

Representation

Functionally Linked Habitat

- Paragraph 3.12 refers to 2 kilometres as an appropriate distance for the consideration of offsite functionally linked land and we consider this is a reasonable distance.

- With respect to birds, we would draw your attention to the FLL study which begins to identify the extent of potential FLL for the Severn Estuary SPA and Ramsar site within South Gloucestershire so should provide a helpful starting point when undertaking the HRA/AA of the new local plan. We believe we have shared the draft Severn Estuary FLL report with you already, but please let us know if we are mistaken or if you would like another copy.
- With respect to bats we would refer you to the Somerset Bat Guidance which cover a range of bat species and collectively contain a huge amount of evidence and good practice when considering potential effects on bats associated with designated sites: Habitat Regulations Assessment, available through the following link: somerset.gov.uk. We would also refer you to the impact risk zones identified on Magic which illustrate those parts of South Gloucestershire that lie with risk zones for bats SACs and component SSSIs within Wiltshire and B&NES and which are likely to contain FLL, such as parts of St Catherine's Valley: MAGIC, available through the following link: defra.gov.uk).

LUC's Response

- The Severn Estuary FLL and Somerset Bat Guidance have been taken into consideration.

Respondent: Natural England

Representation

Non-physical Disturbance (noise, vibration and light)

- While we are pleased that the potential for non-physical disturbance to birds and bats has been recognised in the report and we consider 500m is a reasonably precautionary distance within which to consider this issue,

we advise that visual disturbance is added to the list with respect to birds associated with the Severn Estuary SPA (and Ramsar site). Although Natural England considers visual disturbance to SPA birds is unlikely to occur beyond 200m, it is nevertheless a real issue in relation to the Severn Estuary designated site and should be considered in its own right. This was illustrated during the construction of the ASEA flood defences, where the ornithological watching brief identified that visual disturbance from the workforce resulted in birds being displaced from high tide roosts.

- We have attached Natural England's local advice on visual and noise disturbance to birds associated with the Severn Estuary SPA/Ramsar site to the covering email – this advice includes recommended distances for noise and visual impacts.
- Paragraph 3.19 refers to the effects of artificial lighting at night on bats and some nocturnal birds. While we agree with this finding, we also advise that lighting at night can affect other bird species that are not strictly 'nocturnal' – for example, a study of curlew feeding at night has shown that superior low-light vision of many predators means that perceived predation risk in prey is likely to be affected by light levels. The paper relating to this study of the impact of artificial lighting on wintering curlew foraging behaviour is attached to the covering email.

LUC's Response

- Visual disturbance to birds in the Severn Estuary SPA and Ramsar has been considered through the non-physical disturbance screening assessment pathway.
- When the locations of development are known, the effects of artificial lighting will be further considered in relation to all designated bird species associated with the European sites.

Respondent: Natural England

Representation

Recreation

- We consider the suggested 7 kilometres zone of influence for considering recreational impacts is reasonably precautionary, noting it is based on visitor surveys, evidence and good practice elsewhere in the country, including in neighbouring authorities, which have looked at inland and coastal sites. That said, we are aware that very limited visitor surveys have been carried out by South Gloucestershire Council or the other West of England authorities to establish specific distances for the European sites identified as being vulnerable to the effects of recreation in the scoping report and it possible that these distances may need to be adjusted in the event that bespoke visitor surveys are undertaken or in light of other robust local evidence. The key consideration from our point of view is that suitable mitigation measures to protect and enhance European sites in line with their conservation objectives are identified and that these will be adequately resourced, including a robust monitoring regime. The extent of the ZOI will ultimately be a matter for the local authority to determine.

LUC's Response

- Any visitor surveys that are made available will be taken into consideration and used within further HRA screening for recreational pressure pathway.
- Suitable mitigation measures to protect and enhance European sites in line with their conservation objectives will be considered through Appropriate Assessment where required.

Respondent: Natural England

Representation

In-combination Effects

- We are satisfied with the approach that will be taken to considering in-combination effects and welcome the reference to the online HRA Handbook in paragraph 3.64.

LUC's Response

- No update required.

Respondent: Natural England

Representation

Screening Assessment

- Paragraph 3.70 says that a traffic light approach will be used in the screening matrix to record the likely impacts of each policy, option or site allocation. While this appears to be a reasonable and simple approach we think it would be helpful and perhaps clearer for the reader of the HRA if the rationale for placing a policy or other element of the local plan in a red, amber or green category was also set out – for example if the policy is considered a general statement or aspiration that could not affect a site – we would refer you to the Habitats Regulations Assessment Handbook for more detailed guidance.

LUC's Response

- Further details on Appropriate Assessment will be detailed within the next iteration of the HRA. Due to the nature of the Phase 3 Local Plan, appropriate assessment has not been undertaken at this stage as we have not been provided a full list of policies and the site allocations. A screening matrix has been provided considering whether the policies that have been drafted so far are expected to result in development and if any of the potential pathways could be impacted.

Respondent: Natural Resources Wales

Representation

- We note and welcome that the Severn Estuary SAC, SPA and Ramsar, as well as the River Wye SAC have been scoped in. We particularly welcome the recognition of ‘functionally linked land’ with regards to birds and fish.

LUC's Response

- No update required.

Respondent: Natural Resources Wales

Representation

- We would also advise that the River Usk SAC is scoped in to the HRA for functionally linked land with potential impacts on migratory fish. We believe that the River Usk SAC should be scoped in to the HRA for the same pathways as the River Wye SAC, given the significant mixing and movements of diadromous fish features within the Severn Estuary before they migrate upriver. We consider that the River Usk being 13 kilometres

downstream of South Gloucestershire is not sufficient justification for scoping out.

LUC's Response

- The River Usk SAC has been considered in this HRA screening in relation to functionally linked. However, the exact locations of development are unknown, therefore, further HRA Screening will consider these impacts on the River Usk SAC once the site allocations are known.

Respondent: Natural Resources Wales

Representation

- We also advise that atmospheric pollution is considered further, as currently only pollution from traffic has been scoped in. Industrial point sources, combustion sources, such as STOR Plants, power stations, livestock units all have potential to impact air quality, and will need to be considered in your Local Plan. We advise that Protected Sites may need to be progressed to the Appropriate Assessment stage if they are close to agricultural developments or industrial point sources.

LUC's Response

- Further HRA Screening will be undertaken as the Local Plan progresses. The further HRA Screening will consider potential for significant effects associated with air pollution. If a Local Plan proposes industrial or agricultural development, the likely significant effects of this will be considered. This will involve the assessment of likely significant effects of a development plan alone or in-combination prior to the consideration of avoidance or mitigation measures. Where effects are likely or lack of information to prove otherwise, the Local Plan will proceed to Appropriate

Assessment which will consider how adverse effects of the Local Plan can be avoided or mitigated.

Respondent: Natural Resources Wales

Representation

- We advise sufficient information be included to determine the extent of any environmental impacts arising on legally protected species, including those which may also comprise notified features of designated sites affected by the proposals.

LUC's Response

- Information from European Sites is obtained from the Joint Nature Conservation Committee (JNCC) and Natural England Site Conservation Objectives and Site Improvement Plans. Detailed information is included on the key vulnerabilities of the designated species which is considered during the screening assessment.

References

1 The Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007 (SI 2007/1843)

2 The Conservation of Habitats and Species Regulations 2017 (SI 2017/1012), as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (SI 2019/579)

3 The integrity of a site is the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was designated. (Source: UK Government Planning Practice Guidance)

4 Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government (2019) Appropriate assessment. Available at: https://www.gov.uk/guidance/appropriate-assessment

5 Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive')

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7 European Commission (undated) Natura 2000. Available at: https://environment.ec.europa.eu/topics/nature-and-biodiversity/natura-2000_en

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9 Defra and Natural England (2021) Guidance - Habitats regulations assessments: protecting a European site. Available at: https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site

10 Department for Levelling Up, Housing and Communities (2012) National Planning Policy Framework (paragraph 176). Available at: https://www.gov.uk/guidance/national-planning-policy-framework

11 David Tyldesley and Associates (undated) The HRA Handbook (Section A3) – a subscription based online guidance document. Available at: https://www.dtapublications.co.uk/Login.aspx?ReturnUrl=%2fhandbook%2fEuropean

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14 Regulation 5 of the Habitats Regulations 2017.

15 Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government (2019) Appropriate assessment. Available at: https://www.gov.uk/guidance/appropriate-assessment

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18 Natural England (undated) Conservation Objectives for European Sites. Available at: https://publications.naturalengland.org.uk/category/6490068894089216

19 In line with the CJEU judgment in Case C-323/17 People Over Wind v Coillte Teoranta, mitigation must only be taken into consideration at this stage and not during Stage 1: HRA Screening.

20 In addition to European site citations and conservation objectives, key information sources for understanding factors contributing to the integrity of European sites include (where available) conservation objectives supplementary advice and Site Improvement Plans prepared by Natural England. Natural England (undated) Site Improvement Plans by region. Available at: https://publications.naturalengland.org.uk/category/5458594975711232

21 Chapman, C. and Tyldesley, D. 2016. Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects – a review of authoritative decisions. Natural England Commissioned Reports, Number 207

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25 ECJ Case C-127/02 “Waddenzee” Jan 2004

26 Advocate General’s Opinion to CJEU in Case C-258/11 Sweetman and others v An Bord Pleanala 22nd Nov 2012

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