South Gloucestershire Council

South Gloucestershire Local Plan 2026-2041 Habitats Regulations Assessment Report (Reg.19)

Report for Reg.19 consultation
February 2025



South Gloucestershire Council

South Gloucestershire Local Plan 2026-2041
Habitats Regulations Assessment Report (Reg.19)

Project Number
10698

Version	Status	Prepared	Checked	Approved	Date
1.	Draft report for client review	K. Sydney	K. Nicholls	K. Nicholls	14.01.2025
2.	Draft report for cabinet	K. Sydney	K. Nicholls	K. Nicholls	21.01.2025
3.	Final draft report for cabinet	K. Sydney	K. Nicholls	K. Nicholls	23.01.2025
4.	Report for Reg.19 consultation	K. Sydney	K. Nicholls	K. Nicholls	27.02.2025

Bristol
Cardiff
Edinburgh
Glasgow
London
Manchester
Sheffield

landuse.co.uk

Land Use Consultants Ltd
Registered in England
Registered number 2549296
Registered office:
250 Waterloo Road
London SE1 8RD

100% recycled paper

Landscape Design
Strategic Planning & Assessment
Development Planning
Urban Design & Masterplanning
Environmental Impact Assessment
Landscape Planning & Assessment
Landscape Management
Ecology
Historic Environment
GIS & Visualisation
Transport & Movement Planning
Arboriculture

FS566056
EMS566057
OHS627041

Landscape Institute Registered Practice

Contents

Chapter 1
Introduction 1

Background to the South Gloucestershire Local Plan 1
The requirement to undertake Habitats Regulations Assessment of development plans 2
Previous HRA work 3
Structure of this report 3

Chapter 2
South Gloucestershire Local Plan 2026-2041 5

Chapter 3
Approach to HRA 7

Stages of HRA 7
Typical stages 8
Identifying types of potential impact from the Local Plan 10
Identifying Habitats Sites that may be affected and their conservation objectives 10
Assessment of 'likely significant effects' 11
Interpretation of 'likely significant effect' 11
Screening assessment 12
In-combination effects 12
Appropriate Assessment 13

Chapter 4
Habitats Sites 15

Identification of Habitats Sites which may be affected by the Local Plan 15
Functionally linked habitats 16

Chapter 5
HRA Screening 20

HRA Screening of policies 20
HRA Screening by impact 21

Chapter 6
Appropriate Assessment 38

Physical damage / loss of habitat 38
Non-physical disturbance 42
Bird strike 43
Air pollution (vehicle emissions) 43
Air pollution (industrial emissions) 44
Recreation 44
Water quality (direct pollution) 47
Summary of Appropriate Assessment 47

Chapter 7
Conclusions and next steps 49

Recreation pressure 49
Air pollution 50
Next steps for the HRA 50

Appendix A
Habitats Sites within 15km of South Gloucestershire A-1

Appendix B
Habitats Sites information B-1

Appendix C
HRA Screening C-1

Policies screened out C-1
Policies screened in C-3
Policies providing mitigation C-8
Site allocations screened in C-10

Appendix D
Site allocations assessed in HRA D-1

Appendix E
Saved policies considered in HRA E-1

Appendix F
Record of consultation F-1

Contents

Table of Tables

Table 3.1 Stages of HRA 8
Table 4.1 Habitats Sites to be considered in the HRA of the South Gloucestershire Local Plan 16
Table 4.2 Bat consultation zones (bands) for horseshoe bats 17
Table 5.2 Summary of HRA Screening conclusions by impact type 33
Table 5.3 Policies and development locations contributing to likely significant effects 34
Table D.1 Site allocations assessed in HRA D-2
Table E.1 Saved policies and how they have been considered in this HRA E-2
Table F.1 Comments received on previous iterations of the HRA (relevant excepts) F-2

Table of Figures

Figure A.1 Habitats Sites within 15km of South Gloucestershire A-2

Chapter 1
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 2026-2041.

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. A HRA Screening Report was then prepared in December 2023, which built upon the earlier work and identified likely significant effects of the Phase 3 South Gloucestershire Local Plan's draft policies and emerging spatial strategy. The HRA Screening Report was consulted upon alongside the Phase 3 Local Plan.

1.3 This version of the HRA assesses the Publication (Regulation 19) Local Plan 2026-2041 – hereafter referred to as the Publication Local Plan - and provides a full assessment of the policies and site allocations in the Publication Local Plan. The HRA will be published for consultation alongside the plan, as part of the Regulation 19 consultation.

Background to the South Gloucestershire Local Plan

1.4 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 2026 to 2041. The plan will replace much of the adopted Core Strategy 2006 – 2027 (adopted in 2013) and the Policies, Sites and Places Plan (adopted in 2017), although a number of its policies will be 'saved' and incorporated into the new Local Plan. The Local Plan will also replace most of the West of England Joint Waste Core Strategy policies (adopted in 2011).

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.

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 Phase 3 Local Plan consultation (December 2023 to February 2024), the Council consulted on the Local Plan objectives, the scale and type of development to be planned for, potential allocations, the emerging preferred strategy and infrastructure requirements. The Phase 3 Local Plan also included proposed policy wording in relation to topics including climate change, affordable homes, the economy and town centres.

1.8 The Publication Local Plan sets out the full suite of policies and site allocations for the plan area and will be subject to Regulation 19 consultation in early 2025.

The requirement to undertake Habitats Regulations Assessment of development plans

1.9 The requirement to undertake HRA of development plans was confirmed by the amendments to the Habitats Regulations published for England and Wales in 2007[1]; the currently applicable version is the Habitats Regulations 2017, as amended[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[3] of any 'Habitats 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[4] (PPG).

1.10 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: SPAs and SACs. These were classified under European Union (EU) legislation but since 1 January 2021 are protected in the UK by the Habitats Regulations 2017[2] (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[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[6]), and for regularly occurring migratory species not listed in Annex I.

1.11 The term 'European sites' was previously commonly used in HRA to refer to 'Natura 2000' sites[7] and Ramsar sites (international designated under the Ramsar Convention). However, a Government Policy Paper[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.

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

1 The Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007 (2007) SI No. 2007/1843. TSO (The Stationery Office), London.
2 The Conservation of Habitats and Species Regulations 2017 (2017) SI No. 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 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')
6 Directive 2009/147/EC of 30 November 2009 on the conservation of wild birds (the 'Birds Directive')
7 The network of protected areas identified by the EU
8 https://www.gov.uk/government/publications/changes-to-the-habitats-regulations-2017/changes-to-the-habitats-regulations-2017
9 Defra and Natural England (2021) Guidance - Habitats regulations assessments: protecting a European site, https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site

1.13 *"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."*

1.14 Furthermore, the National Planning Policy Framework (NPPF)[10] and practice guidance[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.

1.15 For simplicity, and in line with common usage, this report uses the term 'Habitats Site' to refer to all types of designated site within the 'national site network' and other sites (e.g. Ramsar sites) for which Government guidance requires an HRA.

1.16 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 Habitats 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

1.17 In 2018, a HRA Statement[12] on the South Gloucestershire Local Plan was prepared by the Council, which detailed the proposed HRA methodology and identified Habitats Sites that could potentially be affected.

1.18 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 Habitats Sites that could potentially be affected by the Local Plan.

1.19 HRA Screening (December 2023) was then undertaken of the emerging policies and preferred spatial strategy presented in the Phase 3 Local Plan. This built upon and updated the information gathered at the Scoping stage and took into account consultation comments on the Scoping Report (see **Appendix F**). The Screening assessment identified potential likely significant effects in relation to: physical damage and loss of habitat, non-physical disturbance, bird strike, air pollution, recreation, and changes to water quantity and quality.

1.20 Due to the high-level nature of the Phase 3 Local Plan, Appropriate Assessment was not carried out at that stage; and the report concluded that further work (including traffic modelling to screen air pollution impacts) would be undertaken at the next stage of the HRA. The HRA Screening Report was published for Regulation 18 consultation, alongside the Phase 3 Local Plan.

1.21 This HRA report presents a Screening and Appropriate Assessment of the policies and site allocations in the Publication (Regulation 19) Local Plan. It builds on and updates the information gathered at the Screening stage, and takes into account comments received from Natural England on the HRA during the Regulation 18 consultation (see **Appendix F**).

Structure of this report

1.22 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 2026-2041 - summarises relevant parts of the Publication 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** Habitats Sites - describes the Habitats 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 for the Publication Local Plan.

[10] NPPF para 194, ttps://www.gov.uk/guidance/national-planning-policy-framework
[11] The HRA Handbook, Section A3. David Tyldesley & Associates, a subscription based online guidance document, https://www.dtapublications.co.uk/handbook/European
[12] https://beta.southglos.gov.uk/static/b731e7b61106c7867d9ec498460b1b41/Habitats_Regulations_Assessment_HRA_Statement__Feb_18.pdf

- **Chapter 6** Conclusions and Next Steps - summarises the HRA conclusions and describes the next steps to be undertaken.
- **Appendix A** presents a map of Habitats Sites within 15km of South Gloucestershire.
- **Appendix B** summarises key information about the characteristics of Habitats Sites considered in the HRA.
- **Appendix C** presents the Screening matrices that have been used to screen the plan's policies and site allocations.
- **Appendix D** lists site allocations assessed in the HRA.
- **Appendix E** lists the saved policies that are relevant to the HRA assessment, either because they provide mitigation or contribute to in-combination effects.
- **Appendix F** provides a record of consultation with key consultees.

Chapter 2
South Gloucestershire Local Plan 2026-2041

2.1 The Publication version of the Local Plan sets out a vision and objectives for the plan. The headline of the vision is *"We want what local people want for South Gloucestershire. Our vision is of happy, healthy people living in thriving communities - both new and existing - which come together to improve quality of life for all."*

2.2 This is supported by the following objectives:

1. Providing new homes to meet the needs of all our communities.
2. Connecting development to existing transport and travel infrastructure, maximising opportunities to embed active and sustainable travel.
3. Supporting development which mitigates and improves our resilience to climate change and enhances nature and biodiversity.
4. Focusing on high quality design and adopting best practice approaches to place-making.
5. Supporting a prosperous, innovative and diverse economy, which delivers good quality, high paid jobs for local people.
6. Deliverability and Viability.

2.3 The Local Plan then sets out 48 policies, grouped into the following chapters (listed in full in **Appendix D**):

- Where homes and jobs will go;
- Homes for all;
- Delivering jobs and prosperity;
- Thriving town centres, leisure and cultural facilities;
- Helping you get around;
- Responding to climate change;
- Enhancing our natural environment;
- Creating well designed spaces; and
- Minerals, resources and waste.

2.4 At the time of writing, the policies do not have numbers, therefore the HRA report refers to policies with their full title.

2.5 The list of site allocations assessed in the HRA is provided in **Appendix D**. These provide capacity for a total of 15,267 new homes over the plan period; however Policy LPS1

Strategic principles provides for a minimum of 22,573 homes over plan period.

2.6 In addition to the policies within the Publication Local Plan, a number of policies from the adopted Local Plan Core Strategy 2006-2027 (December 2013) and Local Plan 'Policies, Sites and Places Plan' (November 2017) are also being saved and should be read alongside the new Local Plan. These have already been subject to HRA and are not assessed individually in this HRA; however, they are taken into account where they provide mitigation/safeguards for identified impacts, or where they contribute to in-combination effects.

2.7 **Appendix E** lists the policies that have been saved and whether they provide mitigation or contribute to in combination impacts.

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 Habitats 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[13] 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 [Habitats] site, either alone or in combination with other plans or projects (the 'Significance Test'). If yes, proceed to Step 3.

3.5 [Steps 1 and 2 are undertaken as part of Stage 1: HRA Screening, shown in **Table 3.1**.]

- Step 3: Under Reg. 105(1), make an Appropriate Assessment of the implications for the European

[13] Regulation 5 of the Habitats Regulations 2017.

[Habitats] 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.

3.6 [This step is undertaken during Stage 2: Appropriate Assessment, shown in **Table 3.1**.]

- 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 [Habitats] site.

3.7 [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 [Habitats] 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).

3.8 [This step is undertaken during Stage 3: Assessment where no alternatives exist, and adverse impacts remain taking into account mitigation shown in **Table 3.1**]

Typical stages

3.9 Table 3.1 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[14,15,16].

Table 3.1 Stages of HRA

Stage	Task	Outcome
Stage 1: HRA Screening	Description of the development plan and confirmation that it is not directly connected with or necessary to the management of Habitats Sites. Identification of potentially affected Habitats Sites and their conservation objectives[17]. 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[18].	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)	Information gathering (development plan and Habitats Sites[19]). Impact prediction. Evaluation of development plan impacts in view of conservation objectives of Habitats Sites. Where impacts are considered to directly or indirectly affect qualifying features of Habitats Sites, identify how these effects will be avoided or reduced ('mitigation').	Appropriate assessment report describing the plan, Habitats Site baseline conditions, the adverse effects of the plan on the Habitats 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	Identify 'imperative reasons of overriding public interest' (IROPI). Demonstrate no alternatives exist.	This stage should be avoided if at all possible. The test of IROPI and the requirements for compensation are extremely onerous.

[14] UK Government Planning Practice Guidance
[15] European Commission (2001) Assessment of plans and projects significantly affecting European Sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.
[16] The HRA Handbook. David Tyldesley & Associates, a subscription based online guidance document
[17] Conservation objectives are published by Natural England for SACs and SPAs
[18] 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.
[19] 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

Stage	Task	Outcome
taking into account mitigation	Identify potential compensatory measures.	

3.10 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

3.11 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).

3.12 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.

3.13 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 Habitats Sites, with any such measures being considered at the Appropriate Assessment stage as relevant.

3.14 This HRA also considers the *Holohan v An Bord Pleanala* (November 2018) judgment 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.

3.15 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 Habitats 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 Habitats Site, but which may be important in supporting the ecological processes of the qualifying features, has also been considered in this HRA.

3.16 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".

3.17 In addition to this, the HRA takes into consideration the 'Wealden' judgment from the CJEU.

3.18 *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.

3.19 In light of this judgment, 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.

3.20 The HRA also takes into account the *Grace and Sweetman* (July 2018) judgment 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"

3.21 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

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

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

3.23 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 Habitats 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 Habitats Sites that may be affected and their conservation objectives

3.24 In order to begin the search of Habitats 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.

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

3.26 The assessment also takes into account areas that may be functionally linked to the Habitats 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 Habitats

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.

3.27 While the boundary of a Habitats 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[20]. HRA therefore considers whether any nearby (or linked) Habitats Sites make use of functionally linked habitats, and the impacts that could affect those habitats.

3.28 Detailed information about each Habitats 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[21]. Natural England's conservation objectives[22] 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.

3.29 Together, the text of the Local Plan and information on the Habitats 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'

3.30 As required under Regulation 105 of the Conservation of Habitats and Species Regulations 2017[23] (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 Habitats Sites.

3.31 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'

3.32 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.

3.33 In the Waddenzee case[24], 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:

3.34 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).

3.35 An opinion delivered to the Court of Justice of the European Union[25] 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."

3.36 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'.

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

[20] Chapman, C. & 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
[21] Obtained from the Natural England website
[22] Obtained from Natural England website
[23] SI No. 2017/2012
[24] ECJ Case C-127/02 "Waddenzee" Jan 2004
[25] Advocate General's Opinion to CJEU in Case C-258/11 Sweetman and others v An Bord Pleanala 22nd Nov 2012

Screening assessment

3.38 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 Habitats Site.

3.39 An HRA Screening matrix has been undertaken (**Appendix C**) that considers the potential for likely significant effects resulting from each policy in the Publication Local Plan, and the site allocations that may contribute to each type of impact. The screening groups policies into the following categories, with explanations as to why the policies are in these categories:

- Policies screened out as there is no impact pathway;
- Policies screened out as there is an impact pathway but there will be no likely significant effects, e.g. due to the scale of development;
- Policies screened in as there are likely significant effects; and
- Policies which provide mitigation for impacts arising from Local Plan policies.

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

3.41 For site allocations, in Appendix C, criteria are defined for the locations of development in which likely significant effects could occur. Site allocations meeting those criteria are listed.

3.42 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 Habitats 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

3.43 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 Habitats 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.

3.44 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 Habitats 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 Habitats 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[26].

3.45 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.

3.46 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;

[26] The HRA Handbook. David Tyldesley & Associates, a subscription based online guidance document

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

3.47 For this HRA, the assessment of in combination impacts also includes consideration of policies that have been saved from the adopted Local Plan Core Strategy 2006-2027 (December 2013) and Local Plan 'Policies, Sites and Places Plan' (November 2017) (**Appendix E**) the following major projects referenced in Local Plan policies:

- Policy LP14 Severnside employment area: consented link road to the M49;
- Nationally Significant Infrastructure Projects: Oldbury A station decommissioning (Policy LP31)., potential future application for nuclear new build (Policy LPS15; if within the plan period).

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

Appropriate Assessment

3.49 Following the Screening stage, if likely significant effects on Habitats 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 Habitats Sites, in view of their conservation objectives. Appropriate Assessment considers the impacts of the plan (either alone or in combination with other projects or plans) on the integrity of Habitats Sites with respect to their conservation objectives and to their structure and function This involves detailed consideration of plans and projects with the potential for in-combination effects, where relevant.

3.50 Where likely significant effects in-combination cannot be ruled out at the Screening stage, the Appropriate Assessment gathers 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.

3.51 Appropriate Assessment also identifies potential mitigation measures where adverse effects on integrity cannot be ruled out.

Assessing the effects on site integrity

3.52 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 judgment 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 Habitats Sites also need to be considered. The Appropriate Assessment builds 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.

3.53 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.

3.54 A conclusion needs to be reached as to whether or not the Local Plan would adversely affect the integrity of a Habitats 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.

- Result in the loss of key features[27].

3.55 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 Habitats Site. However, supplementary advice is not available for all Habitats Sites. An Appropriate Assessment draws on these to help to understand what is needed to maintain the integrity of the Habitats Sites.

3.56 For each Habitats 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 Habitats Site.

[27] ibid

Chapter 4
Habitats Sites

4.1 This chapter identifies Habitats 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 Habitats Sites which may be affected by the Local Plan

4.2 In order to initiate the search of Habitats Sites that could potentially be affected by a Local Plan, it is established practice in HRAs to consider Habitats 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 15km was used to identify Habitats 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 Habitats 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 Habitats 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, Habitats Sites beyond 15km 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 Habitats Sites beyond 15km 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 Habitats 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**.

Table 4.1 Habitats Sites to be considered in the HRA of the South Gloucestershire Local Plan

Habitats Site	Closest distance/location from South Gloucestershire boundary
Special Areas of Conservation (SAC)	
Severn Estuary SAC	Within the plan area
Bath and Bradford on Avon Bats SAC	3.0km south east
River Wye SAC	3.2km north east
Avon Gorge Woodlands SAC	4.4km south west
Wye Valley and Forest of Dean Bat Sites SAC	5.7km north west
Wye Valley Woodlands SAC	5.9km north
Rodborough Common SAC	14.6km north east
River Usk SAC	14.2km west
Special Protection Areas (SPA)	
Severn Estuary SPA	Within the plan area
Chew Valley Lake SPA	11.3km south
Ramsar sites	
Severn Estuary Ramsar site	Within the plan area

Functionally linked habitats

4.6 Habitat loss from development in areas outside of the Habitats Site boundaries may also result in likely significant effects where that habitat contributes towards maintaining the interest feature for which the Habitats 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. Habitats 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 (otter, 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).

Otter

4.7 Otter is a qualifying species at River Wye SAC. Otter home ranges can occupy extensive areas and linear distances, and therefore the population of otter for which the River Wye SAC is designated is likely to utilise, and depend upon, the availability and connectivity of suitable riparian and wetland habitat in the wider region, including smaller watercourses and field drains.

4.8 However, the River Wye SAC is 3.2km away from the plan area. It is therefore not expected that there will be significant habitats used by otter from the River Wye SAC, within the plan area. Impacts on otter functionally linked habitats are therefore only a consideration for impacts that occur beyond the plan area.

Bats

4.9 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*)
- Wye Valley and Forest of Dean Bat Sites SAC (Greater horseshoe bat *Rhinolophus ferrumequinum* and Lesser horseshoe bat *Rhinolophus hipposideros*)

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

4.11 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 North Somerset Council[28] terms these areas as 'Bat Consultation Zones'. The Bat Consultation Zone illustrates the geographic area where Greater and Lesser horseshoe bats may be found. It is divided into three bands, A, B, and C reflecting the density at which horseshoe species may be found at a distance from a roost site. As shown in **Table 4.2** below, band A is considered the habitat that will most likely used by Greater and Lesser horseshoe bats as it is located closest to the SAC while band C is habitat that is less likely to be used by Greater and Lesser horseshoe bats and is located furthest from the SAC.

Table 4.2 Bat consultation zones (bands) for horseshoe bats

Band	Greater horseshoe bats		Lesser horseshoe bats	
	Maternity roost	Other roost	Maternity roost	Other roost
A	0 - 2.2km	n/a	0 – 0.61km	n/a
B	2.2 - 4.0km	0 – 0.61km	0.61 – 2.5km	0 – 0.3km
C	4.0 – 8.0km	0.61 – 2.4km	2.5 – 4.1km	0.3 – 1.25km

4.12 Wiltshire Council has also prepared guidance[29] on core areas in which bat functionally linked habitats could occur. This identifies core areas of 4km for greater horseshoe roosts and 2km for lesser horseshoe roosts. For this HRA, the more precautionary North Somerset figures have been used for greater and lesser horseshoe bats. However, the Wiltshire guidance also identifies core area of 1.5km from the roost for Bechstein's, which are a qualifying feature of Bath and Bradford on Avon Bats SAC. This SAC is 3km from the plan area, so Bechstein's habitats will not occur within the plan area.

4.13 Within the plan area, bat functionally linked habitats could therefore occur:

- Within 8km of Bath and Bradford on Avon Bats SAC (greater horseshoes are qualifying features), i.e. a small area in the southeast corner of the district, around Cold Ashton, Marshfield and St Catherine.
- Within 8km of Wye Valley & Forest of Dean Bat Sites SAC (greater and lesser horseshoes are qualifying features), i.e. a very small area in the north west corner of the district, north of Shepperdine.

4.14 Wye Valley Woodlands SAC is designated for lesser horseshoes but is greater than 4.1km from South Gloucestershire (5.9km), so functionally linked habitats associated with this site will not occur in the plan area.

Birds

4.15 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.* The 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. These species regularly depend upon offsite habitat such as pastures, arable crop, and stubble fields for foraging.

4.16 Chew Valley Lake SPA is designated for non-breeding northern shoveler *Anas clypeata*. The conservation objective

[28] North Somerset Council (2018) North Somerset and Mendip Bats Special Area of Conservation (SAC) Guidance on Development: Supplementary Planning Document, https://n-somerset.gov.uk/my-services/planning-building-control/planning-policy/supplementary-plans-guidance/adopted-supplementary-plans

[29] Wiltshire Council (2015) Bat Special Areas of Conservation (SAC) Planning Guidance for Wiltshire, https://www.wiltshire.gov.uk/media/992/Bat-S-A-C-developers-guidance-inc-Bath-Bradford-on-Avon-Chilmark-and-Mottisfont-/pdf/Bath-and-bradford-on-avon-september-2015-bat-sac-guidance.pdf

supplementary advice[30] 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.

4.17 To identify habitats used by birds from the Severn Estuary designated sites, Natural England has commissioned studies to identify land with proven or possible functional linkages to the SPA. These studies, by Link Ecology, have been undertaken in phases, for different areas of the estuary.

4.18 Phase 5 of the study (Gloucestershire and Worcestershire[31] confirmed 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 in Gloucestershire and Worcestershire for grazing/roosting. Within Gloucestershire, the nearest confirmed location of functionally linked habitats is at The Moors, Slimbridge, c.9km north of South Gloucestershire.

4.19 Phase 6 of the study (Avon and Somerset)[32] lists the following high tide roosts outside the SPA area, within South Gloucestershire:

- Pilning Wetland: newly created wetland. Primary roost for: gadwall, shoveler, tufted duck; and possibly: teal, mallard, little egret, lapwing, curlew, dunlin, redshank.
- Shepperdine: improved pasture. Primary roost for: curlew; also used by lapwing.
- Lagoon 1, Oldbury Power Station: improved pasture (former silt lagoon). Historic primary roost for: wigeon, teal, lapwing, redshank.
- Lagoon 2, Oldbury Power Station: predominantly scrub with small areas of wetland (former silt lagoon). Historic primary roost for: lapwing, dunlin, curlew.
- Lagoon 3, Oldbury Power Station: reedbed (former silt lagoon). Primary roost for: snipe. Historic primary roost for: wigeon, teal, mallard, lapwing, dunlin, curlew.
- Fields south of Lagoon 3, Oldbury Power Station: improved pasture. Possible primary roost for curlew. Also used by lapwing and dunlin.

4.20 And near to the plan area at:

- Berkely Pill: Pill mouth and saltmarsh, partly within the SPA. Primary roost for: wigeon, snipe, redshank. c.3.5km north of the plan area.

4.21 In addition to these (which are all considered to be functionally linked to the SPA), the study identifies additional functionally linked habitats that support the SPA bird species for foraging etc:

- Shepperdine fields, land between the high tide roosts at Shepperdine and Lagoon 1, Oldbury Power Station.
- OPS lake, adjacent to Lagoon 3, Oldbury Power Station.
- Fields to south of Lagoon 3, which surround the high tide roost also called ‘Lagoon 3, Oldbury Power Station’.
- Fields south of Oldbury Pill.
- Lower Farm West, west of Cowhill.
- Cophills Lane, west of Littleton-upon-Severn.
- Littleton Brick Pits, west of Cophills Lane.
- Fields inland of Littleton Warth, west of Littleton-upon-Severn.
- Fields south of Old Passage.
- ASEA Area 5, adjacent to ‘fields south of Old Passage’.
- Land at Ingst.
- Laurel to Southworthy Farms, adjacent to the high tide roost at Pilning Wetland.
- Land east of the M49, near Pilning.
- Tesco Pool, near Easter Compton.
- Severn Beach fields.
- Former Astra Zeneca fields, at Severn Beach.
- Avlon Works Pools, at Severn Beach.
- Portbury Wharf Nature Reserve.

4.22 And near to the plan area at:

- Oakhunger Farm, adjacent to Berkely Pill, c.3.5km north of the plan area.
- ASEA Area 4, Hallen Marsh, c.1km south of the plan area.

4.23 The majority of these sites are less than 1.5km from the SPA/Ramsar, with some near Easter Compton / Hallen, in the south of the plan area, up to 3km from the SPA. Habitats used by the qualifying species of the Severn Estuary SPA/Ramsar

[30] European Site Conservation Objectives: Supplementary advice on conserving and restoring site features Chew Valley Lake SPA (March 2019)

[31] Link Ecology (2022) Identification of wintering and passage roosts on functionally linked land of the Severn Estuary - Gloucestershire and Worcestershire (Phase 5) (NECR401), https://publications.naturalengland.org.uk/publication/5694125407207424

[32] Link Ecology (2021) Identification of land with proven or possible functional linkage with the Severn Estuary SSSI/SPA Phase 6 (Avon and Somerset), unpublished. High tide roost data taken from Table A1.1; location of FLL taken from Maps 1c, 1d, 2a.

site include[33] inland lakes, flood pasture/meadow, marsh, rivers and grassland.

Fish and freshwater invertebrates

4.24 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*.

4.25 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*.

4.26 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.

4.27 The River Wye and River Usk flow into the Severn Estuary, therefore the River Wye SAC and River Usk SAC both have functional linkage to the Severn Estuary SAC.

4.28 Significant functionally linked habitats are likely to be larger tributaries of these rivers, for example the River Avon, although within the plan area the rhines in South Gloucestershire may also provide some supporting habitat to the Severn Estuary SAC species.

[33] Taken from https://www.bto.org/understanding-birds/birdfacts

Chapter 5
HRA Screening

5.1 The purpose of HRA Screening is to identify the likely significant effects of the Publication Local Plan's policies and site allocations and to identify the scope of any Appropriate Assessment work required. The HRA Screening assessment in full is presented within **Appendix C**.

5.2 As explained in paragraphs 3.12 and 3.13, the Screening stage does not take into account mitigation, including any measures that may be embedded within the plan's policies. Mitigation is taken into account in the Appropriate Assessment (**Chapter 6**).

HRA Screening of policies

5.3 The following policies from the Publication Local Plan have been screened in for further assessment in the Appropriate Assessment:

- Policy LPS1 Strategic principles;
- Policy LP3 Residential development in the countryside;
- Policy LP4 Easter Compton village extensions;
- Policy LP5 New Woodlands;
- Policy LP6 North Lyde 'Ecotech' village;
- Policy LP7 Carsons Green and Rockhouse Farm new neighbourhood;
- Policy LP8 North Warmley new neighbourhood;
- Policy LP9 Charfield village extensions;
- Policy LP10 Almondsbury village extensions;
- Policy LP12 The University of West of England, Frenchay Campus;
- Policy LP13 Land at former Filton Airfield – Brabazon;
- Policy LP14 Severnside employment area;
- Policy LPS5 Accommodation for Gypsies and Travellers;
- Policy LPS6 Accommodation for Travelling Showpeople;
- Policy LPS7 Safeguarded employment areas;
- Policy LP19 Non-safeguarded employment sites;
- Policy LP21 Major stadia;
- Policy LPS9 Sustainable transport movement and infrastructure;

- Policy LP26 Renewable and low carbon energy systems;
- Policy LP27 Community energy;
- Policy LPS13 Mineral working and restoration;
- Policy LP32 Radioactive waste; and
- Policy LP33 Waste.

5.4 All of the site allocations (and windfall development) have also been screened in as they will all contribute to in combination air pollution effects.

5.5 Further details of the impact pathways associated with these policies and sites is set out below.

HRA Screening by impact

Physical damage/loss of habitat

5.6 Any development resulting from the Publication Local Plan would take place within the plan area; therefore only Habitats Sites or FLL 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 Habitats 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.

5.7 None of the site allocations fall within the boundaries of the Severn Estuary SAC, SPA or Ramsar site; however some of the policies do permit development in locations that are immediately adjacent to the SAC/SPA/Ramsar:

- Policy LP26 Renewable and low carbon energy systems: defines areas safeguarded for wind energy development, including at one location north of Shepperdine, immediately adjacent to the SAC/SPA/Ramsar.
- Policy LP32 Radioactive waste: Oldbury Power Station is adjacent to the SAC/SPA/Ramsar and the management or treatment of radioactive waste would take place at the power station.

5.8 In addition to these, a number of policies within the Publication Local Plan could result in development outside of identified locations (e.g. site allocations or town centres). In theory, and without mitigation, development associated with the following policies could occur within the Severn Estuary SAC, SPA or Ramsar site boundaries:

- Policy LP3 Residential development in the countryside;
- Policy LPS5 Accommodation for Gypsies and Travellers;
- Policy LPS6 Accommodation for Travelling Showpeople;
- Policy LP21 Major stadia;
- Policy LP27 Community energy; and
- Policy LP33 Waste.

5.9 It is likely that, in practice, development will not be permitted within a Habitats Site, for example as a result of other policies in the Plan; however, in line with People Over Wind judgment, 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). These are likely to be significant due to the Local Plan alone.

Functionally linked habitats

Bats

5.10 Within the plan area, bat functionally linked habitats could occur in the following locations.

5.11 Within 8km of Bath and Bradford on Avon Bats SAC:

- Site allocation GTPU07 Tormarton Road, Marshfield**.**

5.12 Within 8km of Wye Valley & Forest of Dean Bat Sites SAC:

- Policy LP26 Renewable and low carbon energy systems: one safeguarded area within 8km, at Shepperdine.
- No site allocations.

5.13 In addition, policies that permit development outside of allocated sites / specific locations (see para. 5.7), i.e. windfall development, could also fall within these areas if the development is in:

- The south east corner of the district, around Cold Ashton, Marshfield and St Catherine; or
- A very small area in the northwest corner of the district, north of Shepperdine.

There is the potential for likely significant effects at Bath and Bradford on Avon Bats SAC, and Wye Valley & Forest of Dean Bat Sites SAC due to physical damage or loss of functionally linked habitats used by bats from

Habitats Sites. These may be significant due to the Local Plan alone or, if not, in combination.

Birds

5.14 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 (see paragraphs 4.19 & 4.21); therefore there is the potential for physical damage or loss of habitat to affect these bird populations.

5.15 The following policies and site allocations overlap with habitats identified as being functionally linked to the Severn Estuary SPA/Ramsar site:

- Policy LP32 Radioactive waste: known high tide roosts at Lagoons 1-3 and fields around Lagoon 3. Other functionally linked habitats at Shepperdine fields, OPS lake, (other) fields to the south of Lagoon 3, and fields south of Oldbury Pill.
- Policy LP14 Severnside employment area: 'Former Astra Zeneca fields' and 'Avlon Works Pools' are entirely within the Area. Also overlaps with 'Land east of the M29' and 'Tesco Pool'.
- Site allocation PSB4 Land to the east of the B4055, Pilning Station (appears to be immediately adjacent to 'Land east of the M29' and 'Tesco Pool', but there may be some overlap)

5.16 In addition, the policies listed in paragraph 5.7 could in theory permit development within areas of functionally linked habitats, because they do not define the location of development.

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 habitat at functionally linked habitats used by birds from either SPA/Ramsar site. These may be significant due to the Local Plan alone or, if not, in combination.

Fish and freshwater invertebrates

5.17 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.

5.18 The following site allocations and policies may permit development adjacent to rhines and watercourses linked to the Severn:

- Policy LP4 Easter Compton village extensions;
- Policy LP14 Severnside employment area;
- Policy LP19 Non-safeguarded employment sites (some existing non-safeguarded employment sites near to watercourses);
- Policy LP26 Renewable and low carbon energy systems (the safeguarded area north of Shepperdine);
- Policy LP32 Radioactive waste (development at Oldbury power station);
- Site allocation PSB1 Land off Prospect Close, Easter Compton;
- Site allocation PSB4 Land to the east of the B4055, Pilning Station;
- Site allocation THO3 Land west of B4061, Thornbury;
- Site allocation GTE01 Green Orchards, Berwick Lane;
- Site allocation GTI01 Berwick Park, Berwick Lane;
- Site allocation GTNS05 Green Orchards (new).

5.19 Note that these have been identified through high-level desk study; there may be others.

5.20 In addition, development could occur outside these areas, under the policies listed in paragraph 5.7.

There is the potential for likely significant effects at Severn Estuary SAC and Ramsar site (and River Wye SAC and River Usk SAC indirectly), due to physical damage or loss of functionally linked habitats used by fish and freshwater invertebrates from this Habitats Site. These may be significant due to the Local Plan alone or, if not, in combination.

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

5.21 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 Habitats Sites where birds are the qualifying features, although such effects may also impact upon some mammals and fish species.

5.22 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 Habitats 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.

5.23 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 F**) that visual disturbance in relation to birds is unlikely to occur beyond 200m.

5.24 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 Habitats Site or functionally linked habitats, where there are qualifying features sensitive to these disturbances.

5.25 Severn Estuary SAC (fish), SPA and Ramsar site (birds) are the only Habitats Sites within South Gloucestershire or within 500m of the plan area.

5.26 None of the site allocations are within 500m of a Habitats Site; however, the following policies permit development within 500m of the Severn Estuary SAC/SPA/Ramsar:

- Policy LP14 Severnside employment area: c.50m from the SAC/SPA/Ramsar.
- Policy LP26 Renewable and low carbon energy systems: area safeguarded for wind energy development (one area adjacent to the SAC/SPA/Ramsar, north of Shepperdine.
- Policy LP32 Radioactive waste: development assumed likely to occur at Oldbury Power Station is adjacent to the SPA/Ramsar.

5.27 These development locations are also within the 200m screening distance for visual disturbance (see paragraph 5.23).

5.28 In addition, the policies listed in paragraph 5.7 could in theory result in development outside of the site allocations.

There is the potential for likely significant effects at Severn Estuary SAC, SPA and Ramsar site as a result of non-physical disturbance (on site). These are likely to be significant due to the Local Plan alone.

Functionally linked habitats

Bats

5.29 Impacts on functionally linked habitats used by bats could occur where development is within 500m of those habitats. Within the plan area, bat functionally linked habitats could occur within 8km of Bath & Bradford on Avon Bats SAC or Wye Valley & Forest of Dean Bat Sites SAC.

5.30 Within 8km (+500m) of Bath and Bradford on Avon Bats SAC:

- Site allocation GTPU07 Tormarton Road, Marshfield.

5.31 Within 8km (+500m) of Wye Valley & Forest of Dean Bat Sites SAC:

- Policy LP26 Renewable and low carbon energy systems: one of the safeguarded areas is within 8km.
- No site allocations.

5.32 In addition, policies that permit development outside of allocated sites / specific locations (see para. 5.7) could also fall within these areas if the development is in:

- The southeast corner of the district, around Cold Ashton, Marshfield and St Catherine; or
- A very small area in the northwest corner of the district, north of Shepperdine.

There is the potential for likely significant effects at Bath and Bradford on Avon Bats SAC or Wye Valley & Forest of Dean Bats Sites SAC due non-physical disturbance of functionally linked habitats used by bats from these Habitats Sites. These may be significant due to the Local Plan alone or, if not, in combination.

Birds

5.33 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 (see paragraphs 4.19 & 4.21).

5.34 The following policies and site allocations overlap with habitats identified as being functionally linked to the Severn Estuary SPA/Ramsar site:

- Policy LP32 Radioactive waste: known high tide roosts at Lagoons 1-3 and fields around Lagoon 3. Other functionally linked habitats at Shepperdine fields, OPS lake, (other) fields to the south of Lagoon 3, and fields south of Oldbury Pill.
- Policy LP14 Severnside employment area: ‘Former Astra Zeneca fields’ and ‘Avlon Works Pools’ are entirely

within the Area. Also overlaps with 'Land east of the M29' and 'Tesco Pool'.

- Site allocation PSB4 Land to the east of the B4055, Pilning Station (appears to be immediately adjacent to 'Land east of the M29' and 'Tesco Pool', but there may be some overlap)

5.35 And the following is within 500m of functionally linked habitats:

- Site allocation PSB1 Land off Prospect Close, Easter Compton

5.36 These development locations are also within the 200m screening distance for visual disturbance.

5.37 In addition, the policies listed in paragraph 5.7 could in theory permit development within areas of functionally linked habitats, because they do not define the location of development.

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 Habitats Sites. These may be significant due to the Local Plan alone or, if not, in combination.

Fish and freshwater invertebrates

5.38 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 Severn Estuary SAC (or linked River Wye SAC and River Usk SAC) cannot be met.

5.39 All other Habitats 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.

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.

Bird strike

5.40 Wind turbines, have the potential to impact upon birds from the Severn Estuary SPA/Ramsar site (and potentially the Chew Valley Lake SPA if linked). This could occur where wind turbines are within or adjacent to Severn Estuary SPA/Ramsar, or in locations over which birds from Severn Estuary SPA/Ramsar or Chew Valley SPA fly (e.g. in proximity to functionally linked habitats; although the flight routes are not known).

5.41 Wind turbine development could be permitted under the following policies:

- Policy LP14 Severnside employment area;
- Policy LP26 Renewable and low carbon energy systems; and
- Policy LP27 Community energy.

There is the potential for likely significant effects at Severn Estuary SPA / Ramsar and Chew Valley Lake SPA (and near to associated functionally linked habitats) as a result of bird strike. These are likely to be significant due to the Local Plan alone.

Air pollution

Dust

5.42 Dust 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.

5.43 The effects of dust are most likely to be significant if development takes place within 500m of a Habitats 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.

5.44 Significant volumes of dust are only expected to arise as a result of the Local Plan Policy LPS13 Mineral working and restoration, which plans for increased extraction at three existing quarries in Tytherington, Wickwar and Chipping Sodbury. These are all >5km from the Severn Estuary and are unlikely to result in significant dust at the Habitats Site or functionally linked habitats.

There are no likely significant effects associated with dust at Severn Estuary SAC and Ramsar (and the SPA indirectly), as a result of dust. This impact has been screened out.

Vehicle emissions

5.45 Air pollution is most likely to affect Habitats 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.

5.46 Increases in nitrogen deposition, nitrogen oxides (NOx), ammonia (NH3) and acid deposition can all arise from vehicle emissions. Deposition of nitrogen compounds may lead to both soil and freshwater acidification, and NOx can cause eutrophication of soils and water.

5.47 The JNCC's 'Guidance on decision making thresholds for air pollution'[34] states that "*For the purpose of decision-making, unless local circumstances support a wider zone, plan HRA should take account of the potential effects of traffic emissions on European sites located within 10 km of the plan boundary.*"

5.48 Based on the Highways Agency Design Manual for Road and Bridges (DMRB)[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.

5.49 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 km/hr or more; or
- Peak hour speed will change by 20 km/hr or more; or
- Road alignment will change by 5 m or more.

5.50 Where significant increases in traffic are possible on roads within 200m of Habitats 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[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.

5.51 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), although there are sometimes exceptions.

5.52 Habitats Sites within 10km of the plan area and within 200m of a main road are listed below with the strategic roads that are within 200m:

- Severn Estuary SAC (and the SPA/Ramsar indirectly): A403, M48 and M4.
- Bath and Bradford on Avon Bats SAC: of the three component SSSIs of the SAC, Combe Down and Bathampton Down Mines SSSI is >200m from a road (screened out). The above-ground habitat of Browns Folly SSSI is c.80m from the A363 Sally In The Wood; and the above ground habitat of Box Mine SSSI is c.85m from the A4 Box Hill. Both roads are accessed from the plan area via the A46.
- River Wye SAC and Wye Valley Woodlands SAC: these sites are adjacent to each other and within 200m of the A466, accessed from the plan area via the M4 Severn Bridge.
- Avon Gorge Woodlands SAC: A4 Portway, accessed via various routes from the plan area, including the M5.

5.53 All other Habitats Sites are situated over 10km from the plan area or over 200m from key strategic roads and are therefore screened out.

5.54 The following policies and all of the Local Plan site allocations would contribute to an increase in traffic and therefore could contribute to air pollution on the above roads:

- Policy LPS1 Strategic principles
- Policy LP3 Residential development in the countryside;
- Policy LP4 Easter Compton village extensions;

[34] JNCC (2021) Guidance on decision making thresholds for air pollution, https://hub.jncc.gov.uk/assets/6cce4f2e-e481-4ec2-b369-2b4026c88447
[35] Standards for Highways (2019). Design Manual for Roads and Bridges: LA105 Air Quality, https://www.standardsforhighways.co.uk/tses/attachments/10191621-07df-44a3-892e-c1d5c7a28d90
[36] Wealden v SSCLG [2017] EWHC 351 (Admin)

- Policy LP5 New Woodlands;
- Policy LP6 North Lyde 'Ecotech' village;
- Policy LP7 Carsons Green and Rockhouse Farm new neighbourhood;
- Policy LP8 North Warmley new neighbourhood;
- Policy LP9 Charfield village extensions;
- Policy LP10 Almondsbury village extensions;
- Policy LP12 The University of West of England, Frenchay Campus;
- Policy LP13 Land at former Filton Airfield – Brabazon;
- Policy LP14 Severnside employment area;
- Policy LPS5 Accommodation for Gypsies and Travellers;
- Policy LPS6 Accommodation for Travelling Showpeople;
- Policy LPS7 Safeguarded employment areas;
- Policy LP19 Non-safeguarded employment sites;
- Policy LP21 Major stadia;
- Policy LPS9 Sustainable transport movement and infrastructure;
- Policy LP26 Renewable and low carbon energy systems;
- Policy LPS13 Mineral working and restoration;
- Policy LP32 Radioactive waste; and
- Policy LP33 Waste.

5.55 Traffic data are not currently available to screen the Publication Local Plan policies and site allocations against the DMRB criteria (para. 5.49). Updated traffic modelling (and if necessary air quality assessment and Appropriate Assessment; see next steps in **Chapter 7**) will be completed as soon as possible. If any mitigation is required, this will be agreed and secured prior to adoption of the plan.

5.56 An indication of potential effects is provided by traffic data produced for the Regulation 18 (Phase 3) Local Plan, for roads within the plan area. Where Habitats Sites are outside the plan area, the road/s leading to them from the plan area were used as a proxy. Data were available for the following roads:

- Severn Estuary SAC/SPA/Ramsar: A403, M48 Severn Bridge, M4 Severn Bridge.
- Bath & Bradford on Avon Bats SAC: nearest road leaving district - A46 South of Old Sodbury.
- River Wye SAC and Wye Valley Woodlands SAC: nearest road leaving district - M4 Severn Bridge.
- Avon Gorge Woodlands SAC: nearest road leaving district - M5 Southwest of Hallen.

5.57 The data show that the (Regulation 18) Local Plan alone did not exceed the traffic screening criteria in any location but that in-combination it did exceed the criteria for all traffic (1,000 AADT) on all of the above roads. In some cases the HDV screening criteria (200 AADT) was also exceeded in-combination, but the Local Plan's contribution to those overall increases is negligible; therefore it is likely that the focus of further assessment will be on 'all traffic', unless the updated traffic model shows significant increases in HDVs.

5.58 The updated traffic modelling will need to assess the Publication Local Plan in combination with the saved policies (see **Appendix E**) and consented (but not yet built) allocations from the Core Strategy and Policies, Sites and Places Plan. The Local Plan also makes reference to the following major projects, which will need to be taken into account in the assessment of in-combination effects (i.e. included in the traffic model):

- Policy LP14 Severnside employment area: consented link road to the M49;
- Nationally Significant Infrastructure Projects: Oldbury A station decommissioning (Policy LP31).

There is the potential for likely significant effects at Severn Estuary SAC and Ramsar (and the SPA indirectly), Bath and Bradford on Avon Bats SAC, River Wye SAC, Wye Valley Woodlands SAC, or Avon Gorge Woodlands SAC due air pollution from vehicle emissions. These are likely to be significant due to the Local Plan in combination with other plans/projects.

Industrial emissions

5.59 Industrial emissions may arise from processes such as energy from waste, which can produce air pollutants that include acid gases, particulates, dioxins and heavy metals.

5.60 The area over which industrial emissions can have an adverse effect depends on the nature of the emissions and factors such as stack height and topography of the surrounding area.

5.61 Environment Agency guidance on environmental permitting[37] uses a distance of 10km to screen the potential for effects on Habitats Sites from industrial emissions. Habitats Sites within 10km of the plan area that are sensitive to air pollution are:

- Severn Estuary SAC (and the SPA/Ramsar indirectly);
- Bath and Bradford on Avon Bats SAC;
- River Wye SAC;
- Wye Valley Woodlands SAC; and
- Avon Gorge Woodlands SAC.

5.62 Point sources of air pollutants could arise from industrial development associated with the following policies:

- Policy LP14 Severnside employment area, which is safeguarded employment site (industry);
- Policy LP19 Non-safeguarded employment sites (industry);
- Policy LP26 Renewable and low carbon energy systems (biomass burning);
- Policy LPS13 Mineral working and restoration (plant emissions) and associated site allocations;
- Policy LP32 Radioactive waste (plant emissions; radioactive emissions); and
- Policy LP33 Waste (plant emissions, incineration).

5.63 Some of the saved policies from the adopted Local Plan may also produce industrial emissions (see **Appendix E**), e.g. PSP29 Agricultural development, which could contribute to in-combination effects.

5.64 Industrial emissions are subject to environmental permitting; however, as mitigation cannot be taken into at the Screening stage, industrial emissions are screened in as a precaution.

There is the potential for likely significant effects at Severn Estuary SAC and Ramsar (and the SPA indirectly), Bath and Bradford on Avon Bats SAC, River Wye SAC, Wye Valley Woodlands SAC, or Avon Gorge Woodlands SAC due air pollution from industry. These are likely to be significant due to the Local Plan in combination with other plans/projects.

Functionally linked habitats

5.65 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 Habitats Sites due to air pollution at a functionally linked habitat.

5.66 Air pollution at a functionally linked habitat would need to be large in scale to prevent a Habitats 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 Habitats Sites.

Recreation

5.67 Recreational activities and human presence can result in significant effects on Habitats 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).

5.68 Habitats 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.

5.69 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.

5.70 The following Local Plan policies (and their associated site allocations) include provision for new homes, which could increase pressure on recreation destinations:

- Policy LPS1 Strategic principles
- Policy LP3 Residential development in the countryside;
- Policy LP4 Easter Compton village extensions;
- Policy LP5 New Woodlands;
- Policy LP6 North Lyde 'Ecotech' village;
- Policy LP7 Carsons Green and Rockhouse Farm new neighbourhood;

[37] https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit#screening-for-protected-conservation-areas

- Policy LP8 North Warmley new neighbourhood;
- Policy LP9 Charfield village extensions;
- Policy LP10 Almondsbury village extensions;
- Policy LP12 The University of West of England, Frenchay Campus;
- Policy LP13 Land at former Filton Airfield – Brabazon;
- Policy LPS5 Accommodation for Gypsies and Travellers; and
- Policy LPS6 Accommodation for Travelling Showpeople.

5.71 In addition, although they are not associated with residential development, Policy LP14 Severnside Employment Area and Policy LP21 Major Stadia permit large scale development that could accommodate a range of uses and could potentially contribute to recreation pressure. These policies are therefore considered in relation to recreation pressure, as a precaution. At Severnside, impacts would be likely to be local to the site, at Severn Estuary SAC/SPA/Ramsar; the Major Stadia policy does not have a development associated with it, therefore potential recreation pressure impacts would depend on its location, but impacts would also be expected to be local to a stadium.

5.72 Each Habitats 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 Habitats Site (and often to specific areas within a Habitats 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 Habitats Site. This is particularly the case in relation to coastal Habitats Sites, which have the potential to draw large number of visitors from areas much further afield.

5.73 Footprint Ecology has undertaken a visitor survey[38] for the Severn Estuary SAC, SPA and Ramsar site that established a zone of influence of 12.3km for residential development within South Gloucestershire.

5.74 In contrast to coastal Habitats Sites, the ZOI for non-coastal Habitats 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 ZOIs[39] established for other Habitats Sites around the country, a ZOI of 7km has been applied to all non-coastal Habitats Sites where alternative ZOI are not known.

5.75 Bath and Bradford upon Avon Bats SAC and Wye Valley & Forest of Dean Bat Sites SAC have very limited public access as the Greater and Lesser horseshoe bats breed and hibernate in underground sites in locked caves (and forage in the surrounding woodlands). Recreational disturbance does occur but relates to one-off events such as vandalism and bonfires at the mine entrances. These sites have therefore been screened out of further assessment.

5.76 The ZOIs used in this assessment are set out in **Table 5.1** below. Where these are derived from existing visitor survey work, this is indicated.

Table 5.1 Zone of Influence (ZOI) applied in this HRA

Habitats Site	ZOI
Severn Estuary SAC, SPA and Ramsar site	12.3km[40]
River Wye SAC	7km*
Avon Gorge Woodlands SAC	7km*
Wye Valley Woodlands SAC	7km*
Rodborough Common SAC	3.8km[41]
River Usk SAC	7km*
Chew Valley Lake SPA	7km*

*Assumed as detailed in paragraph 5.75.

5.77 The following Habitats Sites are therefore screened out as they do not have a recreational ZOI that extends into South Gloucestershire:

- Chew Valley Lake SAC;
- River Usk SAC; and,
- Rodborough Common SAC.

5.78 Wye Valley Woodlands SAC is 5.9km from South Gloucestershire and The River Wye SAC is 3.2km away. Both have qualifying features (woodland) that could be susceptible

[38] Footprint Ecology (2025) South Gloucestershire Visitor Survey 2024, not yet published.
[39] Natural England (2024) RP04518 Edition 1 Compilation and Review of Evidence Leading to SANG and SAMM Provision, https://publications.naturalengland.org.uk/publication/6015060338802688
[40] ibid
[41] Footprint Ecology (2019). Rodborough Common Visitor Survey.

to disturbance as a result of recreational pressure. None of the policies of site allocations that permit residential development area within 7km of the Wye Valley Woodlands SAC. There is the potential for some small-scale windfall development that could in theory be permitted within 7km due to Policies LP3 Residential development in the countryside, LPS5 Accommodation for Gypsies and Travellers and LPS6 Accommodation for Travelling Showpeople; however this is not expected to result in significant increases in visits to Wye Valley Woodlands SAC; this site is also screened out of further assessment.

5.79 The following permits residential development within 7km of The River Wye SAC:

- Site allocation SV15 Land by Aust Road and Elberton Road, Olverston (20 homes); and

5.80 As with Wye Valley Woodlands SAC, there is the potential for some small-scale windfall development to occur within 7km of The River Wye SAC. However, this plus the allocations within 7km is not expected to have significant impacts on the SAC; therefore The River Wye SAC is screened out.

5.81 Avon Gorge Woodlands SAC includes areas of woodland that are very popular with visitors. The Site Improvement Plan[42] for the SAC states that *"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."*

5.82 The ZOI used for Avon Gorge Woodlands SAC is 7km (which is consistent with other HRAs in the region, for example the North Somerset Local Plan HRA[43]); this extends into the southern part of South Gloucestershire. The following policies and site allocations would deliver a minimum of 8,526 new homes within 7km of the Avon Gorge Woodlands SAC:

- Policy LP12 The University of West of England, Frenchay Campus (site allocation NF3 Land at the University of the West of England: 1,500 bed spaces);
- Policy LP13 Former Filton Airfield (Brabazon) (min. 6,500 homes);
- Site allocation NF2 Land at Filton 20 Business Park, Golf Course Lane (276 homes); and
- Site allocation NF5 Filton Retail Park, Fox Den Road, Stoke Gifford (250 homes.

5.83 The Severn Estuary is also popular for a wide range of recreational activities, including walking and water sports. 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 Habitats Sites have therefore been screened in. The following policies and site allocations would deliver a minimum of 6,011 new homes, 65 Gypsy and Traveller pitches, and 1,500 student bed spaces, within 12.3km of the Severn Estuary SAC/SPA/Ramsar site:

- Mixed use sites: CH2, FC3, NF5, NF7, SV1, SV10, TH2 (c.3,615 homes).
- Housing allocations: CH1, CH4, FC6, FC15, FD1, FD2, NF1, NF2, NF6, NF8, NF9, PSB1, PSB2, PSB3, SV2, SV3, SV5, SV6, SV7, SV9, SV12, SV13, SV15, TH1, THO1, THO2, THO3, WI1, WI2, WI3, WI8 (c.2,396 homes).
- Gypsy and traveller sites: GTI01, GTI04, GTI05, GTI07, GTE01, GTE02, GTNS02, GTNS05, GTPU01, GTPU03, GTPU05, GTPU06, GTPU08 (c.65 pitches).
- Hotel and leisure site: FC13 (number of rooms not specified).
- Policy LP4 Easter Compton village extensions (allocations PSB1, PSB2, PSB3 as above)
- Policy LP5 New Woodlands (allocations FC3, SV5, SV7, SV13 as above)
- Policy LP9 Charfield village extensions (allocations CH1, CH2 as above)
- Policy LP10 Almondsbury village extensions (allocation SV1 as above)
- Policy LP12 The University of the West of England (allocation NF3; 1,500 bed spaces).
- Policy LP13 Former Filton Airfield (Brabazon) (min. 6,500 homes).

5.84 In addition, other policies that permit residential development outside of allocated sites (LP3 Residential development in the countryside, LPS5 Accommodation for Gypsies and Travellers and LPS6 Accommodation for Travelling Showpeople) could also result in development within the ZOI of Avon Gorge Woodlands SAC or Severn

[42] https://publications.naturalengland.org.uk/publication/5021516609617920

[43] AECOM (2023) North Somerset Local Plan Habitat Regulations Assessment, https://n-somerset.gov.uk/sites/default/files/2023-11/habitat%20regulations%20assessment.pdf

Estuary SAC/SPA/Ramsar. Policy LP14 Severnside Employment Area and Policy LP21 Major Stadia could also potentially contribute recreation pressure at Severn Estuary SAC/SPA/Ramsar (if the stadium is close to the estuary).

5.85 For both the Avon Gorge Woodland SAC and Severn Estuary SAC/SPA/Ramsar, the likely significant effects are largely 'in-combination' effects, from the Local Plan as a whole, plus visitors from other sources (e.g. existing South Gloucestershire residents and people from neighbouring areas). However, some of the larger housing site allocations may result in impacts alone, e.g.:

- Avon Gorge Woodlands SAC: Policy LP13 Former Filton Airfield (Brabazon) (min. 6,500 homes).
- Severn Estuary SAC/SPA/Ramsar: Policy LP13 Former Filton Airfield (Brabazon) (min. 6,500 homes); and Woodlands (FC3; 1,750 homes).

There is the potential for likely significant effects at Avon Gorge Woodlands SAC, and Severn Estuary SAC, SPA and Ramsar Site due to recreation pressure. These are likely to be significant due to the Local Plan alone (but also in combination with other plans/projects).

Functionally linked habitats

5.86 Recreation pressure also has the potential to affect functionally linked habitats associated with birds of the Severn Estuary SPA/Ramsar.

5.87 The 2024 visitor survey report by Footprint Ecology, which established the 12.3km ZOI, acknowledges that there are habitats that are functionally linked to the estuary, near to the designated sites; but the ZOI is based on the distance that people travel to the estuary rather than other nearby sites, so does not explicitly apply to functionally linked habitats. However, Footprint Ecology have said[44] that the ZOI could also be applied to the Severn Estuary's functionally linked habitats, where it is very clear that land is accessible to the public and there are specific risks to functionally linked sites. This means that the presence of functionally linked habitats away from the estuary could mean that residential development more than 12.3km from the SAC/SPA/Ramsar could have a likely significant effect, if there are functionally linked habitats that are considered to be at similar risk of recreation pressure to the SPA/Ramsar.

5.88 Paragraphs 4.19-4.21 describe the location of known functionally linked habitats used by birds from the SPA/Ramsar. Those north of the M48 Severn Bridge are close to the estuary and potentially vulnerable to disturbance from people using the coastal footpath. However, the same path is adjacent to the SPA/Ramsar and it is not considered necessary to apply the 12.3km ZOI to the functionally linked sites themselves, as they do not otherwise have public access.

5.89 South of the M48 Severn Bridge, some of the functionally linked habitats are further inland and many have footpaths or cycle routes that cross or pass beside the habitats. However, the majority do not have public access that is considered likely to cause significant disturbance (e.g. because they are separated by hedgerows from the paths, or the footpaths are minor); and it is not considered necessary to apply the 12.3km ZOI to these sites. The exception is ASEA Area 4 Hallen Marsh, an area of functionally linked habitat within Policy LP14 Severnside Employment Area, which has more substantial public access. However, this is a recently created wetland at which access is managed; and the impacts on this site due to the proximity of future (non-residential) development from Policy LP14 are assessed under 'non-physical disturbance'. It is not considered that there are additional recreation pressure impacts at this site that warrant the application of the 12.3km ZOI to this site.

5.90 There are therefore no additional policies / site allocations that are screened in in relation to recreation pressure at functionally linked habitats.

There are no likely significant effects at functionally linked habitats used by birds from Severn Estuary SPA and Ramsar Site, due to recreation pressure.

Water quantity and quality

5.91 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).
- Chew Valley Lake SPA (supplies water to South Gloucestershire).

5.92 Avon Gorge Woodlands SAC, Bath and Bradford on Avon Bats SAC and Wye Valley and Forest of Dean Bat Sites SAC have been screened out as their qualifying features are

[44] Pers. comm. January 2025

not considered sensitive to changes in water quantity or quality and they are not near enough to the plan area be affected by direct pollution (run-off).

5.93 Due to the lack of hydrological connectivity and distance from South Gloucestershire, Rodborough Common SAC has also been screened out of further assessment.

5.94 Changes in water quantity or quality can affect Habitats 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).
- Pollution from direct run-off, e.g. during construction, reducing water quality.

Increased demand for water (abstraction)

5.95 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 include 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).

5.96 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.

5.97 In October 2024, Bristol Water's Water Resources Management Plan 2024[45] was published, which anticipates that there will be more than enough water supply between 2025 and 2080 for the demand expected in the region, including that from the South Gloucestershire Local Plan. Natural England (**Appendix E**) has said "*Natural England is currently advising Bristol Water and Wessex Water on the HRAs for their respective Water Resource Management Plans (WRMPs). The South Gloucestershire Local Plan will be able to rely on the conclusions of the HRAs for the water companies that cover the plan area, once agreed."* The WRMP has now been agreed and finalised.

5.98 All of the Publication Local Plan policies that will result in residential or employment development could increase demand for water in South Gloucestershire and could potentially impact upon water levels at Chew Valley Lake SAC; however, there is sufficient capacity to meet this demand.

There are no likely significant effects predicted at any Habitats Sites due to increased demand for water.

Increased need for water treatment

5.99 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.

5.100 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.

5.101 Wessex Water deals with drainage and wastewater with South Gloucestershire. There is currently a Drainage and Wastewater Management Plan[46] (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.

5.102 All of the Publication Local Plan policies that will result in residential or employment development, and other large development providing facilities for large numbers of people (e.g. major stadia; Policy LP21) could increase demand for wastewater treatment; however there will be sufficient infrastructure to treat the wastewater and no likely significant effects are anticipated.

5.103 In response to the HRA of the Phase 3 Local Plan (see **Appendix F**), Natural England has also said "*In regard to likely significant effects in the Severn Estuary SPA/SAC/Ramsar Site due to the increased need for water treatment, whilst we understand why this impact has been screened in on a precautionary basis, our advice is that there*

[45] Bristol Water (2024) final Water Resources Management Plan 2024, https://www.bristolwater.co.uk/hubfs/WRMP%202024/BRL%20Final%20WRMP24.pdf

[46] The Wessex Area Drainage and wastewater Management Plan May 2023, https://storymaps.arcgis.com/collections/8fa8080a882f41c5b621b34fc64e711a?item=4

is not currently evidence that nutrients are harming the qualifying features of the Site."

There are no likely significant effects predicted at any Habitats Sites due to increased need for water treatment.

Direct pollution (run-off)

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

5.105 The following policies permit development at or adjacent to the Severn Estuary SAC/SPA/Ramsar:

- Policy LP14 Severnside employment area: c.50m from the SAC/SPA/Ramsar.
- Policy LP26 Renewable and low carbon energy systems: area safeguarded for wind energy development overlaps with the SAC/SPA/Ramsar.
- Policy LP32 Radioactive waste: development assumed likely to occur at Oldbury Power Station is adjacent to the SAC/SPA/Ramsar.

5.106 The following site allocations and policies may permit development adjacent to rhines and watercourses linked to the Severn:

- Policy LP4 Easter Compton village extensions;
- Policy LP14 Severnside employment area;
- Policy LP19 Non-safeguarded employment sites (some existing non-safeguarded employment sites near to watercourses);
- Policy LP26 Renewable and low carbon energy systems (one safeguarding area adjacent to the SAC/SPA/Ramsar, north of Shepperdine);
- Policy LP32 Radioactive waste (development at Oldbury power station);
- Site allocation PSB1 Land off Prospect Close, Easter Compton;
- Site allocation PSB4 Land to the east of the B4055, Pilning Station;
- Site allocation THO3 Land west of B4061, Thornbury;
- Site allocation GTE01 Green Orchards, Berwick Lane;
- Site allocation GTI01 Berwick Park, Berwick Lane;
- Site allocation GTNS05 Green Orchards (new).

5.107 Note that these have been identified through high-level desk study; there may be others.

5.108 In addition, the policies listed in paragraph 5.7 could in theory result in development outside of the site allocations.

There is the potential for likely significant effects at Severn Estuary SAC, SPA and Ramsar site due to direct pollution. These are likely to be significant due to the Local Plan alone.

Functionally linked habitats

5.109 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 & Sharpness Canal, which may be functionally linked to the SAC, SPA or Ramsar (fish or birds) and be affected by increased water abstraction.

5.110 These habitats will not be significantly affected by increases in abstraction or wastewater treatment, but could be affected by direct pollution. The policies and site allocations that could affect functionally linked habitats used by fish or freshwater invertebrates from Severn Estuary SAC (or River Wye SAC and River Usk SAC, indirectly) is as listed in paragraphs 5.105 to 5.108.

5.111 Functionally linked habitats used by birds could also be affected by direct pollution if development is in close proximity. The following are close to (e.g. within 500m) of functionally linked habitats used by birds of the Severn Estuary SPA/Ramsar:

- Policy LP32 Radioactive waste: known high tide roosts at Lagoons 1-3 and fields around Lagoon 3. Other functionally linked habitats at Shepperdine fields, OPS lake, (other) fields to the south of Lagoon 3, and fields south of Oldbury Pill.
- Policy LP14 Severnside employment area: 'Former Astra Zeneca fields','Avlon Works Pools', 'Land east of the M29' and 'Tesco Pool'.
- Site allocation PSB4 Land to the east of the B4055, Pilning Station ('Land east of the M29' and 'Tesco Pool')
- Site allocation PSB1 Land off Prospect Close, Easter Compton.

5.112 Habitats used by bats (woodland) are considered less sensitive to changes in the water environment.

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. These may be significant due to the Local Plan alone or, if not, in combination.

Summary of HRA Screening

5.113 **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 Habitats Site as a result of the Publication Local Plan. The table indicates whether there are:

- Likely significant effects ('LSE');
- No impact pathway ('no impact'): there will be no effects; or
- No likely significant effects ('no LSE'): impact pathways exist, but effects will not be significant.

5.114 **Table 5.3** below then summarises the policies and development locations that could contribute to likely significant effects, and which will therefore require Appropriate Assessment.

5.115 The following impact pathways are likely to be significant due to the Local Plan alone:

- Physical damage or loss of habitat (possibly also at functionally linked habitats although, if not, these impacts can be cumulative);
- Non-physical disturbance (possibly also at functionally linked habitats although, if not, these impacts can be cumulative);
- Bird strike;
- Air pollution (dust);
- Recreation pressure; and
- Changes to water quality - direct pollution; run-off possibly also at functionally linked habitats although, if not, these impacts can be cumulative).

5.116 The following impact pathway is likely to be significant due to the Local Plan in combination with other plans or projects:

- Air pollution (vehicles and industrial emissions).

Table 5.2 Summary of HRA Screening conclusions by impact type

Habitats Site	Damage /loss of habitat	Non-physical disturbance	Bird strike	Air pollution (dust	Air pollution (vehicles)	Air pollution (industrial)	Recreation	Water (abstraction)	Water (wastewater)	Water (runoff)
Severn Estuary SAC	LSE (incl. FLL)	LSE (incl. FLL)	No impact	No impact	LSE	LSE	LSE	No impact	No LSE	LSE
Severn Estuary SPA	LSE (incl. FLL)	LSE (incl. FLL)	LSE (incl. FLL)	No impact	LSE (indirectly)	LSE (indirectly)	LSE	No impact	No LSE	LSE (indirectly)
Severn Estuary Ramsar site	LSE (incl. FLL)	LSE (incl. FLL)	LSE (incl. FLL)	No impact	LSE	LSE	LSE	No impact	No LSE	LSE
Chew Valley Lake SPA	LSE (FLL only)	LSE (FLL only)	LSE (incl. FLL)	No impact	No impact	No impact	No impact	No LSE	No impact	No impact
Bath and Bradford on Avon Bats SAC	LSE (FLL only)	LSE (FLL only)	No impact	No impact	LSE	LSE	No LSE	No impact	No impact	No impact
River Wye SAC	LSE (FLL only)	No impact	No impact	No impact	LSE	LSE	No LSE	No impact	No impact	No impact
Avon Gorge Woodlands SAC	No impact	No impact	No impact	No impact	LSE	LSE	LSE	No impact	No impact	No impact
Wye Valley and Forest of Dean Bat Sites SAC	LSE (FLL only)	LSE (FLL only)	No impact	No impact	No impact	No impact	No LSE	No impact	No impact	No impact
Wye Valley Woodlands SAC	No impact	No impact	No impact	No impact	LSE	LSE	No LSE	No impact	No impact	No impact
Rodborough Common SAC	No impact	No impact	No impact	No impact	No impact	No impact	No impact	No impact	No impact	No impact
River Usk SAC	LSE (FLL only)	No impact	No impact	No impact	No impact	No impact	No impact	No impact	No impact	No impact

Table 5.3 Policies and development locations contributing to likely significant effects

Impact type	Policies contributing to effect	Site allocations and area policies contributing to effect
Physical damage/loss of habitat	Policy LP3 Residential development in the countryside Policy LPS5 Accommodation for Gypsies and Travellers Policy LPS6 Accommodation for Travelling Showpeople Policy LP21 Major stadia Policy LP19 Non-safeguarded employment sites (fish/invert. FLL only) Policy LP26 Renewable and low carbon energy systems Policy LP32 Radioactive waste (excl. bat FLL) Policy LP33 Waste	At Habitats Site: ■ None At functionally linked habitats: ■ Policy LP14 Severnside employment area (birds & fish/inverts.) ■ Policy LP4 Easter Compton village extensions (fish/inverts.) ■ Site allocation PSB1 Land off Prospect Close, Easter Compton (fish/inverts.) ■ Site allocation PSB4 Land to the east of the B4055, Pilning Station (fish/inverts & birds) ■ Site allocation THO3 Land west of B4061, Thornbury (fish/inverts.) ■ Site allocation GTE01 Green Orchards, Berwick Lane (fish/inverts.) ■ Site allocation GTI01 Berwick Park, Berwick Lane (fish/inverts.) ■ Site allocation GTNS05 Green Orchards (new) (fish/inverts.) ■ Site allocation GTPU07 Tormarton Road, Marshfield (bats)
Non-physical disturbance	Policy LP3 Residential development in the countryside Policy LPS5 Accommodation for Gypsies and Travellers; Policy LPS6 Accommodation for Travelling Showpeople Policy LP21 Major stadia	At Habitats Site: ■ Policy LP14 Severnside employment area At functionally linked habitats: ■ Policy LP14 Severnside employment area (birds) ■ Site allocation PSB1 Land off Prospect Close, Easter Compton (birds) ■ Site allocation PSB4 Land to the east of the B4055, Pilning Station (birds)

Impact type	Policies contributing to effect	Site allocations and area policies contributing to effect
	Policy LP26 Renewable and low carbon energy systems Policy LP32 Radioactive waste (excl. bat FLL) Policy LP33 Waste	■ Site allocation GTPU07 Tormarton Road, Marshfield (bats)
Bird strike	Policy LP26 Renewable and low carbon energy systems Policy LP27 Community energy	At Habitats Site and functionally linked habitats: ■ Policy LP14 Severnside employment area (birds)
Air pollution - dust	None – screened out	■ None – screened out
Air pollution – vehicle emissions	Policy LPS1 Strategic principles Policy LP3 Residential development in the countryside Policy LPS5 Accommodation for Gypsies and Travellers Policy LPS6 Accommodation for Travelling Showpeople Policy LPS7 Safeguarded employment areas Policy LP19 Non-safeguarded employment sites Policy LP21 Major stadia Policy LPS9 Sustainable transport movement and infrastructure Policy LP26 Renewable and low carbon energy systems Policy LPS13 Mineral working and restoration Policy LP32 Radioactive waste Policy LP33 Waste	At Habitats Site: ■ Policy LP4 Easter Compton village extensions ■ Policy LP5 New Woodlands ■ Policy LP6 North Lyde ‘Ecotech’ village ■ Policy LP7 Carsons Green and Rockhouse Farm new neighbourhood ■ Policy LP8 North Warmley new neighbourhood ■ Policy LP9 Charfield village extensions ■ Policy LP10 Almondsbury village extensions ■ Policy LP12 The University of West of England, Frenchay Campus ■ Policy LP13 Land at former Filton Airfield – Brabazon ■ Policy LP14 Severnside employment area ■ All site allocations

Impact type	Policies contributing to effect	Site allocations and area policies contributing to effect
Air pollution – industrial emissions	Policy LP19 Non-safeguarded employment sites Policy LP26 Renewable and low carbon energy systems Policy LPS13 Mineral working and restoration Policy LP32 Radioactive waste Policy LP33 Waste	At Habitats Site: ■ Policy LP14 Severnside employment area ■ Minerals Preferred Area 1: Cromhall Quarry ■ Minerals Preferred Area 2: Tytherington Quarry ■ Minerals Preferred Area 3: Wickwar Quarry
Recreational pressure	Policy LPS1 Strategic principles Policy LP3 Residential development in the countryside Policy LPS5 Accommodation for Gypsies and Travellers Policy LPS6 Accommodation for Travelling Showpeople	At Habitats Sites and functionally linked habitats (Severn Estuary SPA/Ramsar only): ■ Housing / mixed use allocations within 7km of Avon Gorge Woodlands SAC: Policy LP13 Former Filton Airfield (Brabazon), Policy LP12 University of West of England, Frenchay Campus (site allocation NF3); NF2 Land at Filton 20 Business Park, Golf Course Lane, NF5 Filton Retail Park, Fox Den Road, Stoke Gifford ■ Housing / mixed use / Traveller & Gypsy allocations within 12.3km of Severn Estuary SAC/SPA/Ramsar: – Mixed use sites: CH2, FC3, NF5, NF7, SV1, SV10, TH2 (c.3,465 homes). – Housing allocations: CH1, CH4, FC6, FC15, FD1, FD2, NF1, NF2, NF6, NF8, NF9, PSB1, PSB2, PSB3, SV2, SV3, SV5, SV6, SV7, SV9, SV12, SV13, SV15, TH1, THO1, THO2, THO3, WI1, WI2, WI3, WI8 – Gypsy and traveller sites: GTI01, GTI04, GTI05, GTI07, GTE01, GTE02, GTNS02, GTNS05, GTPU01, GTPU03, GTPU05, GTPU06, GTPU08 – Hotel and leisure: FC13 – Policy LP4 Easter Compton village extensions (allocations PSB1, PSB2, PSB3)

Impact type	Policies contributing to effect	Site allocations and area policies contributing to effect
		– Policy LP5 New Woodlands (allocations FC3, SV5, SV7, SV13) – Policy LP9 Charfield village extensions (allocations CH1, CH2) – Policy LP10 Almondsbury village extensions (allocation SV1)Policy LP12 The University of the West of England (allocation NF3) – Policy LP13 Former Filton Airfield (Brabazon)
Water quantity/quality - abstraction	None – screened out	None – screened out
Water quantity/quality - wastewater	None – screened out	None – screened out
Water quantity/quality – run off	Policy LP3 Residential development in the countryside Policy LPS5 Accommodation for Gypsies and Travellers Policy LPS6 Accommodation for Travelling Showpeople Policy LP19 Non-safeguarded employment sites Policy LP21 Major stadia Policy LP26 Renewable and low carbon energy systems Policy LP32 Radioactive waste Policy LP33 Waste	At Habitats Site (all below) and functionally linked habitats (as labelled): ■ Policy LP14 Severnside employment area (fish/inverts. & birds) ■ Policy LP4 Easter Compton village extensions (fish/inverts.) ■ PSB1 Land off Prospect Close, Easter Compton (fish/inverts. & birds) ■ PSB4 Land to the east of the B4055, Pilning Station (fish/inverts. & birds) ■ Site allocation THO3 Land west of B4061, Thornbury (fish/inverts.) ■ Site allocation GTE01 Green Orchards, Berwick Lane (fish/inverts.) ■ Site allocation GTI01 Berwick Park, Berwick Lane (fish/inverts.) ■ Site allocation GTNS05 Green Orchards (new) (fish/inverts.)

Chapter 6
Appropriate Assessment

6.1 The Appropriate Assessment provides a more detailed assessment of the likely significant effects identified during the Screening stage. It considers whether, once mitigation is taken into account, there will be adverse effects on the integrity of a Habitats Site.

Physical damage / loss of habitat

6.2 The HRA Screening identified likely significant effects in relation to physical damage and loss of habitat due to development in the following locations:

6.3 Near to the Severn Estuary, including grassland, wetlands and watercourses used by birds and fish/freshwater invertebrates in the surrounding landscape. This would affect:

- Severn Estuary SAC, SPA and Ramsar site (incl. functionally linked habitats; fish and birds).
- Chew Valley Lake SPA (functionally linked habitats only; birds).
- River Wye SAC (functionally linked habitats only; fish).
- River Usk SAC (functionally linked habitats only; fish).

6.4 In the northwest of the district, where development affects woodland used by bats. This would affect:

- Wye Valley and Forest of Dean Bat Sites SAC (functionally linked habitats only; bats).

6.5 In the southeast of the district, where development affects woodland used by bats. This would affect:

- Bath and Bradford on Avon Bats SAC (functionally linked habitats only; bats).

6.6 The policies that contribute to mitigation for these impacts is set out below.

General protection of Habitats Sites from loss of habitat

6.7 Two saved policies from the adopted Core Strategy and Policies, Sites and Places Plan provide overarching protection for Habitats Sites.

6.8 Policy CS9 Managing the environment and heritage states: *"new development will be expected to… conserve and enhance the natural environment, avoiding or minimising impacts on biodiversity and geodiversity"*

6.9 Policy PSP18 Statutory wildlife sites: European sites and Sites of Special Scientific Interest (SSSIs), states (excerpt):

> "European Sites
>
> Development proposals likely to have a significant and/or adverse effect on the European features of interest of the Severn Estuary Special Protection Area (SPA), Special Area of Conservation (SAC) or Ramsar (European Site), either directly, indirectly, on their own or in combination with other plans and projects, will be subject to the tests set out under Article 6(3)/6(4) of the Habitats Directive 1992.
>
> Development will not be acceptable where any adverse effects on the European features of interest arise, unless the effects:
>
> 1. are avoided; or
>
> 2. where an adverse impact cannot be avoided, the impact will be adequately mitigated; or
>
> 3. have imperative reasons of overriding public interest.
>
> Where development proposals cannot satisfactorily demonstrate that it would not adversely affect the European features of the Severn Estuary SPA/SAC/Ramsar, the precautionary principle will apply and proposals will not be acceptable."

6.10 A new policy in the Publication Local Plan provides further general mitigation. Policy LP28 Ecology and Biodiversity Net Gain': states that:

> "1. Ecology and Wider Biodiversity
>
> …
>
> ii. Development which would be likely to have an impact upon designated sites and their functionally linked habitats, or habitats or species which contribute to nature conservation and recovery, will be expected to:
>
> 1. Be informed by an appropriate ecological survey and assessment of impacts; and
>
> 2. Be designed and sited to avoid any harm to identified sites, habitats and species of importance.
>
> …
>
> 2. Designated Sites and Irreplaceable Habitats – Hierarchy
>
> i. International and National
>
> Development which would have an adverse impact on Internationally and Nationally designated sites (directly, or via functionally linked habitats outside the designated sites), will be refused, in accordance with the approach in national planning policy. "

6.11 The policies providing general protection are considered sufficient to prevent most development from occurring within the boundaries of the Severn Estuary SAC/SPA/Ramsar, and at functionally linked habitats.

6.12 For two of the policies, development could occur immediately adjacent to the SAC/SPA/Ramsar: Policy LP26 Renewable and low carbon energy systems (one safeguarded area north of Shepperdine), and Policy LP32 Radioactive waste (development at Oldbury Power Station). These policies state the following in relation to biodiversity and designated sites:

- Policy LP26 Renewable and low carbon energy systems: *"Landscape and visual impact; impact on ecological assets; impact on amenity; cumulative impact; and other considerations as relevant (including those specific to each technology) should be taken into account."* In contrast, 'great weight' is given to the impact on heritage assets.
- Policy LP32 Radioactive waste: *"Proposals for the management or storage of radioactive waste, or the disposal of low level and or very low level waste at the Oldbury licensed site, will only be permitted where they are strongly justified and it is demonstrated that all of the following criteria are met: …c)The environmental, social and economic impacts are acceptable and the benefits outweigh any negative effects"*

6.13 These requirements are considered sufficient to avoid adverse effects on the integrity of the Severn Estuary SAC, SPA and Ramsar site; and at functionally linked habitats associated with the Severn Estuary Habitats Sites, Chew Valley SPA, River Wye SAC and River Usk SAC, Wye Valley and Forest of Dean Bat Sites SAC, and Bath and Bradford on Avon Bats SAC.

The Severn Estuary's functionally linked habitats

6.14 The following policies and allocated sites are at locations known or likely to be at or adjacent to functionally linked habitats used by birds from the Severn Estuary SPA/Ramsar (which may also be linked to Chew Valley SPA):

- Site allocation PSB4 Land to the east of the B4055, Pilning Station
- Policy LP14 Severnside employment area
- Policy LP32 Radioactive waste (development at Oldbury Power Station)

6.15 In addition, windfall development may occur in locations that are functionally linked to the Severn Estuary SPA/Ramsar (or Chew Valley SPA), i.e. development associated with the following policies:

- Policy LP3 Residential development in the countryside;
- Policy LPS5 Accommodation for Gypsies and Travellers;
- Policy LPS6 Accommodation for Travelling Showpeople; and
- Policy LP33 Waste.

6.16 Policy LP14 Severnside employment area requires the following, which provides safeguards for development at this site:

> "2. Development proposals at the Severnside will be supported where they demonstrate:
>
> …
>
> - e. That a Habitats Regulations Assessment of the proposals confirms that development will not have an adverse effect on the integrity of the Special Area of Conservation, Special Protection Area or Ramsar sites or functionally linked habitats; and
> - f. Achievement of biodiversity net gain and enhancement of green infrastructure connections and assets; and"

6.17 The supporting text of the policy also includes the following additional information:

> "Under Regulation 63 of the Habitats Regulations the Council has a duty to review all unimplemented or partially implemented planning permissions likely to have a significant effect on the international nature conservation designations covering the Severn Estuary. This review of consent (Habitats Regulations Assessment) has been carried out as part of a wider coastal floodplain wetland habitat project (including land gifted under the scheme) in partnership with Bristol City Council and Natural England.

6.18 In order to address these potentially significant effects, The Avonmouth Severnside Enterprise Area Ecology Mitigation and Flood Defence Project (the "ASEA Project") has provided ecological mitigation in the form of newly created wetland habitats at Northwick and Hallen Marshes. New development proposals, and those from existing consents which require approval of their detailed design, will be subject to the Habitats Regulations and must be supported by a Habitats Regulation Assessment." This is considered sufficient to avoid adverse effects due to loss of functionally linked habitats at Severnside employment area (Policy LP14, and associated site allocation PSB4).

6.19 For other windfall development that could occur at functionally linked habitats, the policies providing general protection for biodiversity apply, see paragraphs 6.8-6.10, above.

6.20 Policy LP28 Ecology and Biodiversity Net Gain requires development to be informed by 'appropriate ecological survey', referencing functionally linked habitats, and requires development to be 'be designed to avoid any harm to identified sites, habitats and species of importance'. This is considered sufficient to avoid damage or loss of functionally linked habitat, due to developments outside of allocated sites.

6.21 The following policies could result in development that affects habitats used by fish/freshwater invertebrates of the Severn Estuary SAC/Ramsar site (which may also be linked the River Usk SAC and River Wye SAC):

- Policy LP14 Severnside employment area
- Policy LP4 Easter Compton village extensions
- Site allocation PSB1 Land off Prospect Close, Easter Compton
- Site allocation PSB4 Land to the east of the B4055, Pilning Station
- Site allocation THO3 Land west of B4061, Thornbury
- Site allocation GTE01 Green Orchards, Berwick Lane
- Site allocation GTI01 Berwick Park, Berwick Lane
- Site allocation GTNS05 Green Orchards (new)
- Policy LP3 Residential development in the countryside
- Policy LPS5 Accommodation for Gypsies and Travellers;
- Policy LPS6 Accommodation for Travelling Showpeople
- Policy LP33 Waste
- Policy LP19 Non-safeguarded employment sites

6.22 As with bird habitats, the policies providing general protection for biodiversity are the main policy safeguard.

6.23 Additional safeguards exist for the protection of the water environment, as set out below.

6.24 Policy PSP20 Flood risk, surface water and watercourse management requires all developments to reduce surface water discharge from the site, wherever practicable and feasible; and incorporate sustainable drainage systems (SuDS). It also states that:

> "2. Land Drainage and Water Quality

Development proposals will be acceptable where:

i) watercourses, ponds and lakes are retained, protected and enhanced as natural landforms, floodplains and wildlife habitats; and

ii) It is designed and located to protect the existing floodplain and enable suitable access for maintenance; and

iii) Practicable the water environment is left in its natural state, and designed to avoid engineering activities which would cause harm to the water environment; and

iv) prevention and mitigation measures are sensitively designed to minimise the risk of pollution to the water environment."

6.25 Policy LPS11 Strategic green and blue infrastructure and the natural environment requires developments to protect and enhance defined GBI network corridors; and:

"11) Protect the quality and quantity of the water environment and its margins;"

6.26 Policy PSP21 Environmental pollution and impacts requires (excerpt): "*Proposals for development on land, which may be affected by contamination, will be acceptable where adequate remedial measures are taken, to ensure that the site is suitable for the proposed use and will remain so."* and "*New development proposals should demonstrate that… the proposed development will not cause… ecological systems to become contaminated, to the detriment of future use."*

6.27 These requirements are considered sufficient to avoid adverse effects on the integrity of the Severn Estuary SAC/Ramsar site (and linked River Wye SAC and River Usk SAC) due to loss of functionally linked habitats used by fish / freshwater invertebrates.

Woodland with functional links to bat sites

6.28 One site allocations is in an area where habitats could be used by bats from Bath and Bradford on Avon Bats SAC:

- Site allocation GTPU07 Tormarton Road, Marshfield

6.29 One policy permits development within 8km of Wye Valley & Forest of Dean Bat Sites SAC:

- Policy LP26 Renewable and low carbon energy systems (one safeguarded area north of Shepperdine).

6.30 Windfall development could also occur within these areas due to other policies (paragraph 6.15).

6.31 The habitats of interest in these areas are trees and woodland, and there is general protection for these in Policy PSP3 Trees and woodland (excerpt): *"Development proposals should minimise the loss of existing vegetation on a site that is of importance in terms of ecological, recreational, historical or landscape value. Development proposals which would result in the loss of, or damage (directly or indirectly) to, existing mature or ancient woodland, veteran trees, ancient or species-rich hedgerows will only be acceptable where the need for, and benefits of, the development in that location clearly outweigh the loss or damage.*"

6.32 The general protection for Habitats Sites and biodiversity (see paragraphs 6.8-6.10, above), also applies. As does the requirement for 'appropriate ecological survey' in Policy LP28 Ecology and Biodiversity Net Gain.

6.33 The policy requirement for ecological survey, which references functionally linked habitats, is considered to provide sufficient safeguard at site GTPU07 Tormarton Road, Marshfield, as aerial photography and priority habitat mapping[47] show that this site is a small area of scrub habitat and unlikely to be significantly used by bats.

6.34 This approach is also considered sufficient safeguard for policies, that permit development outside of allocations sites, and could therefore occur in areas used by bats, i.e.:

- Policy LP3 Residential development in the countryside
- Policy LPS5 Accommodation for Gypsies and Travellers;
- Policy LPS6 Accommodation for Travelling Showpeople; and
- Policy LP33 Waste.

6.35 For Policy LP26 Renewable and low carbon energy systems, the safeguarded area at Shepperdine that is within 8km of the Wye Valley & Forest of Dean Bat Sites SAC is a large area that contains some area of woodland priority habitat and many field boundaries with hedgerows and trees. Policy LP26 Renewable and low carbon energy systems states that:

"1. When assessing proposals:

a. Great weight is to be given to the conservation of designated ecological assets, and heritage assets and their setting. The impact of any proposal on the significance of any non-designated heritage asset should also be taken into account;"

and

"6. Wind energy:

[47] Priority habitat mapping and aerial photography from https://magic.defra.gov.uk/MagicMap.aspx

a. Areas safeguarded for wind energy development are defined on the Policies Map.

b. Proposals within these safeguarded areas are subject to the assessment of the other criteria as set out in this policy and other relevant policy.

c. Wind energy development will need to demonstrate through Habitats Regulations Assessment of the proposals that there will be no adverse effects on the integrity of SAC, SPA or Ramsar sites, for example through impacts on the flight paths and habitat corridors of protected mobile species such as birds and bats, or at functionally linked habitat associated with protected sites."

6.36 This is considered sufficient to avoid damage or loss of habitats used by bats, associated with renewable energy development.

Conclusion – physical damage and loss of habitat

6.37 Safeguards within policy are sufficient to avoid adverse effects on integrity due to physical damage and loss of habitat at Habitats Sites and functionally linked habitats.

Non-physical disturbance

6.38 The HRA Screening assessment identified likely significant effects in relation to non-physical disturbance, in the same broad locations in which damage/loss of habitat could occur, i.e.:

6.39 Near to the Severn Estuary (where development is within 500m), and at grassland, wetlands and watercourses used by birds and fish/freshwater invertebrates in the surrounding landscape:

- Severn Estuary SAC/SPA/Ramsar (fish on site only; birds incl. functionally linked habitats)
- Chew Valley Lake SPA (functionally linked habitats only; birds)

6.40 In the northwest of the district, where development affects woodland used by bats:

- Wye Valley and Forest of Dean Bat Sites SAC (functionally linked habitats only; bats).

6.41 In the southeast of the district, where development affects woodland used by bats:

- Bath and Bradford on Avon Bats SAC (functionally linked habitats only; bats)

6.42 The policies that contribute to mitigation for these impacts is set out below.

General protection of Habitats Sites from non-physical disturbance

6.43 As for loss of habitat, three policies provide general protection for Habitats Sites and biodiversity, that would contribute to mitigation for non-physical disturbance (see paragraphs 6.8-6.10, above). These are saved policies CS9 and PSP18, and new Policy LP28 Ecology and Biodiversity Net Gain.

6.44 In addition, Policy PSP21 'Environmental pollution and impacts' requires development to avoid unacceptable pollution from *"fumes, dust, noise, vibration, odour, light or other forms of air, land, water pollution, exposure to contaminated land or land instability, directly or cumulatively environmental amenity and the health, safety and amenity of users of the site or the surrounding area.*" and "*In all cases, development proposals will be expected to provide mitigation to an appropriate standard, with an acceptable design, particularly in proximity to existing, sensitive uses or sites."* Specifically in relation to noise, it says: "*Noise generating development that would lead to significant adverse effects, including cumulative effects, on health and amenity from noise and vibration will be acceptable where an appropriate scheme of noise mitigation through design is provided."*

6.45 These are considered sufficient to avoid adverse effects on the integrity of the Severn Estuary SAC/SPA/Ramsar due to non-physical disturbance of fish or birds, within the Habitats Site.

The Severn Estuary's functionally linked habitats

6.46 The same policies and site allocations that could result in loss of habitat at bird sites linked to the Severn (see paragraphs 6.14 and 6.15) could also result in non-physical disturbance of birds.

6.47 In addition, the following is within 500m of functionally linked habitats:

- Site allocation PSB1 Land off Prospect Close, Easter Compton.

6.48 These development locations are also within the 200m screening distance for visual disturbance of birds.

6.49 As with loss of habitat, the requirements in Policy LP14 Severnside employment area (see paragraph 6.16), which include a requirement for project level HRA, are considered sufficient to avoid adverse effects on functionally linked habitat used by birds, near to Severnside.

6.50 For other site allocations and policies that permit windfall development, Policy LP28 Ecology and Biodiversity Net Gain makes specific reference to functionally linked habitats, to ensure that ecological surveys are looking for possible functionally linked habitats(see paragraph 6.10). This is

considered sufficient to avoid adverse effects on the integrity of the Severn Estuary SPA/Ramsar (and also Chew Valley SPA, indirectly) due to loss of functionally linked habitats used by birds.

Woodland with functional links to bat sites

6.51 The policies and site allocations contributing to potential non-physical disturbance effects on woodland with functional links to bat sites are the same as for loss of habitat; and the same mitigation applies (see paragraphs 6.28 to 6.35).

Conclusion – non-physical disturbance

6.52 Safeguards within policy are sufficient to avoid adverse effects on integrity due to non-physical disturbance at Habitats Sites and functionally linked habitats.

Bird strike

6.53 The HRA Screening assessment identified likely significant effects in relation to bird strike, associated with Policies LP14 Severnside employment area, Policy LP26 Renewable and low carbon energy systems, and Policy LP27 Community energy, at:

- Severn Estuary SPA/Ramsar site (incl. functionally linked habitats); and
- Chew Valley Lake SPA (incl. functionally linked habitats).

Mitigation for bird strike

6.54 In addition to the general protection for Habitats Sites and biodiversity (paragraphs 6.8 to 6.10), there are safeguards within two policies that provide mitigation:

6.55 Policy LP26 Renewable and low carbon energy systems requires project level HRA to avoid adverse effects on Habitats Sites (see paragraph 6.35). This policy applies to all renewable energy development, including that coming forward under Policy LP27 Community energy.

6.56 Policy LP14 Severnside employment area also includes a requirement for project level HRA (see paragraphs 6.16 and 6.18).

6.57 The safeguards within these policies are considered sufficient to avoid adverse effects on the integrity of Severn Estuary SPA/Ramsar site or Chew Valley SPA, due to bird strike from wind turbines.

Conclusion – bird strike

6.58 Safeguards within policy are sufficient to avoid adverse effects on integrity due to bird strike at Habitats Sites and functionally linked habitats.

Air pollution (vehicle emissions)

6.59 The HRA Screening assessment identified likely significant effects in relation to air pollution from vehicle emissions at:

- Severn Estuary SAC (and the SPA/Ramsar indirectly): A403, M48 and M4.
- Bath and Bradford on Avon Bats SAC: the above-ground habitat of Browns Folly SSSI is c.80m from the A363 Sally In The Wood; and the above ground habitat of Box Mine SSSI is c.85m from the A4 Box Hill. Both roads are accessed from the plan area via the A46.
- River Wye SAC and Wye Valley Woodlands SAC: both within 200m of the A466, accessed from the plan area via the M4 Severn Bridge.
- Avon Gorge Woodlands SAC: A4 Portway, accessed via various routes from the plan area, including the M5.

6.60 There is insufficient information available at present to determine whether there will be adverse effects on the integrity of any of these sites due to air pollution associated with vehicle emissions.

6.61 Traffic data are not currently available to screen the Publication Local Plan policies and site allocations against the DMRB criteria (para. 5.49). Updated traffic modelling (and if necessary air quality assessment and Appropriate Assessment; see next steps in **Chapter 7**) will need to be completed as soon as possible. If any mitigation is required, this will need to be agreed and secured prior to adoption of the plan.

6.62 Any assumptions about how to assess Habitats Sites outside the plan area, or where the Local Plan contributes a small proportion to the in-combination impact, will need to be agreed with Natural England.

Mitigation for air pollution (vehicle emissions)

6.63 The need for mitigation will be determined following completion of the traffic modelling and, if necessary, air quality assessment and Appropriate Assessment. However, the following policies may contribute to a reduction in air pollution due to vehicle emissions:

- Policy PSP10 Active travel routes: *"Where appropriate, new development proposal(s) will be expected to provide links to an existing or proposed ATR [active travel route]."*
- Policy PSP11 Transport impact management: *"Development proposals which generate a demand for travel, will be acceptable where… it would not generate traffic that would… harm environmental sensitive sites"*

- Policy PSP21 Environmental pollution and impacts: *"Development that, on its own or cumulatively, has the potential for significant emissions to the detriment of air quality, particularly in or adjacent to air quality management areas, will be acceptable where potential adverse effects are mitigated to an acceptable level, by an appropriate scheme of mitigation."*
- Policy LP22 Parking requirements, including electric vehicles: requires developments of 500 or more employees/dwellings to set up and operate a car club. The policy also requires provision of electric vehicle charging for all new buildings, major renovations or changes of use.

Conclusion – air pollution (vehicle emissions)

6.64 Adverse effects on the integrity of the Severn Estuary SAC (and SPA/Ramsar indirectly), Bath & Bradford on Avon Bats SAC, River Wye SAC, Wye Valley Woodlands SAC, and Avon Gorge Woodlands SAC, cannot be ruled out at this stage.

6.65 Recommended next steps are set out in **Chapter 7**.

Air pollution (industrial emissions)

6.66 The HRA Screening assessment identified likely significant effects due to industrial emissions at:

- Severn Estuary SAC (and the SPA/Ramsar indirectly);
- Bath and Bradford on Avon Bats SAC;
- River Wye SAC;
- Wye Valley Woodlands SAC; and
- Avon Gorge Woodlands SAC.

6.67 These effects would arise from

- Policy LP14 Severnside employment area, which is a safeguarded employment site (industry);
- Policy LP19 Non-safeguarded employment sites (industry);
- Policy LP26 Renewable and low carbon energy systems (biomass burning);
- Policy LPS13 Mineral working and restoration (plant emissions) and associated site allocations;
- Policy LP32 Radioactive waste (plant emissions; radioactive emissions); and
- Policy LP33 Waste (plant emissions, incineration).

6.68 Some of the saved policies from the adopted Local Plan may also produce industrial emissions (see **Appendix E**), e.g. PSP29 Agricultural development, which could contribute to in-combination effects.

Mitigation for air pollution (industrial emissions)

6.69 As with other impact pathways, policies within the Local Plan provide general protection for Habitats Sites and biodiversity (see paragraphs 6.7 to 6.10).

6.70 Policy PSP21 'Environmental pollution and impacts' also states that: "*Development that, on its own or cumulatively, has the potential for significant emissions to the detriment of air quality, particularly in or adjacent to air quality management areas, will be acceptable where potential adverse effects are mitigated to an acceptable level, by an appropriate scheme of mitigation."*

6.71 In addition, all industrial emissions are subject to control under the Industrial Emissions Directive (Directive 2010/75/EU), transposed into law in England by The Environmental Permitting Regulations (England and Wales) 2010 (as amended)[48] and would require either a Part A(1) or A(2) environmental permit. Permits are issued by the Environment Agency. Permit applicants are required to undertake screening to identify European sites within 10km, calculate the predicted environmental concentration of each substance released to air and compare these with environmental standards, then take action to reduce emissions levels, where required[49].

6.72 These safeguards are considered sufficient to avoid adverse effects on integrity from industrial emissions.

Conclusion – air pollution (industrial emissions)

6.73 With policy and legislative safeguards in place, no adverse effects on the integrity of any Habitats Site are anticipated, due to industrial emissions.

Recreation

6.74 The HRA Screening assessment identified likely significant effects in relation to recreation at:

- Severn Estuary SAC (on site only)
- Severn Estuary SPA/Ramsar site (incl. functionally linked habitats used by birds)
- Avon Gorge Woodland SAC

[48] The Environmental Permitting Regulations (England and Wales) 2010 (as amended) (No.675).

[49] https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit#screening-for-protected-conservation-areas

6.75 The following policies and site allocations permit residential development within 7km of the Avon Gorge SAC:

- Policy LP13 Former Filton Airfield (Brabazon) (min. 6,500 homes);
- Policy LP12 The University of West of England, Frenchay Campus (site allocation NF3 Land at the University of the West of England: 1,500 bed spaces);
- Site allocation NF2 Land at Filton 20 Business Park, Golf Course Lane (276 homes);
- Site allocation NF5 Filton Retail Park, Fox Den Road, Stoke Gifford (250 homes.

6.76 The following policies and site allocations support a minimum of 6,011 new homes, 65 Gypsy and Traveller pitches, and 1,500 student bed spaces, within 12.3km of the Severn Estuary SAC/SPA/Ramsar site:

- Mixed use sites: CH2, FC3, NF5, NF7, SV1, SV10, TH2 (c.3,615 homes).
- Housing allocations: CH1, CH4, FC6, FC15, FD1, FD2, NF1, NF2, NF6, NF8, NF9, PSB1, PSB2, PSB3, SV2, SV3, SV5, SV6, SV7, SV9, SV12, SV13, SV15, TH1, THO1, THO2, THO3, WI1, WI2, WI3, WI8 (c.2,396 homes).
- Gypsy and traveller sites: GTI01, GTI04, GTI05, GTI07, GTE01, GTE02, GTNS02, GTNS05, GTPU01, GTPU03, GTPU05, GTPU06, GTPU08 (c.65 pitches).
- Hotel and leisure site: FC13 (number of rooms not specified).
- Policy LP4 Easter Compton village extensions (allocations PSB1, PSB2, PSB3 as above)
- Policy LP5 New Woodlands (allocations FC3, SV5, SV7, SV13 as above)
- Policy LP9 Charfield village extensions (allocations CH1, CH2 as above)
- Policy LP10 Almondsbury village extensions (allocation SV1 as above)
- Policy LP12 The University of the West of England (allocation NF3; 1,500 bed spaces).
- Policy LP13 Former Filton Airfield (Brabazon) (min. 6,500 homes).

Mitigation for impacts at Avon Gorge Woodland SAC

6.77 The HRA Screening assessment identified likely significant effects due to recreation pressure at Avon Gorge Woodland SAC. As stated in **Chapter 5**, the main impacts at the SAC arise from illegal uses (e.g. off road biking); however legitimate uses may also contribute to recreation pressure. Although the majority of the visits to Avon Gorge Woodland SAC are likely to be from residents in Bristol and North Somerset (due to proximity: all development locations in South Gloucestershire are >5km from the SAC), new residential development in South Gloucestershire would be likely to result in some additional visits to the SAC.

6.78 The following policies in the Local Plan would contribute to mitigation for recreation pressure impacts at Avon Gorge Woodland SAC:

6.79 Policy CS24 Green infrastructure, sport and recreation standards (excerpt):

> "Provision for Green Infrastructure, outdoor space, sport and recreation facilities will be sought according to the following principles:
>
> 1. new developments must comply with all the appropriate local standards of provision in terms of quantity, quality and accessibility
>
> 2. provision must be delivered on-site, unless it is demonstrated that partial or full off-site provision or enhancement creates a more acceptable proposal; and
>
> 3. the functionality and usability of spaces and facilities must be suitable for their intended purposes.
>
> New developments may also be required to contribute to Green Infrastructure schemes identified in the Green Infrastructure Strategy and the requirements contained within the Design Policy CS1."

6.80 Policy LPS11 Strategic green and blue infrastructure and the natural environment requires developments to protect and enhance defined GBI network corridors; and:

> "13) Deliver an appropriate level of public open space(s), which maximises the potential for multiple functions and connections to the strategic and local networks of Green Infrastructure
>
> 14) Major development proposals will be expected to demonstrate the provision of high-quality GI and ensure that the GI and nature conservation provisions of this policy are met;"

6.81 Policy LP1 Making effective use of land in urban and town hubs: requires proposals for new homes within the Urban and Town Hubs to demonstrate "*d) Access to an appropriate level of public open space provision, high-quality public realm and green infrastructure"*

6.82 Policy LP12 The University of West of England, Frenchay Campus: This policy includes a requirement for "*An enhanced*

and well-integrated Green Infrastructure and surface water drainage network including a strategic woodland link between Splatts Abbey Wood and Stoke Park via the east side of the site allocation to respond to the Local Nature Recovery Strategy focus area"

6.83 Policy LP13 Former Filton Airfield (Brabazon): This policy includes a requirement for "*high-quality public realm and public open space, a new destination park and surface water drainage network. Due to the unique density and nature of development involved at Brabazon, proposals will need to demonstrate high quality multifunctional open spaces, robust management and maintenance provision, an appropriate long-term stewardship vehicle and compliance with Natural England's Urban Greening Factor standards."*

6.84 Policy LP29 Stewardship arrangements: requires proposals for new open space and green infrastructure to be accompanied by a management and maintenance strategy.

6.85 These are considered sufficient to ensure that new open/green space will be provided, reducing the likelihood of trips to Avon Gorge Woodland SAC.

6.86 With policy and legislative safeguards in place, no adverse effects on the integrity of Avon Gorge Woodland SAC are anticipated due to recreation pressure.

Mitigation for impacts at Severn Estuary SAC/SPA/Ramsar

6.87 The 2024 Severn Estuary Visitor Survey work by Footprint Ecology (not yet published) makes recommendations for mitigation, to avoid adverse effects on integrity. The key points of which are:

- Mitigation will need to be agreed prior to the adoption of the Local Plan so that the HRA can conclude 'no adverse effects on integrity'. Prior to submission of the Local Plan, it will be necessary to set out how mitigation will be delivered and to establish the principles of mitigation that will be embedded in Local Plan policy.
- South Gloucestershire Council should request formal advice from Natural England on the next steps in the development of a mitigation strategy.
- It is recommended that South Gloucestershire Council joins the existing recreation mitigation scheme in place in the upper Severn[50]. The existing strategy uses developer contributions from residential development to fund Strategic Access Management and Mitigation (SAMM) within the SAC/SPA/Ramsar, and off site infrastructure (including SANGs – 'Suitable Alternative Natural Greenspace') to reduce trips to the estuary. The report says that joining the existing strategy *"would allow South Gloucestershire to take advantage of the existing work already done by its neighbours (working in partnership with the Severn Estuary and ASERA) and those authorities would also benefit in terms of the scheme becoming larger, more strategic and underpinned by a larger scale of development. The scheme as a whole is likely to be strengthened by incorporating additional potential delivery partners and projects, such as Linking the Levels."* This work is being reviewed every five years, with the next review point at 2029, when South Gloucestershire Council could join.
- If Bristol and/or North Somerset Councils also have a need for mitigation, South Gloucestershire Council could work with them on a strategic solution.
- Until South Gloucestershire Council can be part of a strategic solution with other local authorities, an interim approach will be required. This should mirror the wider strategic approach.

6.88 As with Avon Gorge Woodlands SAC, the general provisions for enhanced green infrastructure and open space (paragraphs 6.79 to 6.84) will also provide some contribution to mitigation for recreation pressure. Policy LPS11 Strategic green and blue infrastructure and the natural environment also includes the following specific criterion in relation to recreation pressure at the Severn Estuary:

> "9) Development proposals within 12.3km of the Severn Estuary Internationally Designated Habitats, which create potential for impacts on the integrity of habitats and features associated with the international designations, will need to provide an appropriate level of contribute towards SAMM (Strategic Access Management & Monitoring) and/or offsite SANGS (Suitable Alternative Natural Greenspace)."

6.89 SANG and SAMM are also referenced *("sites may also need to contribute towards SAMM.. and on or offsite SANGs"*) in the supporting text of some of the major development policies: Policy LP5 New Woodlands, Policy LP10 Almondsbury Village Extension, Policy LP14 Severnside Employment Area, and Policy LP21 Major Stadia. For clarity, it is recommended that this requirement is applied consistently to all of the major site policies within the 12.3km ZOI (i.e.

[50] Stroud District Council, Severn Estuary Special Area of Conservation (SAC), https://www.stroud.gov.uk/environment/planning-and-building-control/conservation-biodiversity-listed-buildings-trees-and-hedgerows/habitats-regulations-assessment-hra/severn-estuary-special-area-of-conservation-sac/

including policies LP4, LP9, LP12 & LP13), prior to adoption of the plan.

6.90 Until specific mitigation for effects at the Severn Estuary have been agreed with Natural England and embedded in policy, it is not possible to conclude 'no adverse effects on integrity' at Severn Estuary SAC/SPA/Ramsar, due to recreation pressure. However, the visitor survey report has been shared with Natural England and South Gloucestershire Council is committed to resolving this prior to the adoption of the Local Plan.

Water quality (direct pollution)

6.91 The HRA Screening assessment identified likely significant effects in relation to changes in water quantity or quality at:

- Severn Estuary SAC/SPA/Ramsar site (incl. functionally linked habitats; direct pollution)

6.92 The effects would be due to following policies and site allocations, which permit development at or adjacent to the Severn Estuary SAC/SPA/Ramsar, or have been identified (via high level desk study) as possibly being adjacent to watercourses or rhines:

- Policy LP4 Easter Compton village extensions;
- Policy LP14 Severnside employment area
- Policy LP19 Non-safeguarded employment sites (some existing non-safeguarded employment sites near to watercourses);
- Policy LP26 Renewable and low carbon energy systems (one safeguarded area north of Shepperdine)
- Policy LP32 Radioactive waste (Oldbury Power Station)
- Site allocation PSB1 Land off Prospect Close, Easter Compton;
- Site allocation PSB4 Land to the east of the B4055, Pilning Station;
- Site allocation THO3 Land west of B4061, Thornbury;
- Site allocation GTE01 Green Orchards, Berwick Lane;
- Site allocation GTI01 Berwick Park, Berwick Lane;
- Site allocation GTNS05 Green Orchards (new).

6.93 In addition, the policies listed in paragraph 5.8 could in theory result in development outside of the site allocations; and other site allocations may also be near to watercourses.

Mitigation for direct pollution

6.94 As with other impact pathways, policies within the Local Plan provide general protection for Habitats Sites and biodiversity (see paragraphs 6.7 to 6.10).

6.95 Several policies – PSP20, PSP21 and Policy LPS11 Strategic green and blue infrastructure and the natural environment - also provide protection for the water environment (see 'loss of habitat', paragraphs 6.23 to 6.26).

6.96 The following provide additional safeguards, related to water infrastructure:

- Policy CS6 Infrastructure and developer contributions: requires development that would add to demand for infrastructure to mitigate that impact and either provide required on site infrastructure or make financial contributions to off site infrastructure.
- Policy LPS10 Climate change, sustainable design and construction': requires developments to demonstrate "how they will utilise water efficiently" and requires BREEAM Excellent, which includes requirements for water efficiency and would therefore reduce the volume of water needing to be treated.
- Policy LP23 Climate change adaptation and resilience: requires developments to demonstrate how water supplies will be conserved, how multifunctional blue and green infrastructure will provide climate adaption (including surface water run off and biodiversity), and utilise sustainable drainage.

6.97 These policy safeguards are considered sufficient to avoid adverse effects on the integrity of the Severn Estuary SAC/SPA/Ramsar.

Conclusion – water quality (direct pollution)

6.98 With policy and legislative safeguards in place, no adverse effects on the integrity of any Habitats Site are anticipated, due to industrial emissions.

Summary of Appropriate Assessment

6.99 With safeguards within policy and other mitigation (e.g. legislative requirements), it has been possible to rule out adverse effects on integrity for most of the impact pathways identified as having likely significant effects at the Screening stage:

- Physical damage and loss of habitat at Severn Estuary SAC/SPA/Ramsar and its functionally linked habitats (birds, fish); and functionally linked habitats associated with the Chew Valley Lake SPA (birds), River Wye SAC (fish), River Usk SAC (fish), Wye Valley & Forest of

Dean Bat Sites SAC (bats) and Bath & Bradford on Avon Bats SAC (bats).

- Non physical disturbance at Severn Estuary SAC/SPA/Ramsar and its functionally linked habitats (birds); and functionally linked habitats associated with Chew Valley Lake SPA (birds), Wye Valley & Forest of Dean Bat Sites SAC (bats) and Bath & Bradford on Avon Bats SAC (bats).
- Bird strike affecting Severn Estuary SPA/Ramsar and Chew Valley SPA and their functionally linked habitats (birds).
- Air pollution (industrial emissions) affecting Severn Estuary SAC (and the SPA/Ramsar indirectly), Bath & Bradford on Avon Bats SAC, River Wye SAC, Wye Valley Woodlands SAC and Avon Gorge Woodlands SAC.
- Recreation pressure at Avon Gorge Woodlands SAC.
- Water quality (direct pollution) affecting Severn Estuary SAC/SPA/Ramsar.

6.100 However, it is not currently possible to rule out adverse effects on integrity in relation to the following, and further work is needed to resolve these prior to the adoption of the Local Plan (see **Chapter 7**):

- Air pollution (vehicle emissions) affecting Severn Estuary SAC (and the SPA/Ramsar indirectly), Bath & Bradford on Avon Bats SAC, River Wye SAC, Wye Valley Woodlands SAC and Avon Gorge Woodlands SAC.
- Recreation pressure at Severn Estuary SAC/SPA/Ramsar and its functionally linked habitats.

Chapter 7
Conclusions and next steps

7.1 It has not currently possible to rule out adverse effects on integrity in relation to air pollution (Severn Estuary SAC and the SPA/Ramsar indirectly, Bath & Bradford on Avon Bats SAC, River Wye SAC, Wye Valley Woodlands SAC and Avon Gorge Woodlands SAC) or recreation pressure (Severn Estuary SAC/SPA/Ramsar). This section below sets out the next steps required, to ensure that the HRA can conclude 'no adverse effects on integrity' prior to the adoption of the Local Plan. South Gloucestershire Council is committed to resolving these prior to the adoption of the plan.

Recreation pressure

7.2 As stated in **Chapter 6**, the 2024 Severn Estuary Visitor Survey work by Footprint Ecology (not yet published) makes recommendations for mitigation, to avoid adverse effects on integrity (see paragraph 6.87).

7.3 Prior to the adoption of the Local Plan, the mitigation strategy for recreation pressure at the Severn Estuary will need to be agreed with Natural England; and any requirements that are additional to those already within the Reg. 19 plan will need to be embedded within planning policy. The report states that:

7.4 *"In terms of timing, the HRA for the S. Gloucester Local Plan will need to be able to demonstrate that adverse effects on integrity for recreation impacts and the Severn Estuary SAC/SPA/Ramsar can be ruled out. In order to reach such a conclusion, it will probably be necessary for some protective policy or wording to at least establish the principles for mitigation and how mitigation can be implemented. Prior to submission of the Local Plan in mid-2025 it will therefore be necessary to be clear on how to deliver any necessary mitigation. With the potential to join the existing strategic mitigation scheme* [in place in the upper Severn Estuary]*, this should be straightforward. Ideally, an interim strategy that sets out some level of developer contribution and initial mitigation measures will be in place by submission or at least by the time the Plan is adopted (and the point at which the HRA is finalised)."*

7.5 The visitor survey report has been shared with Natural England and any agreements made will be documented in a Statement of Common Ground (SOCG).

7.6 In addition, for clarity, it is recommended that the reference to SANG/SAMM that is included in the supporting

text of some of the policies (LP5, LP10, LP14, LP21) is applied consistently to all of the major site policies within the 12.3km ZOI (i.e. including policies LP4, LP9, LP12 & LP13), prior to adoption of the plan.

Air pollution

7.7 Traffic data are not currently available to screen the Publication Local Plan policies and site allocations against the DMRB criteria (para. 5.49) and complete the assessment of air pollution impacts; however this has now been commissioned. Updated traffic modelling, and if necessary air quality assessment and Appropriate Assessment, will need to be completed as soon as possible. If any mitigation is required, this will need to be agreed and secured prior to adoption of the Local Plan.

7.8 Traffic data will need to show current traffic flows (AADT for all traffic and for HDVs) and modelled flows at the end of the plan period as a future baseline that includes background growth, with and without Local Plan development). The assessment will identify the affected road network, in line with Design Manual for Roads and Bridges guidance LA105. The HRA requires an understanding of the changes in traffic flow where roads pass within 200m of a Habitats Site, within 10km of the plan area, i.e.:

- Severn Estuary SAC (and the SPA/Ramsar indirectly): A403, M48 and M4.
- Bath and Bradford on Avon Bats SAC: A363 Sally In The Wood and A4 Box Hill. Both roads are accessed from the plan area via the A46.
- River Wye SAC and Wye Valley Woodlands SAC: A466, accessed from the plan area via the M4 Severn Bridge.
- Avon Gorge Woodlands SAC: A4 Portway, accessed via various routes from the plan area, including the M5.

7.9 The scope of the assessment will be agreed with Natural England, and the findings shared with them. If traffic data shows increases of more than 1,000 AADT or 200 HDV from the Local Plan alone or in combination with other plans and projects, then air quality assessment will be required in line with Institute of Air Quality Management (IAQM)[51].

7.10 If the air quality assessment shows that screening thresholds (>1% of critical load, in line with the IAQM guidance) are exceeded, then Appropriate Assessment will be required to determine whether the predicted increases in air pollution would have an adverse effect on the integrity of the affected Habitats Site. This is usually undertaken with through ecological assessment that includes a combination of detailed desk study and site visit to understand the sensitivity of habitats present. The Appropriate Assessment would be presented to align with the step-by-step approach set out in Natural England's guidance[52], and agreement would be sought with Natural England on the findings and conclusions.

7.11 Where adverse effects on integrity are predicted, mitigation will be required to avoid them. The type of mitigation that may be required depends on the location of any identified air pollution exceedance, and where the traffic contributing to that exceedance is coming from. However, mitigation for air pollution from a Local Plan typically involves a package of measures including some or all of the following: measures to reduce travel by fossil-fuelled vehicles, measures to reduce or flow traffic on specific roads, measures to reduce traffic from a specific development, and/or measures that reduce pollutants at a Habitats Site (e.g. screening, changes in land management).

7.12 Natural England will be kept abreast of the findings of the HRA air pollution assessment as they emerge, and any agreements will be documented in a SOCG.

Next steps for the HRA

7.13 This HRA report will be consulted on alongside the Publication Local Plan, as part of the Regulation 19 consultation.

7.14 While the Regulation 19 consultation is running, progress will be made on the recreation pressure mitigation, and air pollution assessment (as above), and any agreements made with Natural England will be documented in a SOCG.

7.15 It is likely that additional information required to conclude the recreation pressure and air pollution assessments will be presented in a HRA addendum, which would also address any Reg.19 comments on the HRA, and any amendments made to the Local Plan prior to the Plan being submitted.

7.16 The HRA will need to be able to conclude 'no adverse effects on integrity' for all impact pathways and Habitats Sites, prior to adoption of the Local Plan.

LUC

February 2025

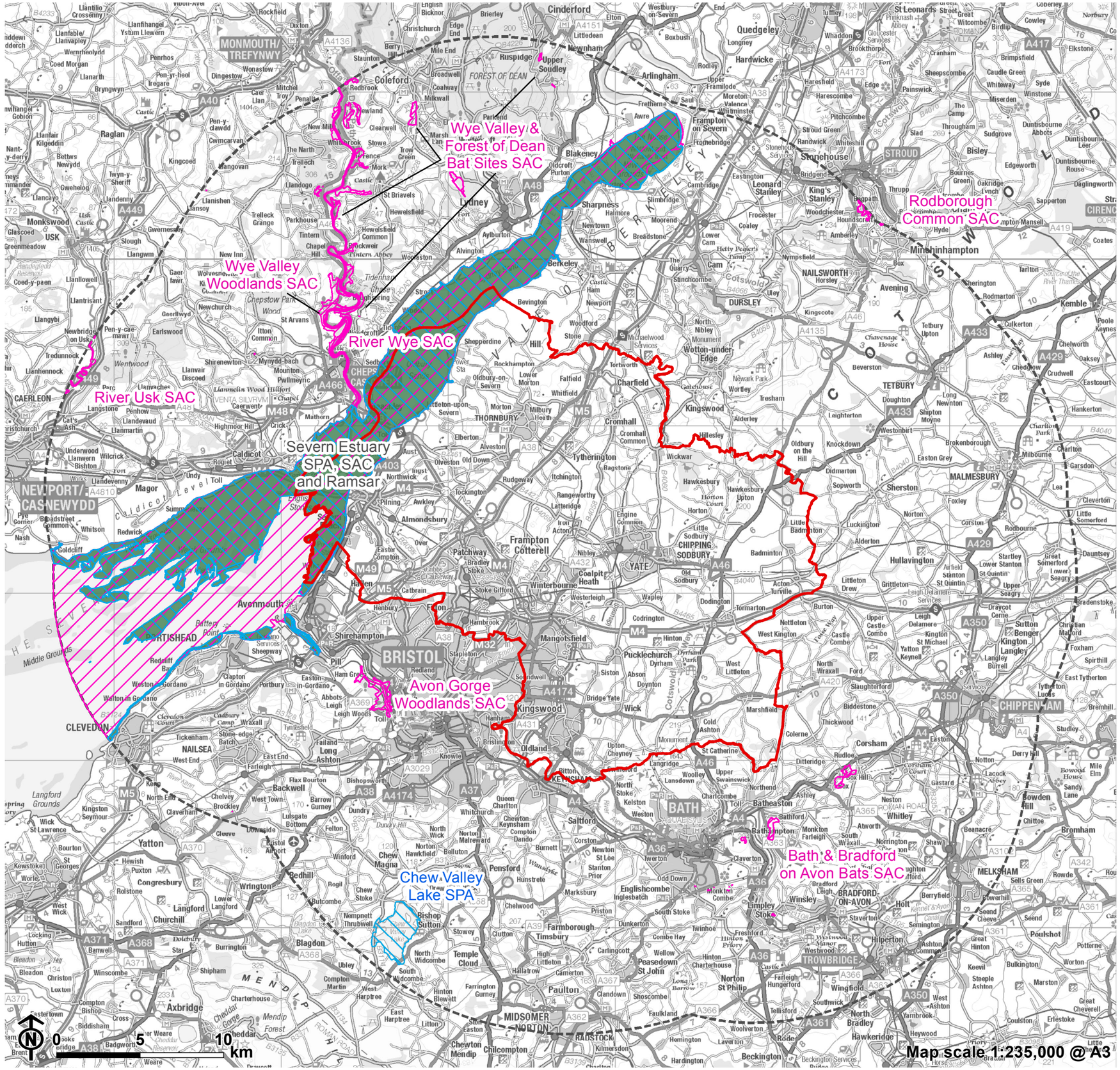
Appendix A

Habitats Sites within 15km of South Gloucestershire

South Gloucestershire Council Local Plan
Habitat Regulations Assessment
South Gloucestershire Council

LUC

Figure A.1: Habitats Sites within 15km of South Gloucestershire



- South Gloucestershire boundary
- South Gloucestershire 15km buffer
- Ramsar site
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)

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

© Natural England. Contains Natural Resources Wales information © Natural Resources Wales and database right. Contains derived Ordnance Survey Data. Ordnance Survey license number 100019741. Crown Copyright and Database right 2023.

Appendix B

Habitats Sites information

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
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.				
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	7,3714.11 ha	The Site improvement Plan[53] 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	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 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.

[53] Natural England - Site Improvement Plan: Severn Estuary Mor Hafren (SIP213)

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
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*		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).	■ 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.	■ Diet – aquatic fauna Twaite shad ■ Habitat preferences – marine, although spawns in freshwater rivers, requiring deep pools. ■ Diet – aquatic fauna

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
		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		

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
		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.		
Bath & 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.				
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:	106.45 ha	The Site improvement Plan[54] 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	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	Greater Horseshoe bat ■ Habitat – 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

[54] Natural England - Site Improvement Plan: Bath and Bradford on Avon Bats (SIP011)

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
■ Lesser horseshoe bat *Rhinolophus hipposideros*		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.	■ 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.	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 – 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 – 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.

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
		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.		
River Wye SAC The River Wye SAC covers 250km 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 23km 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.				
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	2,147.64 ha	The Site Improvement Plan[55] 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	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 qualifying habitats rely upon water quality/quantity. River lamprey ■ Habitat preferences – freshwater and wetlands ■ Diet – aquatic fauna

[55] Natural England Site Improvement Plan: River Wye (SIP199)

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
■ 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*		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.	■ 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.	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 inverte- brates to carrion, water plants and dead organic matter. Brook lamprey

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
		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		■ 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

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
		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 composition of the		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

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
		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.		shellfish, sea urchins and shrimp. Allis Shad ■ Habitat – 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 Woodlands 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.				
Annex 1 habitat: ■ Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*);	151.07 ha	The Site Improvement Plan[56] 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	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	Semi-natural dry grasslands and scrubland facies: on calcareous substrates

[56] Natural England: Site Improvement Plan: Avon Gorge Woodlands (SIP008)

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
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		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	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	■ *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.

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
		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		

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
		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 & 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		

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
		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.		
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 eg 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, eg 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.				
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	913.32 ha	The Site Improvement Plan[57] 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.	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 qualifying habitats rely upon soil quality and water quality/quantity. Lesser Horseshoe Bat ■ Habitat – These bats normally roost in old buildings, barns and churches and feed along woodland edges, hedgerows, wetlands and over pasture.

[57] Natural England Site Improvement Plan: Wye Valley Woodlands (SIP268)

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
woodland on base-rich soils associated with rocky slopes) Annex II species: ■ Lesser horseshoe bat *Rhinolophus hipposideros*		**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	■ 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.	■ Diet - moths, midges, flies and spiders.

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
		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.		

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
		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.		
Wye Valley & 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.				
Annex II species: ■ Lesser horseshoe bat *Rhinolophus hipposideros* ■ Greater horseshoe bat *Rhinolophus ferrumequinum*	144.82 ha	The Site Improvement Plan[58] 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	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	Greater Horseshoe bat ■ Habitat – 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

[58] Site Improvement Plan: Wye Valley and Forest of Dean Bat Sites (SIP267)

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
		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 4km 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	■ The populations of qualifying species, and ■ The distribution of qualifying species within the site.	■ Habitat – 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.

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
		pasture to arable; and inappropriate forest management can impact both bat species.		
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.				
Annex II habitats: ■ Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*). (Dry grasslands and scrublands on chalk or limestone)	109.27 ha	The Site improvement Plan[59] identifies the following pressures and threats to the SAC: **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	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	The qualifying habitats rely upon soil quality and water quality/quantity.

[59] Natural England - Site Improvement Plan: Rodborough Common (SIP202)

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
		harmful effects, but the sensitive features are currently considered to be in favourable condition on the site.		
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.				
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:	**967.97 ha**	**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 (ie noise/vibration) and sediment/chemical barriers arising from plans or projects. When arising from construction or other development	Conservation objectives[60]: ■ 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	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

[60] Natural Resources Wales Core Management Plan including Conservation Objectives for River Usk SAC

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
■ 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		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%	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	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

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
		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.	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	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.

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
			where necessary to allow passage, eg. weirs, bridge sills, acoustic barriers. ■ Natural factors such as waterfalls, which may limit the natural range of a species feature or dispersal between naturally isolated populations, should not be modified. ■ Flows during the normal migration periods of each migratory fish species feature will not be depleted by abstraction to the extent that passage upstream to spawning sites is hindered. Flow objectives for assessment points in the Usk Catchment Abstraction Management Strategy will be agreed between EA and CCW as necessary. ■ 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.	■ 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 – Migrates between freshwater and saltwater throughout Europe. ■ Diet - Plankton and tiny invertebrates when young, eats small crustaceans and hunts small fish when older.

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
			■ 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	

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
			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 eg. Suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions eg. Food supply. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. Natural factors such as	

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
			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.	
Severn Estuary SPA See Severn Estuary SAC for further information.				
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	25,000 ha	The Severn Estuary Site Improvement Plan[61] covers both the Severn Estuary SPA and Severn Estuary SAC. See Severn Estuary SAC for further information.	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 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.

[61] Natural England - Site Improvement Plan: Severn Estuary Mor Hafren (SIP213)

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
shelduck, gadwall, dunlin, and common redshank			■ The population of each of the qualifying features, and, ■ The distribution of the qualifying features within the site.	■ 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

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
				■ 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.				
Northern shoveler *Anas clypeata* (non breeding)	575.94 ha	The Site improvement Plan[62] 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.	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.	Northern shoveler ■ Habitat Preference – Shallow lakes, marsh, reedbed & wet meadow. ■ Diet – Omnivorous, esp. small insects, crustaceans, molluscs, seeds; filters particles with sideways sweeping of bill.

[62] Natural England Site Improvement Plan: Chew Valley Lake (SIP042)

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
			■ The population of each of the qualifying features, and, ■ The distribution of the qualifying features within the site.	
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.				
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*)	24,701 ha	The Information Sheet[63] on Ramsar Sites identifies the following pressures and threats to the Ramsar site: ■ Dredging ■ Erosion ■ Recreational / tourism disturbance	None available.	See Severn Estuary SPA.

[63] Ramsar Information Sheet (RIS): Severn Estuary (11081)

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
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*				

Qualifying Features	Area (ha)	Key vulnerabilities	Conservation objectives	Non-qualifying habitats and species upon which the qualifying habitats and/or species depend
■ 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.				

Appendix C
HRA Screening

C.1 This appendix groups policies into the following categories:

- Policies screened out as there is no impact pathway;
- Policies screened out as there is an impact pathway but there will be no likely significant effects, e.g. due to the scale of development;
- Policies screened in as there are likely significant effects; and
- Policies which provide mitigation for impacts arising from Local Plan policies.

C.2 Where uncertain or likely significant effects are identified, these are required to be considered further via Appropriate Assessment.

C.3 For site allocations, criteria are defined for the locations of development in which likely significant effects could occur. Site allocations meeting those criteria are listed.

Policies screened out

No impact pathway

C.4 The following policies have been screened out as there is no impact pathway:

- **Policy LPS2 Locational strategy for South Gloucestershire:** This policy explains how policies relate to specific locations. For the purposes of this HRA, the location of development has been assessed in relation to the site allocations and site-based policies.
- **Policy LPS3 Delivery of new homes:** This policy explains that of the 22,573 new homes proposed over the plan period, 7,740 are already consented. The total quantum of new homes is assessed under 'Policy LPS1 and the effects of individual sites under each site allocation.
- **Policy LP1 Making effective use of land in urban and town hubs:** This policy defines target densities for development in different locations and standards for high density development, but will not itself result in new development.
- **Policy LP2 Settlement boundaries:** This policy sets principles for development within or outside settlement

boundaries (restricts development outside settlement boundaries and site allocations more tightly), but will not itself result in new development.

- **Policy LP11 Major Sites delivery policy:** This policy sets out principles for the design/management of major developments, but will not itself result in new development.
- **Policy LPS4 Affordable homes:** This policy defines the target proportion and total number of affordable homes, but will not result in development over and above the overarching housing policy.
- **Policy LP16 Age-friendly housing and care homes:** This policy sets principles for the provision of age friendly housing / care homes within site allocations, but will not itself result in new development.
- **Policy LP17 Rural exception sites and community led development:** Defines the circumstances under which community led development or rural exception sites will be permitted, but will not itself result in new development.
- **Policy LP18 Internal space and accessibility standards:** Sets out space and accessibility standards. Will not result in new development.
- **Policy LP20 Employment and skills development:** Requires new development to provide local employment and training. Will not result in new development.
- **Policy LPS8 Town centres:** Defines the types of development that will be permitted in primary shopping areas, town centres, local centres and edge of centre, but will not itself result in new development.
- **Policy LP22 Parking requirements, including electric vehicles:** Defines parking standards for new development and will not result in new development.
- **Policy LPS10 Climate change, sustainable design and construction:** This policy encourages on site renewable energy generation, but the renewable energy development itself is assessed in this HRA under Policy LP26 Renewable and low carbon energy systems.
- **Policy LP23 Climate change adaptation and resilience:** Requires developments to consider climate change risk and increase the resilience of development.
- **Policy LP24 Energy management in new development:** Requires developments to minimise energy use. Will not result in new development.
- **Policy LP25 Embodied carbon:** Requires developments to reduce embodied carbon. Will not result in new development.
- **Policy LPS11 Strategic green and blue infrastructure and the natural environment:** Sets principles for the provision of new green/blue infrastructure (GBI) and will not result in new development (over and above that which will occur due to other policies that define the location of development.
- **Policy LP28 Ecology and Biodiversity Net Gain:** Sets out principles for the protection of biodiversity and provision of biodiversity net gain. Will not result in new development.
- **Policy LPS12 Creating well-designed places:** Sets out principles of good design and will not result in new development.
- **Policy LP29 Stewardship arrangements:** Defines how new landscape and public realm will be maintain in perpetuity. Will not result in new development.
- **Policy LP30 Private and communal amenity space standards:** Defines standards for private/communal space. Will not result in new development.
- **Policy LPS14 Nationally Significant Infrastructure Projects (NSIPs) – and related development:** This policy explains how the Council will engage with NSIP proposals, but will not itself result in new development. NSIPs are subject to their own assessment and consenting process; however, they may be relevant projects to consider in combination assessment.
- **Policy LPS15 Nuclear new build:** This policy explains how the Council will engage with proposals for nuclear new build (a NSIP), but will not itself result in new development. NSIPs are subject to their own assessment and consenting process; however, this would be a relevant project to consider in combination assessment, if it came forward within the plan period.
- **Policy LP31 Oldbury A station: decommissioning:** The decommissioning of the Oldbury nuclear power station is a NSIP and is subject to its own assessment and consenting process. This policy explains how the Council will engage with the NSIP process and seek to obtain long term benefit from the site (beyond the plan period), but will not itself result in new development. The NSIP project may be relevant to in-combination assessment.

Impact pathway exists but no likely significant effects

C.5 The following policies have been screened out as an impact pathway exists but there are no likely significant effects, e.g. due to scale of development:

- **Policy LP15 Houses in Multiple Occupation (HMO):** Although changes from single household occupancy to

HMO will increase the number of people living in a given area, the overall impacts on air pollution, water use etc. are not expected to result in likely significant effects, due to the scale of change.

Policies screened in

Policy LPS1 Strategic principles

C.6 Likely activities (operation) to result as a consequence of the proposal:

- Residential development (min. 22,573 homes over plan period)
- Gypsy/Traveller pitches (37) and Travelling Showpeople plots (15)
- Student accommodation (1,500 bed spaces)
- Employment development (49.7ha)
- Green and blue infrastructure, transport infrastructure

C.7 Potential effects if proposal implemented:

- Air pollution (vehicles)
- Changes in water quality / quantity
- Recreation pressure

C.8 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy defines the overall quantum of development permitted during the plan period. Although the quantum of development is also set out in individual policies and site allocations, this policy indicates the total that will contribute to in combination effects.

Policy LP3 Residential development in the countryside

C.9 Likely activities (operation) to result as a consequence of the proposal:

- Residential development
- Changes in vehicle traffic
- Water abstraction and discharge

C.10 Potential effects if proposal implemented:

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

C.11 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- Although the development coming forward under this policy would be small scale, it would contribute to the overall quantum of development. This policy allows for development outside of allocated sites. Development in rural locations is also more likely that development in urban areas to be near sensitive sites (e.g. the Severn Estuary or functionally linked habitats).

Policy LP4 Easter Compton village extensions

C.12 Likely activities (operation) to result as a consequence of the proposal:

- Residential development (max. 250 homes)
- Green infrastructure

C.13 Potential effects if proposal implemented:

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

C.14 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy will increase travel to/from the site and will result in activities that increase the need for water supply and treatment. This development location is near to known functionally linked habitat used by birds of the Severn Estuary SPA/Ramsar.

Policy LP5 New Woodlands

C.15 Likely activities (operation) to result as a consequence of the proposal:

- Residential development (1,000 homes over plan period)
- Retail, leisure, community and education development
- Green infrastructure and sports facilities
- Transport infrastructure

C.16 Potential effects if proposal implemented:

- Air pollution (vehicles)
- Changes in water quality / quantity
- Recreation pressure

C.17 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy will increase travel to/from the site and will result in activities that increase the need for water supply and treatment.

Policy LP6 North Lyde 'Ecotech' village

C.18 Likely activities (operation) to result as a consequence of the proposal:

- Employment development (min. 75,000m^2 over plan period)
- Residential development (2,050 homes, incl. a minimum of 100 age friendly homes. Min 1,000 delivered during plan period)
- Community and education development
- Green infrastructure and sports facilities
- Transport infrastructure

C.19 Potential effects if proposal implemented:

- Air pollution (vehicles)
- Changes in water quality / quantity
- Recreation pressure

C.20 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy will increase travel to/from the site and will result in activities that increase the need for water supply and treatment.

Policy LP7 Carsons Green and Rockhouse Farm new neighbourhood

C.21 Likely activities (operation) to result as a consequence of the proposal:

- Residential development (770 homes over plan period)
- Employment, retail, and education development
- Transport infrastructure
- Green infrastructure

C.22 Potential effects if proposal implemented:

- Air pollution (vehicles)
- Changes in water quality / quantity
- Recreation pressure

C.23 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy will increase travel to/from the site and will result in activities that increase the need for water supply and treatment.

Policy LP8 North Warmley new neighbourhood

C.24 Likely activities (operation) to result as a consequence of the proposal:

- Residential development (min. 950 homes)
- Employment, retail, and education development
- Green infrastructure and sports facilities
- Transport infrastructure

C.25 Potential effects if proposal implemented:

- Air pollution (vehicles)
- Changes in water quality / quantity
- Recreation pressure

C.26 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy will increase travel to/from the site and will result in activities that increase the need for water supply and treatment.

Policy LP9 Charfield village extensions

C.27 Likely activities (operation) to result as a consequence of the proposal:

- Residential development (up to 775 homes)
- Education development
- Transport infrastructure
- Green infrastructure

C.28 Potential effects if proposal implemented:

- Air pollution (vehicles)
- Changes in water quality / quantity
- Recreation pressure

C.29 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy will increase travel to/from the site and will result in activities that increase the need for water supply and treatment.

Policy LP10 Almondsbury village extensions

C.30 Likely activities (operation) to result as a consequence of the proposal:

- Residential development (c.350 homes)
- Green infrastructure

C.31 Potential effects if proposal implemented:

- Air pollution (vehicles)
- Changes in water quality / quantity
- Recreation pressure

C.32 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy will increase travel to/from the site and will result in activities that increase the need for water supply and treatment.

Policy LP12 The University of West of England, Frenchay Campus

C.33 Likely activities (operation) to result as a consequence of the proposal:

- Student accommodation (up to 1,500 beds)
- Education and employment
- Renewable energy development
- Sport and cultural facilities
- Public transport
- Green infrastructure
- Changes in vehicle traffic
- Water abstraction and discharge

C.34 Potential effects if proposal implemented:

- Air pollution (vehicles)
- Changes in water quality / quantity
- Recreation pressure

C.35 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy will increase travel to/from the site, recreation pressure, and will result in activities that increase the need for water supply and treatment.

Policy LP13 Land at former Filton Airfield - Brabazon

C.36 Likely activities (operation) to result as a consequence of the proposal:

- Residential development (at least 6,500 homes)
- Employment (assessed under Policy LPS7 Safeguarded Employment Areas)
- Retal/'local centre' development (up to 25,000sqm)
- Education, community and health facilities
- Sports facilities
- Public transport (inc. new railway station)
- Green infrastructure
- Changes in vehicle traffic
- Water abstraction and discharge

C.37 Potential effects if proposal implemented:

- Air pollution (vehicles)
- Changes in water quality / quantity
- Recreation pressure

C.38 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy will increase travel to/from the site, recreation pressure, and will result in activities that increase the need for water supply and treatment.

Policy LP14 Severnside employment area

C.39 Likely activities (operation) to result as a consequence of the proposal:

- Employment development (distribution and industrial)
- Renewable energy development
- Green infrastructure
- Changes in vehicle traffic
- Water abstraction and discharge

C.40 Potential effects if proposal implemented:

- Air pollution (vehicles, industrial)
- Changes in water quality / quantity
- Physical loss / damage to habitat
- Non-physical disturbance
- Bird strike
- Recreation pressure

C.41 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy will increase travel to/from the site and will result in activities that increase the need for water supply and treatment. Development of the site would be enabled by the consented link road to the M49.
- Its location, near to the Severn Estuary SAC, SPA and Ramsar means that it could also result in impacts arising from proximity to sensitive habitats / bird species. The policy permits 'uses focussed on net zero energy', which implies that wind turbines would be permitted here.
- Although this site is designated for employment rather than homes, its proximity to the Severn Estuary and the intention within the policy to improve green infrastructure could increase trips to the SAC/SPA/Ramsar site.

Policy LPS5 Accommodation for Gypsies and Travellers

C.42 Likely activities (operation) to result as a consequence of the proposal:

- Residential pitches for Gypsies & Travellers (99 pitches)
- Changes in vehicle traffic
- Water abstraction and discharge

C.43 Potential effects if proposal implemented:

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

C.44 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy will increase travel to/from the site and will result in activities that increase the need for water supply and treatment. The policy makes provision for new development outside of allocation sites, if necessary.

Policy LPS6 Accommodation for Travelling Showpeople

C.45 Likely activities (operation) to result as a consequence of the proposal:

- Residential pitches for Travelling Showpeople (15 plots)
- Changes in vehicle traffic
- Water abstraction and discharge

C.46 Potential effects if proposal implemented:

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

C.47 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy will increase travel to/from the site and will result in activities that increase the need for water supply and treatment. The policy makes provision for new development outside of allocation sites, if necessary.

Policy LPS7 Safeguarded employment areas

C.48 Likely activities (operation) to result as a consequence of the proposal:

- Employment development
- Changes in vehicle traffic
- Water abstraction and discharge

C.49 Potential effects if proposal implemented:

- Air pollution (vehicles, industrial)
- Changes in water quality / quantity

C.50 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy defines the overall quantum of new employment development that will be permitted in safeguarded employment areas at: University of the West of England (education); former Filton Airfield (Brabazon; research and development / industrial); North Lyde 'Ecotech' village; and Carsons Green and Rockhouse Farm new neighbourhood. These sites are assessed individually in relation to their respective policies but in-combination in relation to this policy.

Policy LP19 Non-safeguarded employment sites

C.51 Likely activities (operation) to result as a consequence of the proposal:

- Employment development
- Changes in vehicle traffic
- Water abstraction and discharge

C.52 Potential effects if proposal implemented:

- Air pollution (vehicles, industrial)
- Changes in water quality / quantity
- Physical damage / loss of habitat
- Non-physical disturbance

C.53 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy allows for some employment development outside of safeguarded or allocated sites.

Policy LP21 Major stadia

C.54 Likely activities (operation) to result as a consequence of the proposal:

- Stadium development (sport, leisure, cultural)
- Changes in vehicle traffic
- Water abstraction and discharge

C.55 Potential effects if proposal implemented:

- Air pollution (vehicles)
- Changes in water quality / quantity
- Physical loss / damage to habitat
- Non-physical disturbance

C.56 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy supports new or expanded major stadia with a minimum of 5,000 spectators. This would increase travel to/from the site and will result in activities that increase the need for water supply and treatment. This policy is not associated with development in a specific location, so could also result in physical loss of or damage to habitats, or non physical disturbance.

Policy LPS9 Sustainable transport movement and infrastructure

C.57 Likely activities (operation) to result as a consequence of the proposal:

- Transport infrastructure
- Changes in vehicle traffic

C.58 Potential effects if proposal implemented:

- Air pollution (vehicles)

C.59 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- Although this policy is principally about encouraging more sustainable alternatives to car travel, it also says that the council will work with partners to deliver key transport infrastructure projects that will alter the distribution of vehicles on roads. This could increase traffic on roads past Habitats Sites.

Policy LP26 Renewable and low carbon energy systems

C.60 Likely activities (operation) to result as a consequence of the proposal:

- Renewable / low carbon energy infrastructure (wind turbines, ground mounted solar, mine water geothermal, biomass, energy storage and generation)
- Changes in vehicle traffic
- Water abstraction and discharge

C.61 Potential effects if proposal implemented:

- Air pollution (industrial emissions)
- Physical damage / loss of habitat
- Non-physical disturbance
- Bird strike

C.62 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy permits wind turbines within safeguarded areas, which could pose a risk to birds (e.g. from the Severn Estuary). Biomass burning could introduce a point source of air pollution. Depending on the location of the development there may be additional impacts e.g. noise/light (or reflection from solar panels), or loss of habitat.

Policy LP27 Community energy

C.63 Likely activities (operation) to result as a consequence of the proposal:

- Renewable / low carbon energy infrastructure (wind turbines, ground mounted solar, mine water geothermal, biomass, energy storage and generation)
- Changes in vehicle traffic
- Water abstraction and discharge

C.64 Potential effects if proposal implemented:

- Air pollution (industrial emissions)

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

C.65 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy permits community led/benefitting renewable schemes. Depending on the energy infrastructure used and the location, this policy could result in risk to birds (e.g. from the Severn Estuary), point sources of air pollution, noise/light (or reflection from solar panels), or loss of habitat.

Policy LPS13 Mineral working and restoration

C.66 Likely activities (operation) to result as a consequence of the proposal:

- Mineral extraction and processing (3 sites at Cromhall Quarry, Tytherington Quarry southwest phases 1-3, and Wickwar Quarry northwest)
- Changes in vehicle traffic
- Water abstraction and discharge

C.67 Potential effects if proposal implemented:

- Air pollution (vehicles and potentially industrial emissions)
- Changes in water quality / quantity

C.68 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy will involve operations that produce noise and dust, will increase travel to/from the site and will result in activities that increase the need for water supply and treatment.

Policy LP32 Radioactive waste

C.69 Likely activities (operation) to result as a consequence of the proposal:

- Management and storage of radioactive waste
- Transport of radioactive waste
- Changes in vehicle traffic
- Water abstraction and discharge

C.70 Potential effects if proposal implemented:

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

C.71 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- Permits the management, storage and transport of radioactive waste. It is assumed that this would occur in proximity to Oldbury power station (adjacent to the Severn Estuary SAC/SPA/Ramsar).

Policy LP33 Waste

C.72 Likely activities (operation) to result as a consequence of the proposal:

- Waste management facilities (e.g. re-use, recycling)
- Changes in vehicle traffic
- Water abstraction and discharge

C.73 Potential effects if proposal implemented:

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

C.74 Reason why policy is likely to have significant effects and therefore needs to be scoped into the Appropriate Assessment:

- This policy will involve operations that produce noise, light and potentially industrial emissions; will increase travel to/from the site and will result in activities that increase the need for water supply and treatment.
- This policy makes provision for waste development outside of the allocated sites, if required.

Policies providing mitigation

C.75 The following policies provide mitigation for impacts associated with Local Plan development:

- **Policy LP1 Making effective use of land in urban and town hubs:** This policy requires proposals for new homes within the Urban and Town Hubs to demonstrate *"d) Access to an appropriate level of public open space provision, high-quality public realm and green infrastructure",* which may contribute to mitigation for recreation pressure.
- **Policy LP12 The University of West of England, Frenchay Campus:** This policy includes a requirement

for *"An enhanced and well-integrated Green Infrastructure and surface water drainage network including a strategic woodland link between Splatts Abbey Wood and Stoke Park via the east side of the site allocation to respond to the Local Nature Recovery Strategy focus area"* This may contribute to mitigation for recreation pressure impacts.

- **Policy LP14 Severnside employment area:** States that development must demonstrate *"That a Habitats Regulations Assessment of the proposals confirms that development will not have an adverse effect on integrity of the Special Area of Conservation, Special Protection Area or Ramsar sites or functionally linked habitats".* The policy also includes the following in the supporting text, which will contribute to mitigation for impacts arising from development of the site:
  - *"Under Regulation 63 of the Habitats Regulations the Council has a duty to review all unimplemented or partially implemented planning permissions likely to have a significant effect on the international nature conservation designations covering the Severn Estuary. This review of consent (Habitats Regulations Assessment) has been carried out as part of a wider coastal floodplain wetland habitat project (including land gifted under the scheme) in partnership with Bristol City Council and Natural England.*
  - *In order to address these potentially significant effects, The Avonmouth Severnside Enterprise Area Ecology Mitigation and Flood Defence Project (the "ASEA Project") has provided ecological mitigation in the form of newly created wetland habitats at Northwick and Hallen Marshes. New development proposals, and those from existing consents which require approval of their detailed design, will be subject to the Habitats Regulations and must be supported by a Habitats Regulation Assessment to demonstrate that they will not have adverse effects (including for example through habitat loss, pollution, disturbance, or impacts on bird flight paths).*
  - *Development proposals must meet requirements of Policy LP28: Ecology and Biodiversity Net Gain, with expectation for onsite provision of mandatory 10% Biodiversity Net Gain, and requirements of saved Policy PSP18 Statutory Wildlife Sites: European Sites and Sites of Special Scientific Interest (SSSIs) (until replaced). They may also need to contribute towards SAMM (Strategic Access Management & Monitoring) and on or offsite SANGS (Suitable Alternative Natural Greenspace)"* And
  - *"Ambitious travel plans for staff and visitors of new developments will be encouraged to minimise car-based travel and thereby assist in meeting requirements to mitigate the impact of new development upon the highway network."* and
  - *"Future large-scale development will also be expected to come forward with comprehensive transport delivery plans which includes significant improvements to bus and rail services between Severnside, Avonmouth, Bristol, and the wider West of England Region."*
- **Policy LP22 Parking requirements, including electric vehicles:** This policy requires developments of 500 or more employees/dwellings to set up and operate a car club. The policy also requires provision of electric vehicle charging for all new buildings, major renovations or changes of use. These may contribute to mitigation for air pollution (vehicle emissions) impacts.
- **Policy LPS10 Climate change, sustainable design and construction:** This policy requires developments to demonstrate "how they will utilise water efficiently" and requires BREEAM Excellent (which includes requirements for water efficiency). This will contribute to mitigation for impacts associated with water supply and treatment.
- **Policy LP23 Climate change adaptation and resilience:** This policy requires developments to demonstrate how water supplies will be conserved, how multifunctional blue and green infrastructure will provide climate adaption (including surface water run off and biodiversity), and utilise sustainable drainage. This will contribute to mitigation for impacts associated with water quality, supply and treatment.
- **Policy LP26 Renewable and low carbon energy systems:** This policy states that *"Landscape and visual impact; impact on ecological assets; impact on amenity; cumulative impact; and other considerations as relevant (including those specific to each technology) should be taken into account."* This would contribute to mitigation of impacts associated with this policy.
- **Policy LPS11 Strategic green and blue infrastructure and the natural environment:** This policy requires developments to protect and enhance defined GBI network corridors; and: *"8) Protect, enhance and buffer designated nature conservation and geological sites. Create new habitats, restore existing habitats and create more, bigger, better joined areas and linkages between them; 11) Protect the quality and quantity of the water environment and its margins; and 12) Deliver an appropriate level of public open space(s), which maximises the potential for multiple functions and connections to the strategic and local networks of Green*

Infrastructure 13) Major development proposals will be expected to demonstrate the provision of high-quality GI and ensure that the GI and nature conservation provisions of this policy are met;" These will contribute to mitigation for recreation pressure impacts, water quality/quantity impacts, and general protection of biodiversity.

- **Policy LP28 Ecology and Biodiversity Net Gain:** This policy states that: *"Development which would have an adverse impact on Internationally and Nationally designated sites, in accordance with the approach in national planning policy, will be refused." "Development which would be likely to have an impact upon habitats or species which contribute to nature conservation and recovery, will be expected to: Be informed by an appropriate ecological survey and assessment of impacts; and Be designed and sited to avoid any harm to identified habitats and species of importance." "Where loss of nature conservation value is unavoidable to enable suitable development, proposals will be expected to provide appropriate mitigation, or as last resort, compensation."* This policy will provide general protection for Habitats Sites and biodiversity in general.
- **Policy LP29 Stewardship arrangements:** This policy requires proposals for new open space and green infrastructure to be accompanied by a management and maintenance strategy. This will help to provide certainty of mitigation for recreation pressure.

Site allocations screened in

Physical damage and loss of habitat

C.76 Screening criteria ('Development site could have a significant effect if…'):

- Development occurs within or immediately adjacent to a Habitats Site
- Development occurs within or immediately adjacent to functionally linked habitat used by:
  - Bats: within 8km of Bath and Bradford on Avon Bats SAC or Wye Valley & Forest of Dean Bat Sites SAC
  - Birds: identified FLL (see paragraphs 4.19-4.22) – mostly within 1.5km of the SPA
  - Fish and freshwater invertebrates: potential FLL – rhines and watercourses linked to the River Severn.

C.77 Site allocations meeting screening criteria (sites to be considered in Appropriate Assessment):

- Within or immediately adjacent to a Habitats Site: none.
- Within 8km of Bath and Bradford on Avon Bats SAC: none.
- Within 8km of Wye Valley & Forest of Dean Bat Sites SAC: none.
- At identified bird FLL: PSB4 Land to the east of the B4055, Pilning Station (adjacent to 'Land east of the M29' and 'Tesco Pool'), Policy LP14 Severnside employment area (overlaps with 'Land east of the M29' and 'Tesco Pool'. 'Former Astra Zeneca fields' and 'Avlon Works Pools' are entirely within the Area)
- Adjacent to rhines and watercourses linked to the Severn (potential fish FLL). May include: PSB1 Land off Prospect Close, Easter Compton; PSB4 Land to the east of the B4055, Pilning Station; THO3 Land west of B4061, Thornbury; Policy LP14 Severnside employment area; GTE01 Green Orchards, Berwick Lane; GTI01 Berwick Park, Berwick Lane; GTNS05 Green Orchards (new). Note that these have been identified through high level desk study; there may be others.

Non-physical disturbance (vibrations, noise, visual disturbance, and lighting)

C.78 Screening criteria ('Development site could have a significant effect if…'):

- Development occurs within 500m of a Habitats Site
- Development occurs within 500m of functionally linked habitat that supports qualifying features susceptible to impacts from non-physical disturbance:
  - Bats: within 8.5km of Bath and Bradford on Avon Bats SAC or Wye Valley & Forest of Dean Bat Sites SAC
  - Birds: within 500m of identified FLL (see paragraphs 4.19-4.22).

C.79 Site allocations meeting screening criteria (sites to be considered in Appropriate Assessment):

- Within 500m of a Habitats Site: Policy LP14 Severnside employment area (but not its site allocation PSB4)
- Within 8.5km of Bath and Bradford on Avon Bats SAC: none.
- Within 8.5km of Wye Valley & Forest of Dean Bat Sites SAC: none.
- Within 500m of identified bird FLL: PSB1 Land off Prospect Close, Easter Compton ('Land east of the M29'); PSB4 Land to the east of the B4055, Pilning Station ('Land east of the M29' and 'Tesco Pool'); Policy LP14 Severnside employment area (overlaps with 'Land east of the M29' and 'Tesco Pool'. 'Former Astra Zeneca

fields' and 'Avlon Works Pools' are entirely within the Area)

Bird strike

C.80 Screening criteria ('Development site could have a significant effect if…'):

- Wind turbine development occurs within or immediately adjacent to Severn Estuary SPA/Ramsar
- Wind turbine development occurs in a location over which birds from Severn Estuary SPA/Ramsar or Chew Valley SPA fly over.

C.81 Site allocations meeting screening criteria (sites to be considered in Appropriate Assessment):

- Within of adjacent to Severn Estuary SPA/Ramsar: Policy LP26 Renewable and low carbon energy systems; and Policy LP14 Severnside employment area.
- In location over which birds from Severn Estuary SPA/Ramsar or Chew Valley SPA fly: not known; therefore all wind turbine development in the district screened in (i.e. Policy LP26 Renewable and low carbon energy systems and Policy LP14 Severnside employment area).

Air pollution

C.82 Screening criteria ('Development site could have a significant effect if…'):

- Development increases traffic flows by at least 1,000 AADT or 200 HDVs AADT (alone or in combination) on roads within 200m of a Habitats Site; i.e. the following roads:
  - 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)
  - River Usk SAC (M4, A449, A40, A479)

C.83 Site allocations meeting screening criteria (sites to be considered in Appropriate Assessment):

- All site allocations and windfall development (the Local Plan alone and in combination with other plans/projects)

Recreation pressure

C.84 Screening criteria ('Development site could have a significant effect if…'):

- Residential development proposed within:
  - 7km of River Wye SAC.
  - 12.3km of Severn Estuary SAC, SPA and Ramsar site
  - 7km of Avon Gorge Woodlands SAC

C.85 Site allocations meeting screening criteria (sites to be considered in Appropriate Assessment):

- Within 7km of River Wye SAC: SV15 Land by Aust Road and Elberton Road, Olverston .
- Within 7km of Avon Gorge Woodlands SAC: Policy LP13 Former Filton Airfield (Brabazon); Policy LP12 The University of West of England, Frenchay Campus (site allocation NF3 Land at the University of the West of England; NF2 Land at Filton 20 Business Park, Golf Course Lane; NF5 Filton Retail Park, Fox Den Road, Stoke Gifford.
- Within 12.3km of Severn Estuary SAC, SPA and Ramsar site:
  - Mixed use sites: CH2, FC3, NF5, NF7, SV1, SV10, TH2
  - Housing allocations: CH1, CH4, FC6, FC15, FD1, FD2, NF1, NF2, NF6, NF8, NF9, PSB1, PSB2, PSB3, SV2, SV3, SV5, SV6, SV7, SV9, SV12, SV13, SV15, TH1, THO1, THO2, THO3, WI1, WI2, WI3, WI8
  - Gypsy and traveller sites: GTI01, GTI04, GTI05, GTI07, GTE01, GTE02, GTNS02, GTNS05, GTPU01, GTPU03, GTPU05, GTPU06, GTPU08
  - Hotel and leisure: FC13
  - Policy LP12 The University of the West of England (allocation NF3)
  - Policy LP13 Former Filton Airfield (Brabazon)

Changes in water quantity / quality

C.86 Screening criteria ('Development site could have a significant effect if…'):

- Development results in increased abstraction from Chew Valley SPA (Bristol Water mains supply)
- Development results in increased wastewater treatment at WWTWs discharging into the Severn Estuary at Aust and Redwick, or on watercourses that flow into the

Severn Estuary, for example at Tockington and Alveston (Wessex Water mains sewerage, or on-site treatment)

- Development is close to / upstream of rhine / watercourse that is linked to the Severn Estuary.

C.87 Site allocations meeting screening criteria (sites to be considered in Appropriate Assessment):

- Increased abstraction from Chew Valley SPA: all residential development and other development including waste development or industry that uses main water supply.
- Increased wastewater treatment discharging to the Severn Estuary: all residential development.
- Development close to / upstream of rhine / watercourse linked to Severn Estuary: May include: PSB1 Land off Prospect Close, Easter Compton; PSB4 Land to the east of the B4055, Pilning Station; THO3 Land west of B4061, Thornbury; Policy LP14 Severnside employment area; GTE01 Green Orchards, Berwick Lane; GTI01 Berwick Park, Berwick Lane; GTNS05 Green Orchards (new). Note that these have been identified through high level desk study; there may be others.

Appendix D

Site allocations assessed in HRA

D.1 **Table D.1** lists all of the site allocations identified in the Local Plan policies and assessed in the HRA.

Table D.1 Site allocations assessed in HRA

Site reference	HELAA reference	Address	Proposed use
Employment			
BV15	SG910	Homeapple Close	Employment B2, B8 5 units at 75m2, 1 unit at 200m2
BV16	SG896	Glenfern and Land to East of Carsons Road	Employment E(g), B2, B8
CH3	SG060	Woodend Farm, Woodend Lane, Cromhall	Employment Class E, 350m2 E(g) office
CS4	SG777	Buffer Depot, Acton Turville	Employment E(g), B2, B8
CS5	SG776	Land at Rushmoor Dairy, Badminton	Employment E(g), B2, B8
NC1	SG934	West of Carsons Road	Employment, 25000 B1, 20,000 B2/B8
PSB4	SG481	Land to the east of the B4055, Pilning Station	Employment E(g), B2, B8
SV14	SG821	Recreation Ground Oaklands Drive, Almondsbury	Employment 3250m2 E Class
Mixed use			
BV12	SG459	Land North of Lyde Green	Employment (70,000m2), Housing, Extra Care Housing, Local Centre, Primary School, Sports Pitches, Mobility Hub 2,000 homes
BOC1	SG047	Land to the rear of Park Farm, Barry Road, Oldland Common	Housing, sports pitches 304 homes
BOC5	SG834	Willsbridge Nursery, off Keynsham Road (A4175), Willsbridge	Housing and Employment (Class E) 62 homes
BV13	SG897	Land North of A420 and South if Goose Green, Warmley	Housing, Mobility Hub 1,000 homes
BV3	SG209	Rockhouse Farm, Cattybrook Road, Shortwood	Housing, Small Scale Commercial (up to 350m2) 280 homes
BV9	SG868	Carsons Green, East of the A4174	Housing, Employment (5.8ha), Local Centre, Primary School, Mobility Hub, Playing Pitches 1,600 homes
CH2	SG113	Land to the south of Charfield	Housing, Age Friendly Housing, Commercial (up to 350m2) Sport Pitches 525 homes

Site reference	HELAA reference	Address	Proposed use
CS3	SG872	Barnhill Quarry	Housing, small scale employment, sports pitches 300 homes
EF2	SG077	Lucas Works, Moravian Road, Kingswood	Housing and Employment (Class E) 100 homes
EF5	SG889	The Former Grange School, Warmley	Housing and Sports Pitches 161 homes
EF6	SG925	46 Broad Street, Staple Hill	Housing and Commercial (ground floor) 14 homes
EG3	SG784	The Hayfields off Cossham Street	Housing, Rugby Club, Playing Pitches 65 homes
FC3	SG114	Woodlands Golf Course, Trench Lane, Almondsbury, (Woodlands Garden Village)	Housing, Primary School, Local Centre, Mobility Hub, Extra Care Village, Sports Pitches 1,900 homes
FC13	SG871	Tytherington Quarry, Tytherington Road	Hotel and Leisure
NF3	SG754	Land at the University of the West of England, Frenchay Campus	Student Housing, Housing, Employment, Education and Research 1500 bed spaces
NF5	SG970	Filton Retail Park, Fox Den Road, Stoke Gifford	Housing and Commercial (ground floor) 250 homes
NF7	SG977	Aviva Centre, Stoke Gifford	Housing and Employment (Class E) 400 homes
SV1	SG004	Land South of Gloucester Road, Almondsbury	Housing, Extra Care Housing, Small Scale Commercial (up to 350m2) 350 homes
SV10	SG926	The Quarters Colony Farm, Hortham	Housing, Training Centre and Playing Pitches 90 homes
TH2	SG1003	Former Castle School, Gloucester Road, Thornbury	Housing and Playing Pitches 100 homes
Housing			
BOC2	SG737	Land at 12, The Park, Willsbridge BS30 6EE	15 homes
BOC3	SG738	Jarretts Garden Centre, Bath Road	95 homes

Site reference	HELAA reference	Address	Proposed use
BOC4	SG363	Jarrets Yard, Oldland Common	140 homes
BOC6	SG980	Land Adjacent to Bitton Sports and Social Club	33 homes
BOC7	SG1000	Land Adjoining Bath Road, Bridgeyate	59 homes
BOC8	SG1001	Land on the East side of Bath Road, North Common, Warmley	64 homes
BV1	SG159	Land at Wick Quarry, Wick	25 homes
BV2	SG172	Land to the Rear of London Road, Wick	5 homes
BV4	SG212	Land North of London Road, Wick	30 homes
BV6	SG346	Shortwood Hill	50 homes (but allocated for development beyond the plan period)
BV7	SG963	CEMEX Floors, London Road,	45 homes
BV8	SG703	Land to rear of 91 High Street, Wick, BS30 5QQ	10 homes
BV10	SG990	Mounds Court Farm, Webbs Heath Lane	60 homes
BV11	SG910	Land east of Abson Road, Pucklechurch	60 homes
BV14	SG999	Land on the East side of Bath Road, North Common, Warmley	41 homes
CH1	SG098	Land north of Wotton Road, Charfield	250 homes
CH4	SG021	Land at Longcross Farm, Cromhall	30 homes
CS1	SG022	Land between France Lane and Park Street, Hawkesbury Upton	20 homes
CS2	SG864	Land South of Luckington Road, Acton Turville	50 homes
EF1	SG053	Lyde Green Road, Emersons Green	60 homes
EF3	SG347	Lyde Green Farm, Emersons Green	393 homes
EG1	SG387	Land at Shortwood, Mangotsfield	65 homes
EG2	SG131	Land at, Cossham Street, Mangotsfield	150 homes

Site reference	HELAA reference	Address	Proposed use
EG4	SG946	Promphrey Hill, Mangotfield	7 homes
FC1	SG034	Land on the East side of Dyers Land, Yate	150 homes
FC2	SG107	Land off Park Lane, Coalpit Heath	95 homes
FC4	SG129	Land off, Engine Common Lane, Yate	130 homes
FC5	SG310	Land at Holly Hill Farm, Iron Acton	20 homes
FC6	SG380	Land off Bristol Road, Frampton Cotterell	60 homes
FC7	SG419	Land at 404 North Road, Yate	30 homes
FC8	SG728	Land at North Road, Yate	20 homes
FC9	SG732	Land to rear of 450 North Road, Yate	8 homes
FC10	SG801	Land off North Road, Yate, BS37 7LJ	20 homes
FC11	SG823	Field to south of Rock View, Engine Common Lane	12 homes
FC14	SG1007	Watermore Junior School	20 homes
FC15	SG842	Land at Berrows Mead, Rangeworthy	19 homes
FD1	SG749	The Oaks, Filton Road, Hambrook	150 homes
FD2	SG861	Bolbrek Filton Road, Filton	11 homes
HA1	SG032	Land at Castle Farm Road, Hanham	125 homes
HA2	SG779	Land at Castle Inn Farm, Hanham	60 homes
NF1	SG414	Land Northeast of Old Gloucester Road, Hambrook	30 homes
NF2	SG436	Land at Filton 20 Business Park, Golf Course Lane, Filton	276 homes
NF6	SG974	Land at Westfield Lane, Stoke Gifford	60 homes
NF8	SG985	Land at Hambrook Lane, Harry Stoke	70 homes
NF9	SG1005	Harry Stoke Road, Harry Stoke	50 homes

Site reference	HELAA reference	Address	Proposed use
PSB1	SG280	Land off Prospect Close, Easter Compton	160 homes
PSB2	SG401	Land Between Over Lane and the B4055, Easter Compton	50 homes
PSB3	SG825	Land off Blackhorse Hill, Easter Compton	40 homes
PW1	SG465	15 and 17a, London Road, Warmley	50 homes
SV2	SG096	Land at Vattingstone Lane Alveston	130 homes
SV3	SG332	Land at Hortham Lane, Hortham, BS32 4JH	30 homes
SV5	SG727	Land on the South Side of Gaunts Earthcott Lane,	180 homes
SV6	SG781	Land North of A38, Alveston	40 homes
SV7	SG786	Land off Gaunts Earthcott Lane, Woodlands	100 homes
SV9	SG924	Land Off Tockington Lane, Almondsbury	10 homes
SV12	SG928	Land to the North of Berkeley Vale Motors, Alveston	20 homes
SV13	SG942	Land to south of Trench Lane, Winterbourne	170 homes
SV15	SG789	Land by Aust Road and Elberton Road, Olveston	20 homes
TH1	SG1002	Land Behind Former Thornbury Health Centre, Prowse Close, Thornbury	75 homes
THO1	SG177	Land off Alveston Hill, Thornbury	60 homes
THO2	SG620	Land to West of Park Farm	15 homes
THO3	SG850	Land west of B4061, Thornbury	40 homes
WI1	SG437	Land to the North of the Railway Line, Winterbourne	70 homes
WI2	SG446	Land at York Gardens, Winterbourne	20 homes
WI3	SG762	Land west of Winterbourne Hill	100 homes
WI8	SG399	Land at Hambrook Business Park, The Stream, Hambrook	10 homes

Site reference	HELAA reference	Address	Proposed use
YA1	SG816	Yate Town Centre	200 homes
YA2	SG978	Land at Ladden Garden Village, Yate	140 homes
YA3	SG010	Land North of Ladden Garden Village, Yate	162 homes
YA5	SG1004	Former Whirlpool Site, Station Road, Yate	150 homes
YA6	SG1006	Cranleigh Court, Yate	10 homes
n/a		Small Site Windfalls	c.230 homes per annum
Gypsy and Traveller sites			
GTE01	n/a	Green Orchards, Berwick Lane	Extension of existing site; 4 pitches
GTE02	n/a	The Conifers, Oldbury Lane	Extension of existing site; 5 pitches
GTE03	n/a	The Meadows, Parkfield	Extension of existing site; 2 pitches
GTI01	n/a	Berwick Park, Berwick Lane	Intensification of existing site; 2 pitches
GTI02	n/a	Henfield Paddock, Henfield	Intensification of existing site; 3 pitches
GTI03	n/a	Hill View, Badminton Road, Nibley	Intensification of existing site; 4 pitches
GTI04	n/a	Frampton Park, Bristol Road	Intensification of existing site; 8 pitches
GTI05	n/a	Land North of Lime Kiln Court, Tytherington	Intensification of existing site; 4 pitches
GTI06	n/a	Moor Paddock	Intensification of existing site; 2 pitches
GTI07	n/a	The Willows, Latteridge	Intensification of existing site; no. pitches not specified
GTNS01	n/a	Land at Beach House, Iron Acton	New site; 1 pitch
GTNS02	n/a	Land at Church Lane, Rangeworthy	New site; 6 pitches
GTNS03	n/a	Land at Commonmead Lane	New site; 6 pitches
GTNS04	n/a	Land at Henfield Road	New site; 4 pitches
GTNS05	n/a	Land opposite Green Orchards, Berwick Lane	New site; 4 pitches
GTPU01	n/a	Camp Farm, Elberton, Olveston	New site; 4 pitches
GTPU02	n/a	Doynton Lane, Doynton	New site; 2 pitches
GTPU03	n/a	Froglands Cross, Old Gloucester Road	New site; 3 pitches

Site reference	HELAA reference	Address	Proposed use
GTPU04	n/a	Land at Peg Lane, Pucklechurch	New site; 8 pitches
GTPU05	n/a	Rectory Lane, Cromhall	New site; 8 pitches
GTPU06	n/a	The Firs, Swan Lane	New site; 3 pitches
GTPU07	n/a	Tormarton Road, Marshfield	New site; 2 pitches
GTPU08	n/a	Land adjacent to Northwood Park	New site; 6 pitches
TSP01	n/a	Leigh Farm, Leigh Lane, off Westerleigh Road	New site; 15 plots
Minerals preferred areas			
1	n/a	Cromhall Quarry	Minerals extraction
2a	n/a	Tytherington Quarry southwest extension 1	Minerals extraction
2b	n/a	Tytherington Quarry southwest extension 2	Minerals extraction
2c	n/a	Tytherington Quarry southwest extension 3	Minerals extraction
3	n/a	Wickwar Quarry northwest extension	Minerals extraction

Appendix E

Saved policies considered in HRA

E.1 **Table E.1** lists all of the policies saved from the adopted Local Plan Core Strategy 2006-2027 and Local Plan 'Policies, Sites and Places Plan' (November 2017) and whether they provide mitigation or contribute to in combination impacts.

Table E.1 Saved policies and how they have been considered in this HRA

Saved policy	Provides mitigation for impacts of Publication Local Plan	Contributes to likely significant in-combination impacts with Publication Local Plan
Core Strategy policies		
CS6 Infrastructure and developer contributions	Yes – water quality / quantity	No
CS9 Managing the environment and heritage (partly rewritten)	Yes – all impacts	No
CS17 Housing diversity	No	No
CS23 Community infrastructure and cultural activity	No	Yes – air pollution, changes in water quality/quantity
CS24 Green infrastructure, sport and recreation standards	Yes – recreation pressure	No
CS27 East of Harry Stoke neighbourhood	No	Yes – air pollution, changes in water quality/quantity, recreation pressure
CS30 Yate and Chipping Sodbury	No	Yes – air pollution, changes in water quality/quantity, recreation pressure
CS31 North Yate new neighbourhood	No	Yes – air pollution, changes in water quality/quantity, recreation pressure
Policies, Sites and Places Plan policies		
PSP2 Landscape	No	No
PSP3 Trees and woodland	Yes – loss of habitat	No
PSP4 Designated local green spaces	No	No
PSP5 Undesignated open spaces within urban areas and settlements	No	No
PSP7 Development in the Green Belt	No	No
PSP8 Residential amenity	No	No
PSP9 Health impact assessment	No	No
PSP10 Active travel routes	Yes – air pollution	No
PSP11 Transport impact management	Yes – air pollution	No
PSP12 Motorway service areas and roadside facilities	No	No
PSP15 Park and Ride/Share	No	No
PSP17 Heritage assets and the historic environment	No	No

Saved policy	Provides mitigation for impacts of Publication Local Plan	Contributes to likely significant in-combination impacts with Publication Local Plan
PSP18 Statutory wildlife sites: European sites and Sites of Special Scientific Interest (SSSI)	Yes – all impacts	No
PSP20 Flood risk, surface water and watercourse management	Yes – water quality/quantity	No
PSP21 Environmental pollution and impacts	Yes – non-physical disturbance, air pollution, water quality/quantity	No
PSP22 Unstable land	No	No
PSP25 Hydrocarbon extraction (incl. fracking)	No	No
PSP26 Enterprise areas	No	No
PSP27 B8 storage and distribution uses	No	Yes – air pollution
PSP28 Rural economy	No	Yes – physical loss of habitat (functionally linked habitats)
PSP29 Agricultural development	No	Yes – physical loss of habitat (functionally linked habitats)
PSP30 Horse related development	No	Yes – physical loss of habitat (functionally linked habitats)
PSP32 Local centres and parades	No	No
PSP33 Shopping frontages	No	No
PSP34 Public houses	No	No
PSP35 Food and drink uses (including drive through takeaway facilities)	No	No
PSP36 Telecommunications infrastructures	No	Yes – physical loss of habitat (functionally linked habitats)
PSP38 Development within existing residential curtilages, including extensions and new dwellings	No	No
PSP41 Rural workers dwellings	No	Yes – physical loss of habitat (functionally linked habitats)
PSP42 Self and custom build	No	No
PSP44 Open space, sport and recreation	No	No
PSP45 Crematoria	No	No

Appendix F

Record of consultation

Table F.1 Comments received on previous iterations of the HRA (relevant excepts)

Respondent	Representation	LUC's responses
Comments received on the HRA Scoping Report (March 2023) – LUC responses are as provided at the time (i.e. prior to the Reg.18 HRA)		
Natural England	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.	Noted
	Functionally linked habitat Paragraph 3.12 refers to 2km 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 (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 (defra.gov.uk)	The Severn Estuary FLL and Somerset Bat Guidance have been taken into consideration.
	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	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 Habitats Sites.

Respondent	Representation	LUC's responses
	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.	
	Recreation We consider the suggested 7km 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.	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 Habitats Sites in line with their conservation objectives will be considered through Appropriate Assessment where required.
	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.	Noted
	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	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 was not undertaken at that stage as we were not provided a full list of

Respondent	Representation	LUC's responses
	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.	policies and the site allocations. A Screening matrix was provided considering whether the policies that had been drafted so far are expected to result in development and if any of the potential pathways could be impacted. (Note that, in the version of the HRA report that has been formatted for accessibility, the matrix has been replaced by text under subheadings.)
Natural Resources Wales	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.	Noted
	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 13km downstream of South Gloucestershire is not sufficient justification for scoping out.	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.
	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.	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.
	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.	Information from Habitats 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

Respondent	Representation	LUC's responses
		vulnerabilities of the designated species which is considered during the Screening assessment.
Comments received on the Regulation 18 HRA (February 2024) – LUC responses are as addressed in this (Reg.19) version of the HRA		
Natural England	Habitats Regulations Assessment The Habitats Regulations Assessment (HRA) Screening Report has concluded that the plan could result in likely significant effects on Habitats Sites from the following threats/pressures: • Physical Damage/Loss of Habitat • Non-physical disturbance • Bird Strike • Non-physical disturbance • Air pollution • Recreation • Water Quantity/Quality Natural England agrees that these effects should be screened in for further assessment and consideration based on the information currently available. Further assessment of the scale and nature of these impacts should be undertaken through an Appropriate Assessment that will identify any mitigation measures needed to avoid adverse effects on integrity of Habitats Sites. The appropriate assessment should consider the effects of the plan both alone and in- combination with other plans/projects. Your Authority will need to satisfy itself that adverse effects on integrity of Habitats Sites can be mitigated or avoided where likely significant effects have been identified. We would be happy to discuss the HRA with the Council further. We would recommend speaking to neighbouring authorities through Duty to Cooperate discussions regarding any further evidence gathering and assessment required on the above issues, and on the approach to mitigation strategies if the evidence demonstrates that one is required. The locations of the Habitats Sites screened in for further assessment mean cross boundary impacts are likely and any required approach to mitigation will likely to be easier the deliver in tandem with nearby local planning authorities.	Noted. The cross boundary nature of the impacts has been taken into account in the HRA, and in the identification of mitigation. For example, the scope of visitor surveys and identification of mitigation has been agreed in discussion with various Severn Estuary stakeholders. However, further joint working is required to conclude the air pollution and recreation pressure assessments.

Respondent	Representation	LUC's responses
	The HRA Screening Report has only screened the policies and emerging preferred strategy in the Phase 3 consultation, the HRA undertaken for the Regulation 19 plan must assess all policies and allocation included in the plan. We welcome that this has been recognised in the HRA.	
	Water Quality and Quantity With regard to water quality and quantity, Natural England is currently advising Bristol Water and Wessex Water on the HRAs for their respective Water Resource Management Plans (WRMPs). The South Gloucestershire Local Plan will be able to rely on the conclusions of the HRAs for the water companies that cover the plan area, once agreed. In regard to likely significant effects in the Severn Estuary SPA/SAC/Ramsar Site due to the increased need for water treatment, whilst we understand why this impact has been screened in on a precautionary basis, our advice is that there is not currently evidence that nutrients are harming the qualifying features of the Site.	The 2024 WRMP and its HRA have also now been finalised, enabling the HRA to rely on its conclusions to conclude 'no adverse effects on integrity'.
	Bat SACs Functionally Linked Land Regarding impacts to land functionally linked to bat SACs, as stated in previous comments, 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 (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 (defra.gov.uk) The Core Sustenance Zones used in the HRA are not precautionary enough. The CSZ used in the HRA area are: • Greater horseshoe bat – 3km • Bechstein's bat – 3km • Lesser horseshoe bat – 2km Previous evidence has suggested that horseshoe bats forage further from roosts that CSZ used in the HRA which has led to larger CSZs being used in planning guidance for nearby authorities. For example the Somerset Guidance uses a CSZ of 8000m around greater horseshoe maternity roosts and a CSZ of 4100km around lesser horseshoe maternity roosts. The Bat SAC Planning Guidance for Wiltshire uses a CSZ of 4000m around all core greater horseshoe roosts, Plan 2 of the guidance shows the CSZ for the Bath and	The CSZs referred to in the HRA Screening have been updated to use the more precautionary CSZs. The likelihood of functionally linked habitats occurring at allocated sites within the CSZs has been informed through desk study (e.g. aerial photography, priority habitats).

Respondent	Representation	LUC's responses
	Bradford on Avon Bats SAC extends into South Gloucestershire. A further review of the existing evidence should be undertaken to determine the CSZ used in the HRA, however we recommend that larger CSZs are used in line with guidance in neighbouring authorities.	
	Recreational Pressure Clear justification must be provided for the distances used for Zones of Influence. While 7km has often been used for recreational pressure, we are aware of recent examples where coastal ZoIs have been set that are more bespoke, following local evidence and visitor surveys, for example, Essex Coast RAMS: essex-coast-rams-supplementary-planning-document.pdf (chelmsford.gov.uk). Regarding the Severn Estuary specifically, the scale, diverse geography, and tidal range of the Site are among the factors that make it challenging to understand the nature of recreational pressure on its features, and measures needed to address harmful effects. There are several evidence sources that provide useful insight into understanding baseline conditions and recreational pressure at the site and at similar sites in the UK. For the Severn this includes the Severn estuary High Tide Roost Study Reports, visitor surveys for Forest of Dean and Stroud districts and the Forgotten Landscape high tide roost monitoring project. Information available on bird disturbance, for example, suggests that there are some locations along the coast that are relatively much more vulnerable/sensitive than others, and perhaps in some cases, not easily accessed and not heavily used. We would recommend that further consideration is given as to whether the information available is adequate to understand cause and effect and any responses that may be needed in South Gloucestershire. Existing visitor survey data is patchy and your Authority may wish to consider whether further targeted survey at sensitive locations could be undertaken over the wintering/passage period for SPA birds. It is worth noting that Stroud and Gloucester districts have commissioned a consultancy with expertise on recreational pressures to do additional analysis on strategies for managing pressures on the estuary's wildlife interests, the results of which should be available soon. We would encourage the Council to engage and cooperate with other local authorities and partners around the estuary (including through the Severn Estuary Partnership) on looking at the issues and responses.	Footprint Ecology were commissioned to undertake visitor surveys at the Severn Estuary to inform an up to date zone of influence and make recommendations for mitigation for recreation pressure. The HRA has been updated to reflect this work.