



Initial Habitats Regulations Assessment Report

Greater Exeter Strategic Plan - Draft Policies
and Site Options Consultation

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Summary

This report is an initial report to inform the Habitats Regulations Assessment (HRA) of the Greater Exeter Strategic Plan (GESP) and has been produced alongside an early draft of the Draft Policies and Site Options Consultation. It has been undertaken in the early stages of the preparation of the GESP in recognition of the risks posed to European sites as a result of new growth in the Greater Exeter area. The HRA will continue to develop alongside future iterations of the GESP.

This report has been prepared by Footprint Ecology on behalf of the GESP partners (East Devon, Exeter, Teignbridge and Mid Devon councils). HRA is a step by step process of ensuring that a plan or project being undertaken by, or permitted by, a public body will not adversely affect the ecological integrity of a European site. European sites include Special Protection Areas (SPAs), which are classified for their bird populations of European interest, and Special Areas of Conservation (SACs), which are designated for habitats and species of European interest. The legislation sets out a clear step by step approach for decision makers considering any plan or project.

GESP relates to an area of some 2,200 km² with a population of over 450,000. The area is broadly aligned with the Exeter Travel to Work Area, reflecting the core role of the city in providing employment. As such it makes sense for the 4 local authorities to work together for strategic planning. The Plan area extends as far as the Dorset border in the east, to the Exmoor/Somerset border in the north-east and to Torbay and Dartmoor to the south-west. The GESP will set out the large, strategic pieces of infrastructure and large-scale development, including large housing allocations across the relevant authorities. The Draft Policies and Site Options consultation identifies that in total the GESP area should provide for some 35,000 new jobs and 53,260 new homes over the period 2020-2040 (including existing commitments in Local Plans).

It is important to stress that the GESP will go through further work and refinement and this report has been produced alongside policies and options for sites that are still in draft and for consultation. The HRA will be finalised at adoption and will go through various iterations alongside each version of the Plan. In this report we follow the HRA process but – given the relatively early stages and emerging evidence base – the focus is on highlighting further steps, evidence gathering and checks that will be necessary to inform the next iteration of the HRA and further refinement of GESP.

Initial Screening for Likely Significant Effects

This report includes an initial screening for likely significant effects. This looks at policies and options prior to any avoidance, reduction/mitigation measures in line with the CJEU judgment in Case C-323/17 People Over Wind v Coillte Teoranta. Draft policies and

GESP HRA: Draft Policies and Site Options Consultation

components of the consultation for which likely significant effects cannot be ruled out at this stage are:

- GESP9: Economic Targets
- GESP10: Transformational Sectors
- GESP11: Employment Land
- GESP14: Exeter Airport
- GESP16: Housing Target and Distribution
- GESP21: Accommodation for the Gypsy and Traveller Communities
- GESP25: Long Distance Trails
- GESP29: Highway Links and Junction Improvements
- GESP31: Settlement Specific Enhancements.
- Chapter 12: Site Options

As part of the initial screening for likely significant effects a number of recommendations and minor changes relating to the wording of policies or supporting text have also been made, in some cases highlighting where there are opportunities to clarify the policy in relation to the HRA or where maps or diagrams that have not yet been incorporated into the plan should highlight particular information. These minor points and checks relate to the following draft policies:

- GESP1: Sustainable Development
- GESP4: Low Carbon Energy
- GESP5: Heat Networks
- GESP6: Suitable Areas for Solar PV Development
- GESP7: Suitable Areas for Onshore Wind Development
- GESP13: Strategic Economic Assets
- GESP21: Accommodation for the Gypsy and Traveller Communities
- GESP34: Rebuilding Biodiversity
- GESP36: Exe Estuary, Dawlish Warren and East Devon Pebblebed Heaths
- GESP37: Clyst Regional Park
- GESP38: Great Places
- GESP39: Garden City Principles

Amendments to these were made prior to the Draft Policies and Site Options Consultation.

It is too early to undertake a full appropriate assessment as the site options are still to be finalised and key pieces of evidence are still to be collated. Following the screening, topics for appropriate assessment are highlighted to advise on the scope of the appropriate assessment and inform the evidence that will need to be gathered as the plan progresses. These topics will be assessed in detail within the appropriate assessment at the Draft Plan stage, when more detail and evidence are available.

Appropriate assessment topics:

General urbanisation effects

Urbanisation effects relate to issues where development is close to the European site boundary and is an umbrella term relating to impacts such as light, noise, cat predation, fly tipping, increased fire risk, spread of invasive species (e.g. from gardens and garden waste) and vandalism.

There are two site options with potential risks relating to urbanisation effects:

- **SA-EX-3 Land between M5 and Topsham** lies within 200m of the Exe Estuary SPA/Ramsar. Risks from the general urban effects at this site seem low. If this site option is included within the GESP, given the proximity of the site option to the Estuary and the scale of the development, it will be important that any master planning or site plans take into account the risk to the Estuary and further checks should be undertaken when further details are available to ensure the site can be delivered without adverse effects on integrity from urban effects. At project-level HRA it will then be necessary to ensure any necessary design features and mitigation are in place, in-line with draft Policy GESP36 (Exe Estuary, Dawlish Warren and East Devon Pebblebed Heaths).
- **SA-ED-19 Axminster South** is around 400m from the River Axe SAC. Risks here relate to the possibility of invasive species being spread through construction and urbanisation. Adverse effects on integrity to the River Axe SAC could be avoided through survey work to inform the layout and design, vegetation management (ensuring species of concern are not present within and around the site), site design (to ensure no risk of invasive species spreading along the ditch running from the application site) and carefully planned construction, with necessary site checks and controls in place. Some of these issues can safely be deferred to project level HRA, however if this site is progressed within GESP it will be necessary to have confidence that the issues can be addressed and there is no uncertainty.

Bat SACs and loss of supporting habitat, fragmentation and collision risk

Bats can roam widely in the landscape, utilising different locations for roosting through the year and around the roost sites where they fly out in darkness to feed, often ranging considerable distances from the roost. Loss of feeding areas, loss of connectivity within the landscape and risks of collision from roads and other structures pose particular risks.

The following site options and draft policy pose risks for the South Hams SAC:

- **SA-T-3 Land West of Houghton Barton;**
- **SA-T-5 Priory Road;**
- **SA-T-8 Land North of Forches Cross;**
- **SA-T-18 Peamore;**
- **SA-T-22 Ilford Park;**
- **GESP 29 Highway Links and Junction Improvements.**

All lie within or very close to the landscape connectivity zone - within which the bat interest is expected to occur in low numbers and be more widely dispersed. Nonetheless, the site options could all have the potential to severely restrict the movements of bats at a landscape scale.

For all site options, survey work will be required to check for the presence and use of the area by Greater Horseshoe Bats. The results from the survey work will need to feed into the master planning and the boundary or scale of the site option may need to be revised. For SA-T-8 and SA-T-22 it will be necessary for the survey work to check the use of the mitigation features and ensure they can continue to function in the long-term. For all 5 housing site options, if progressed into the plan, a tailored bat mitigation plan is likely to be required to ensure adverse effects on integrity can be ruled out, for the sites alone or in-combination. It may be necessary to consider the potential impacts of the site options together and it is recommended that the survey work is co-ordinated across the various sites. Survey work and the information collected will need to conform to the relevant guidance. For the relevant road junctions, further details of the improvements for these locations are required before adverse effects on integrity can be ruled out.

Loss/impacts to supporting habitat around European sites (non-bat sites)

There is no information on off-site foraging use by Nightjars around the East Devon Heaths SPA. The risks relate to:

- The direct loss of foraging habitat that is functionally linked to the SPA;
- Flight paths and access to foraging habitat being blocked or restricted by the presence of built development.

The following site options fall within 7km of the SPA (7km reflecting the distances Nightjar have been shown to fly in Dorset) (sites are listed in order of proximity):

- **SA-ED-7 Higher Greendale;**
- **SA-ED-3 Hill Barton;**
- **SA-ED-2 Oil Mill Lane;**
- **SA-ED-8 Airport Business Park;**
- **SA-ED-12 Whimble;**
- **SA-ED-5 North of Exeter Airport;**
- **SA-ED-15 Feniton;**
- **SA-EX-3 Land between M5 and Topsham.**

Together these site options represent a total of 22,100 new houses and significant employment development. Furthermore, some lie between the SPA and other sites that support breeding Nightjar, potentially creating barriers to movement by the birds. In order to rule out adverse effects on integrity in relation to off-site foraging by Nightjar it will be necessary to check the extent to which Nightjars roam from the SPA, the habitats they use and the relative importance of the land within any of the 9 site options listed above if progressed into the draft GESP. At this stage in the plan making process it is important that the issue is identified and surveys done prior to any master planning to

ensure any areas important to foraging Nightjar or routes used can be protected and enhanced. This may reduce the amount of housing feasible in particular locations. Results from recent studies in Dorset, using GPS tags on Nightjars around Poole, may provide further insights and understanding, when available. Policy wording for these site options will need to highlight the off-site foraging issue for Nightjars.

Marsh Fritillaries can disperse 15-20km. The following site options are within 20km of either the Culm Grasslands SAC and the Quants SAC:

- **SA-MD-12 Area south of Sampford Peverell;**
- **SA-MD-9 East of Cullompton;**
- **SA-MD-18 Honiton East;**
- **SA-MD-15 Feniton;**
- **SA-MD-10 Land at Hartnoll Farm.**

Checks need to be made by a suitably qualified ecologist for any suitable Marsh Fritillary habitat and a more detailed and thorough check made for records of the species. This will need to feed into later iterations of the HRA and will inform whether the plan will have no effect at all (ruling out adverse effects alone or in-combination) or whether the appropriate assessment will have to be extended to consider the possible cumulative effects alongside other plans or projects. Given that the site options are located well away from the relevant SACs, the risks are low and will mean the sites are likely to be deliverable without adverse effects on the integrity of the Culm Grasslands SAC and the Quants SAC, through the loss of supporting habitat. Masterplans may need to take into account the need to protect particular habitat and ensure connectivity.

Recreation

Together, the site options involve a marked housing change around the East Devon Pebblebed Heaths (potentially a 41% increase within 5km), the Exe Estuary (potentially a 32% increase within 5km) and Dawlish Warren SAC (13% increase within 10km). Not all the site options will progress into the draft GESP, so this illustrates the most extreme case. These site options fall within an area covered by an existing mitigation strategy and this strategy is being updated to address any potential additional growth. It will be essential that the strategy is finalised alongside GESP so that mitigation requirements are clear and suitable mechanisms for timely delivery are secured. Draft policy GESP36 is the relevant policy which sets out mitigation requirements and this cross-references to the strategy.

Depending on the size and location of the site options progressed a significant quantum of suitable alternative natural greenspace (SANG) will need to be secured. This will be set out in the updated mitigation strategy.

Draft policy GESP 25 Long Distance Trails sets out a network of strategic long distance cycle trails and these include the Clyst Valley Trail, which links directly to the Exe Estuary SPA/Ramsar. Further information on the location, route and how this will link with the

existing cycle trails around estuary will be necessary. These design elements will need to feed into the next iteration of the HRA.

Draft Policy GESP 31 Settlement Specific Enhancements includes comprehensive pedestrian and cycle networks at locations including Exmouth, with risks to the Exe Estuary SPA/Ramsar, Dawlish Warren SAC and the East Devon Pebblebed Heaths SAC/SPA. Further details of design and likely use are necessary to feed into the next iteration of the HRA.

The River Axe SAC and Site Option SA-ED-19

SA-ED-19 Axminster South is an allocation for a potential of 540 houses and is just 400m from the River Axe SAC. Risks from recreation pressure for the SAC in the vicinity of the allocation will need to be resolved through an access and visitor management plan. The appropriate assessment for the GESP will need this to be progressed sufficiently to ensure adverse effects on integrity can be ruled out. Any plan will need to be finalised and agreed with Natural England prior to submission of a planning application to allow project level HRA to rule out adverse effects on integrity.

Dartmoor SAC and South Dartmoor Woods SAC

There are no GESP site options within the immediate vicinity of either of the Dartmoor SACs. However, recent research has flagged nature conservation issues with recreation use across Dartmoor National Park. Further discussion is necessary with the National Park and potentially neighbouring authorities and some further policy wording and agreed mitigation approach is likely to be necessary.

Water-related issues

Run-off, outflow from sewage treatments and overflow from septic tanks can result in increased nutrient loads and contamination of water courses. This can have consequences for European sites which contain wetland or aquatic features, as the pollution will affect the ability of the site to support the given interest. Furthermore, abstraction and land management can influence water flow and quantity, resulting in reduced water availability at certain periods or changes in the flow. This can exacerbate issues relating to water quality. These impact pathways can be specific to particular parts of European sites or particular development locations and are also relevant to the overall quantum of development.

Once site options are confirmed, checks are necessary with South West Water and the Environment Agency to ensure that the forecasts in the Water Resources Management Plan do include the quantum of growth set out in GESP and that there are no issues with water supply for any European site. Given that the Water Resources Management Plan does rely on helping customers reduce their water consumption, water efficiency measures could be given greater emphasis in the GESP, in accordance with South West Water advice.

In addition, checks should be made with the Environment Agency and Natural England regarding the following sites or site specific issues related to water.

- Culm Grasslands SAC and water availability;

- Dartmoor SAC and Salmon (which migrate along rivers and therefore also occur outside the SAC), checking water flow in particular;
- Exe Estuary SPA/Ramsar and water quality;

Site option SA-ED-19 is the only site option within the Axe catchment. For this option to go ahead it will be necessary to have confidence that there will be no net increase in Phosphorous and other nutrients into the Axe. In addition, site option SA-ED-19 is 400m from the River Axe SAC and is likely to have direct hydrological surface links to the SAC. As such there are potential risks from pollution events during construction, from run-off and contamination from sewage overflow. If the site progresses into the draft GESP, it will be necessary to have confidence that these issues can be addressed and detailed site design at the masterplan level will be necessary to inform project-level HRA.

Air quality

Nine of the European sites that are within 20km of the GESP area have roads within 200m of the site boundary. These are the Culm Grasslands SAC, Exe Estuary SPA/Ramsar, East Devon Pebblebed Heaths SPA/SAC, Dartmoor SAC, Exmoor Heaths SAC, Exmoor and Quantock Oakwoods SAC, River Axe SAC, South Dartmoor Woods SAC and South Hams SAC. For these sites it will be necessary to understand the potential increase in traffic as a result of GESP and in-addition the in-combination increase with other relevant plans, in context with any background traffic growth forecasts. If, in-combination, traffic volumes increase by more than 1000 AADT on roads within 200m of a European site, air quality modelling will be required. Issues will be particularly important where existing critical loads for N deposition are already exceeded or approaching exceedance. Without this traffic modelling it will not be possible to rule out adverse effects on integrity.

Further understanding of the impacts of the airport growth on air quality are necessary and it may be that any modelling work needs to also consider the implications of draft policy **GESP14 Exeter Airport**.

Modelling results should be checked with Natural England and in addition advice will be sought from Natural England regarding the progress with the Site Nitrogen Action Plans referred to in the relevant Site Improvement Plans and to clarify how to interpret any modelling results with respect to those species and habitats for which there are not critical loads, including water courses, Barbestelle and Bechstein's bats.

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1. Introduction

Context

- 1.1 This report is an initial report to inform the Habitats Regulations Assessment (HRA) of the Greater Exeter Strategic Plan (GESP) and has been produced alongside an early draft of the Draft Policies and Site Options Consultation. The report has been prepared by Footprint Ecology on behalf of the GESP local authorities. It considered the potential implications of the emerging plan contents for European sites in the vicinity of Greater Exeter area. This report has been written with the benefit of ongoing discussions with officers within the Greater Exeter councils.
- 1.2 GESP is a joint statutory plan for East Devon, Exeter, Mid Devon and Teignbridge local authorities, excluding Dartmoor National Park. Devon County Council is working in partnership with the project. It will provide the overall spatial strategy and level of housing and employment land required in the period to 2040, together with key aspirations for the environment, infrastructure and digital communications. As such it will provide the high-level strategic planning for a broad area.
- 1.3 Local plans for each authority will continue to be prepared, and these will contain more local policies and allocations for smaller scale development. The role of GESP is therefore to set the overall vision, provide the spatial development strategy, set the overall amount of growth and allocate large strategic sites¹ and identify district local plan residual development requirements.
- 1.4 HRA is a key piece of evidence to support a plan and is added to and refined throughout the plan making process, informing and informed by the developing plan. This HRA report therefore will continue to be worked on with the planning officers and other stakeholders, only providing a final HRA after Examination in Public when any final modifications to the plan are checked.
- 1.5 An HRA evaluates the impact of plans or projects on the qualifying features of European sites. In this instance the HRA is undertaken at a very strategic level. HRA will also be required for individual local authority plans,

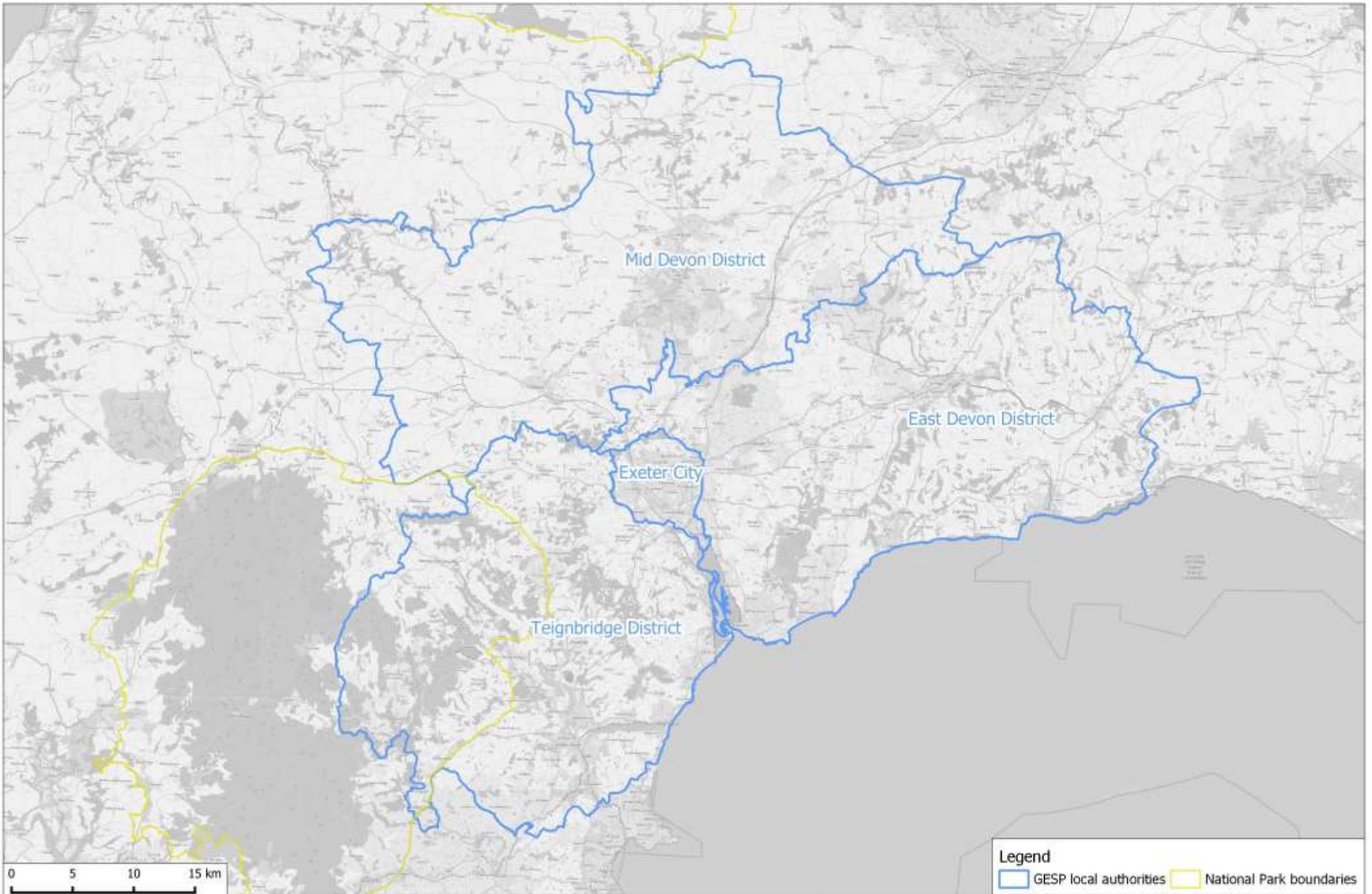
¹ Allocations of at least 100 homes or 1ha of employment land in Exeter City or allocations of 500 or more home or 5ha of employment land outside Exeter, which may include brownfield sites, urban extensions and new settlements

neighbourhood plans and development projects coming forward in the future in accordance with the Local Plan. An explanation of the HRA assessment process is summarised in this section below.

GESP

- 1.6 The GESP relates to an area of some 2,200 km² with a population of over 450,000. The area is broadly aligned with the Exeter Travel to Work Area, reflecting the core role of the city in providing employment. As such it makes sense for the 4 local authorities to work together for strategic planning.
- 1.7 The Plan area (see Map 1) extends as far as the Dorset border in the east and to the Somerset border in the north-east. It includes a length of coastline, from Lyme Regis to Torquay, including the estuaries of the Exe and the Dart.
- 1.8 Besides Exeter, larger settlements include Newton Abbot, Exmouth, Tiverton, Crediton, Cullompton, Honiton, with a number of other smaller market and seaside towns.

Map 1: GESP plan area



Habitats Regulations Assessment process

- 1.9 The designation, protection and restoration of European wildlife sites is embedded in the Conservation of Habitats and Species Regulations 2017, as amended which are commonly referred to as the 'Habitats Regulations.' The most recent version of the Habitats Regulations does not affect the principles of European site assessment as defined by the previous Regulations, and which forms the focus of this report. Regulation numbers have changed from the 2010 Regulations. A further update was made in 2018.
- 1.10 The Habitats Regulations are in place to transpose European legislation set out within the Habitats Directive (Council Directive 92/43/EEC), which affords protection to plants, animals and habitats that are rare or vulnerable in a European context, and the Birds Directive (Council Directive 2009/147/EC), which originally came into force in 1979, and which protects rare and vulnerable birds and their habitats. These key pieces of European legislation seek to protect, conserve and restore habitats and species that are of utmost conservation importance and concern across Europe.

European sites

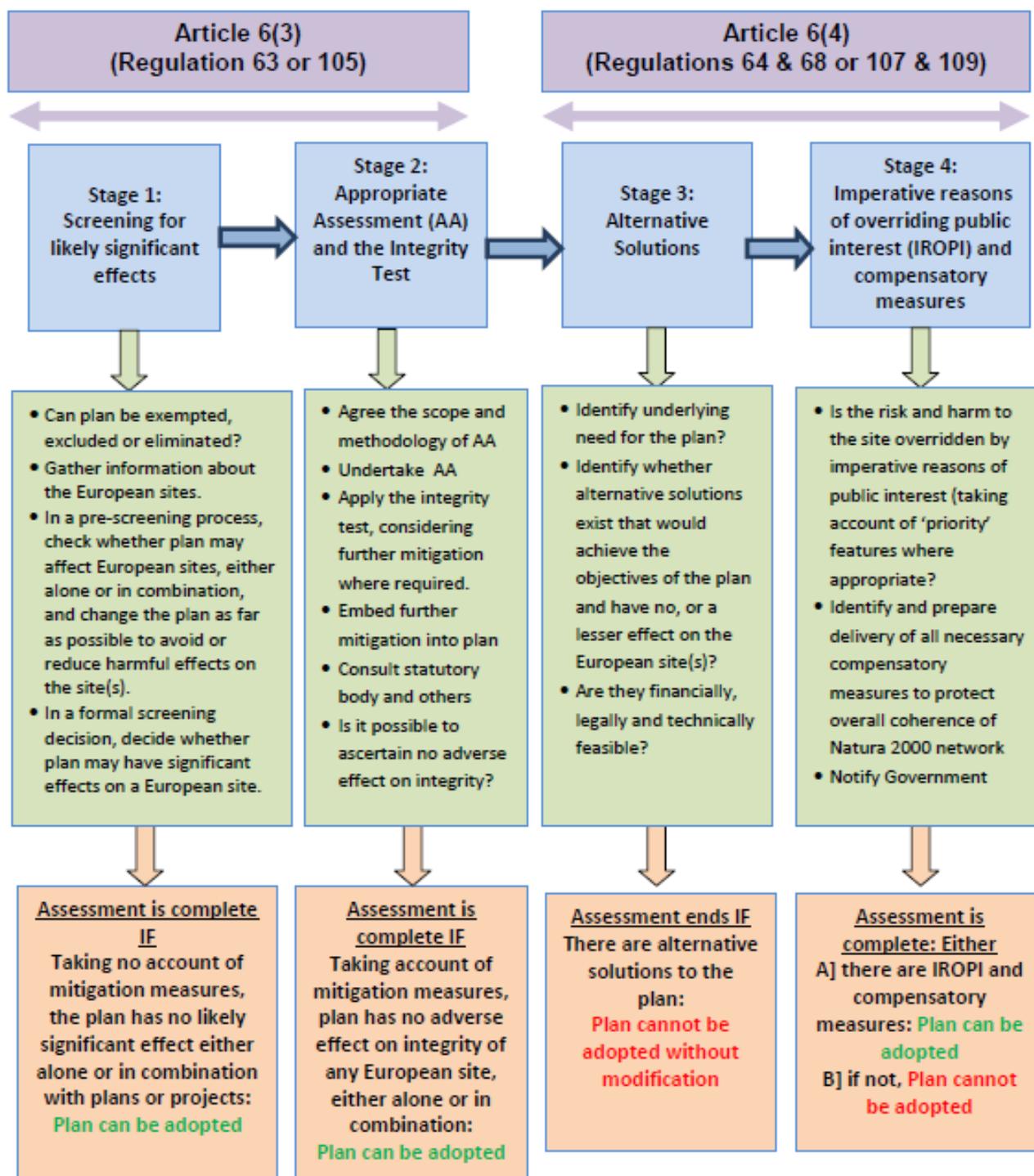
- 1.11 The European Directives operate on the basis that sites are in place to serve as an ecologically functioning network, and ultimately it is the preservation of that network as a whole that is the overall aim of the European Directives. The network is often referred to as the Natura 2000 Network or 'N2K.'
- 1.12 N2K sites include Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) classified under the Birds Directive. The suite of sites includes those in the marine environment as well as terrestrial, freshwater and coastal sites. These N2K sites have the benefit of the highest level of legislative protection for biodiversity. Member states have specific duties in terms of avoiding deterioration of habitats and species for which sites are designated or classified, and stringent tests have to be met before plans and projects can be permitted, with a precautionary approach embedded in the legislation, i.e. it is necessary to demonstrate that impacts will not occur, rather than they will. The overarching objective is to maintain sites and their interest features in an ecologically robust and viable state, able to sustain and thrive into the long term, with adequate resilience against natural influences. Where sites are not achieving their potential, the focus should be on restoration.

- 1.13 The UK is also a contracting party to the Ramsar Convention, which is a global convention to protect wetlands of international importance, especially those wetlands utilised as waterfowl habitat. In order to ensure compliance with the requirements of the Convention, the UK Government expects all competent authorities to treat listed Ramsar sites as if they are part of the suite of designated European sites, as a matter of government policy, as set out in paragraph 176 of the National Planning Policy Framework (NPPF). Most Ramsar sites are also a SPA or SAC, but, importantly, the Ramsar features and boundary lines may vary from those for which the site is designated as a SPA or SAC.
- 1.14 The NPPF requires decision makers to apply the same protection and process to Ramsar sites as that set out in legislation for European sites. Formally proposed sites, i.e. sites proposed for European designation (potential SPAs, candidate SACs and Sites of Community Importance) and going through the designation process, and those providing formal compensation for losses to European sites, are also given the same protection.
- 1.15 This report refers to all the above sites as ‘European sites’ for assessment purposes, as the legislation is applied to all such sites, either directly or as a result of policy.

Process

- 1.16 The step by step process of HRA is summarised in Figure 1.
- 1.17 Within the Habitats Regulations, local planning authorities, as public bodies, are given specific duties as ‘competent authorities’ with regard to the protection of sites designated or classified for their species and habitats of European importance. Competent authorities are any public body or individual holding public office with a statutory remit and function, and the requirements of the legislation apply where the competent authority is undertaking or implementing a plan or project, or authorising others to do so. Regulation 63 of the Habitats Regulations sets out the HRA process for plans and projects, which includes development proposals for which planning permission is sought. Additionally, Regulation 105 specifically sets out the process for assessing emerging land use plans.

Outline of the four-stage approach to the assessment of plans
under the Habitats Regulations



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Figure 1: Outline of the assessment of plans under the Habitat Regulations

- 1.18 Throughout all stages, there is a continual consideration of the options available to avoid and mitigate any identified potential impacts. A competent authority may consider that there is a need to undertake further levels of evidence gathering and assessment in order to have certainty, and this is the Appropriate Assessment stage. At this point the competent authority may identify the need to add to or modify the project in order to adequately protect the European site, and these mitigation measures may be added through the imposition of particular restrictions and conditions.
- 1.19 For plans, the stages of HRA are often quite fluid, with the plan normally being prepared by the competent authority itself. This gives the competent authority the opportunity to repeatedly explore options to prevent impacts, refine the plan and rescreen it to demonstrate that all potential risks to European sites have been successfully dealt with.
- 1.20 When preparing a plan, a competent authority may therefore go through a continued assessment as the plan develops, enabling the assessment to inform the development of the plan. For example, a competent authority may choose to pursue an amended or different option where impacts can be avoided, rather than continue to assess an option that has the potential to significantly affect European site interest features.
- 1.21 After completing an assessment, a competent authority should only approve a project or give effect to a plan where it can be ascertained that there will not be an adverse effect on the integrity of the European site(s) in question. In order to reach this conclusion, the competent authority may have made changes to the plan, or modified the project with restrictions or conditions, in light of their Appropriate Assessment findings.
- 1.22 Where adverse effects cannot be ruled out, there are further exceptional tests set out in Regulation 64 for plans and projects and in Regulation 107 specifically for land use plans. Exceptionally, a plan or project could be taken forward for imperative reasons of overriding public interest where adverse effects cannot be ruled out and there are no alternative solutions. It should be noted that meeting these tests is a rare occurrence and ordinarily, competent authorities seek to ensure that a plan or project is fully mitigated for, or it does not proceed.
- 1.23 In such circumstances where a competent authority considers that a plan or project should proceed under Regulations 64 or 107, they must notify the relevant Secretary of State. Normally, planning decisions and competent authority duties are then transferred, becoming the responsibility of the

Secretary of State, unless on considering the information, the planning authority is directed by the Secretary of State to make their own decision on the plan or project at the local level. The decision maker, whether the Secretary of State or the planning authority, should give full consideration to any proposed 'overriding reasons' for which a plan or project should proceed despite being unable to rule out adverse effects on European site interest features, and ensure that those reasons are in the public interest and are such that they override the potential harm. The decision maker will also need to secure any necessary compensatory measures, to ensure the continued overall coherence of the European site network if such a plan or project is allowed to proceed.

Definitions, references to case law and guidance

- 1.24 The principles of case-law, government policy and best practice in HRAs are set out in the HRA Handbook (Tyldesley, Chapman, & Machin, 2020), to which Footprint Ecology subscribes. We also follow government guidance on the use of Habitats Regulations Assessment².
- 1.25 Drawing on the Handbook, other relevant guidance and case law, we clarify the following terms used in the flow chart (Figure 1):
- 1.26 In Stage 1, A '**likely significant effect**' following Waddenzee³, is a 'possible significant effect; one whose occurrence cannot be excluded on the basis of objective information'. It is a low threshold and simply means that there is a risk or doubt regarding such an effect. The screening stage is a preliminary examination, sometimes described as a coarse filter, or following Waddenzee, '*a trigger in order to determine whether an appropriate assessment must be undertaken*'. There should however be credible evidence to show that there is a real rather than a hypothetical risk of effects that could undermine a site's conservation objectives. This was amplified in the Bagmoor Wind⁴ case where '*if the absence of risk... can only be demonstrated after a detailed investigation, or expert opinion, [then] the authority must move from preliminary examination to appropriate assessment*'.

² <https://www.gov.uk/guidance/appropriate-assessment>

³ Waddenzee: European Courts C-127/02 Waddenzee 7th September 2004, reference for a preliminary ruling from the Raad van State.

⁴ Bagmoor Wind: UK courts Bagmoor Wind v The Scottish Ministers, Court of Session [2012] CSIH 93

- 1.27 Following the People Over Wind judgement⁵, when making screening decisions for the purposes of deciding whether an appropriate assessment is required, competent authorities cannot take into account any mitigation measures. The implications are considered in more detail in the initial screening section of this report.
- 1.28 Stage 2 involves the **appropriate assessment and integrity test**. Here a plan can only be adopted if the competent authority can demonstrate that it will not adversely affect the integrity of the European site. This is a precautionary approach and means it is necessary to show the absence of harm.
- 1.29 Following Champion⁶ '**appropriate**' is not a technical term but simply indicates that the assessment needs to be appropriate to the task in hand.
- 1.30 The **integrity** of a European site has been described as '*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 classified*⁷'. An alternative definition, after Sweetman⁸, is '*the lasting preservation of the constitutive characteristics of the site*'.
- 1.31 In terms of the burden of proof, the HRA of development plans was first made a requirement in the UK following a ruling by the European Court of Justice in EC v UK⁹. However, the judgement¹⁰ recognised that any assessment had to reflect the actual stage in the strategic planning process and the level of evidence that might or might not be available. This was given expression in the High Court (Feeney)¹¹ which stated: "*Each ... assessment ... cannot do more than the level of detail of the strategy at that stage permits*".
- 1.32 The need to consider possible **in-combination** effects arises at stage 1 – the screening and also at stage 2 – the appropriate assessment and integrity test. The effects of the plan in-combination with other plans or projects are

⁵ People Over Wind: European Court Case C-323/17 People Over Wind & Peter Sweetman v Coillte Teoranta 12 April 2018

⁶ Champion: UK Supreme Court [2015] UKSC 52 22nd July 2015

⁷ Para 20 of the ODPM Circ. 06/2005

⁸ Sweetman: European Court C – 258/11 Sweetman 11th April 2013, reference for a preliminary ruling from the Supreme Court of Ireland

⁹ Commission v UK (C-6/04) [2005] ECR I-9017

¹⁰ Commission of the European Communities v UK Opinion of Advocate General Kokott

¹¹ Feeney: Feeny v Oxford City Council [2011] EWHC 2699 (Admin) . 24th October 2011

the cumulative effects which will or might arise from the addition of the effects of other relevant plans or projects alongside the plan under consideration. If during the stage 1 screening it is found the subject plan would have no likely effect alone, but might have such an effect in-combination then the appropriate assessment at stage 2 will proceed to consider cumulative effects. Where a plan is screened as having a likely significant effect alone, the appropriate assessment should initially concentrate on its effects alone.

2. European sites and background evidence

- 2.1 In assessing the implications of any plan or project, it is essential to fully understand the sites in question, their interest features, current condition, sensitivities and any other on-going matters that are influencing each of the sites. Every European site has a set of 'qualifying features,' which are the ecological features for which the site is designated or classified, and the features for which Member States should ensure the site is maintained or, where necessary restored.
- 2.2 Each European site has a set of high-level 'conservation objectives' that set out the objectives for the site interest, i.e. what the site should be achieving in terms of restoring or maintaining the special ecological interest of European importance. These objectives are elaborated via 'supplementary advice'. Details of the high level conservation objectives are set out in Appendix 1 and Appendix 2 has links to the relevant Natural England page with conservation objectives for the different European sites.
- 2.3 The site conservation objectives and supplementary advice are relevant to any HRA because they identify what should be achieved for the site, and HRA may therefore consider whether any plan or project may compromise the achievement of those objectives.

Overview of European sites

- 2.4 In undertaking HRA work it is necessary to gather information on the European sites that could be potentially affected by the plan or project. Footprint Ecology takes a precautionary approach to checking the potential for European sites to be significantly affected by the content of a Local Plan, normally initially checking up to 20km buffer from the edge of the plan area. This buffer is used by Footprint Ecology for local plan HRAs as it is deemed precautionary enough to capture most potential impact pathways (i.e. the means by which a European site may be affected). This is not fixed and can be expanded if the outcome of the HRA identifies impacts further away.
- 2.5 The European sites within 20km of the GESP area are listed in Table 1. They are also shown in Map 2 (SACs) and Map 3 (SPAs). There is no map for the Ramsar sites as in this case the two Ramsar sites share the same border as the relevant SPA. The boundary of the East Devon Heaths SPA and the East Devon Pebblebed Heaths SAC is the same – in later parts of this document we use the precise name when referring to a particular designation, or

simply refer to the “East Devon Pebblebed Heaths SAC/SPA” when referring to both designations together.

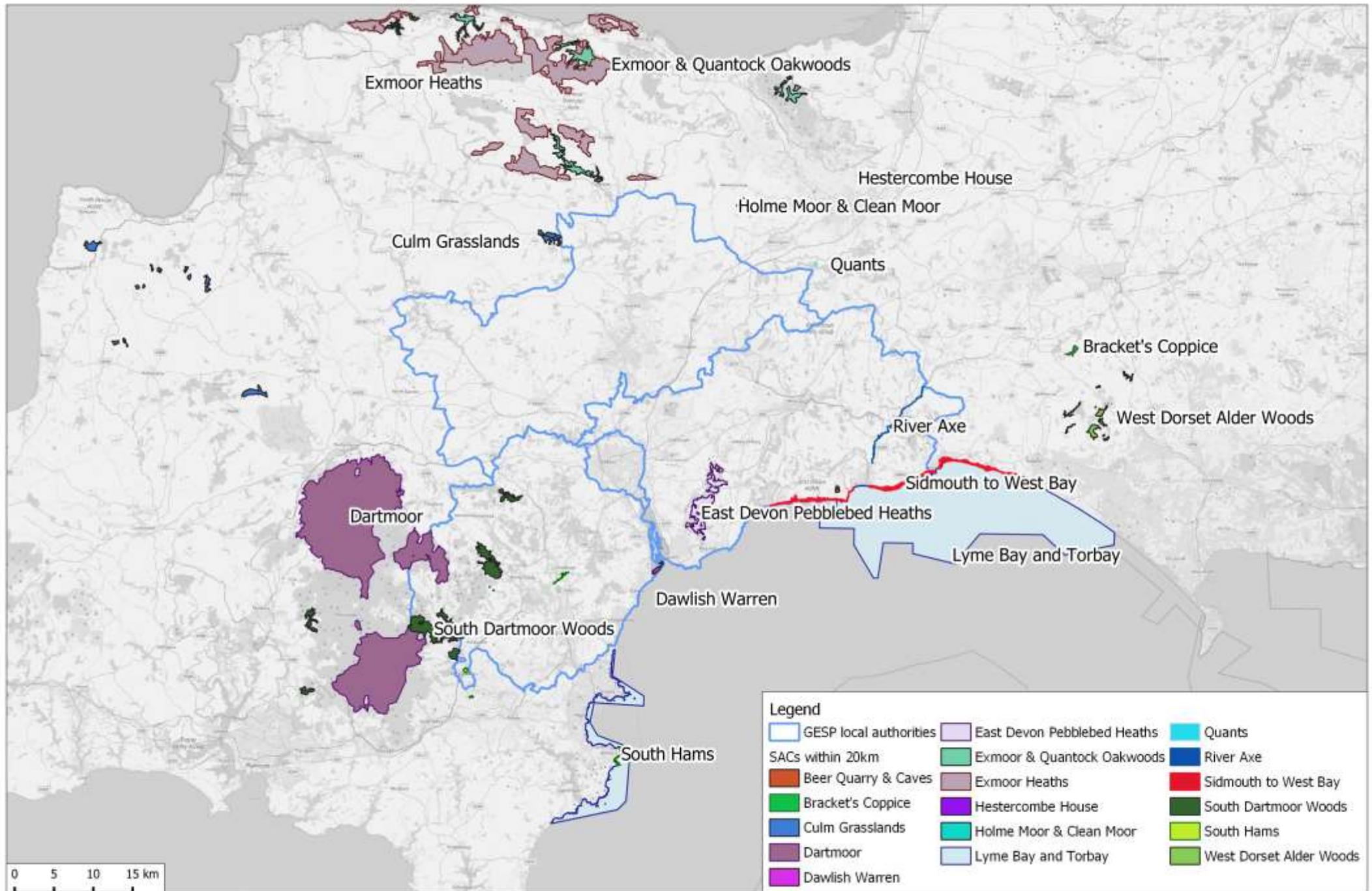
- 2.6 It should be noted that these European sites encompass a wide range of habitats and vary markedly in size. Some, such as the Culm Grasslands SAC and South Hams SAC are comprised of multiple, fragmented blocks, in some cases involving separate Sites of Special Scientific Interest (SSSIs).
- 2.7 Appendix 2 describes and provides summary information for each European site, including a list of the qualifying features. The appendix provides links to the relevant site conservation objectives on the Natural England website.
- 2.8 The Habitats Directive requires competent authorities to ‘maintain and restore’ European sites. Where sites are meeting their conservation objectives, the requirement is to maintain this position and not allow deterioration. Where a site requires restoration, competent authorities should work to bring site interest features back to a status that enables conservation objectives to be met.
- 2.9 In addition to conservation objectives, Natural England produces Site Improvement Plans (SIPs) for each European site in England as part of a wider programme of work under the ‘Improvement Programme for England’s Natura 2000 sites.’ Each plan includes a set of actions for alleviating issues that are impeding the delivery of conservation objectives, with lead delivery bodies identified and indicative timescales. The SIPs can provide an additional useful reference for HRA work, identifying where there are site sensitivities. These have been reviewed to inform the appropriate assessment within this HRA report. Appendix 3 provides further context for each site, with details of the site pressures and threats listed for each site in the site improvement plans.

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s
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Table 1: European sites within 20km of GESP area

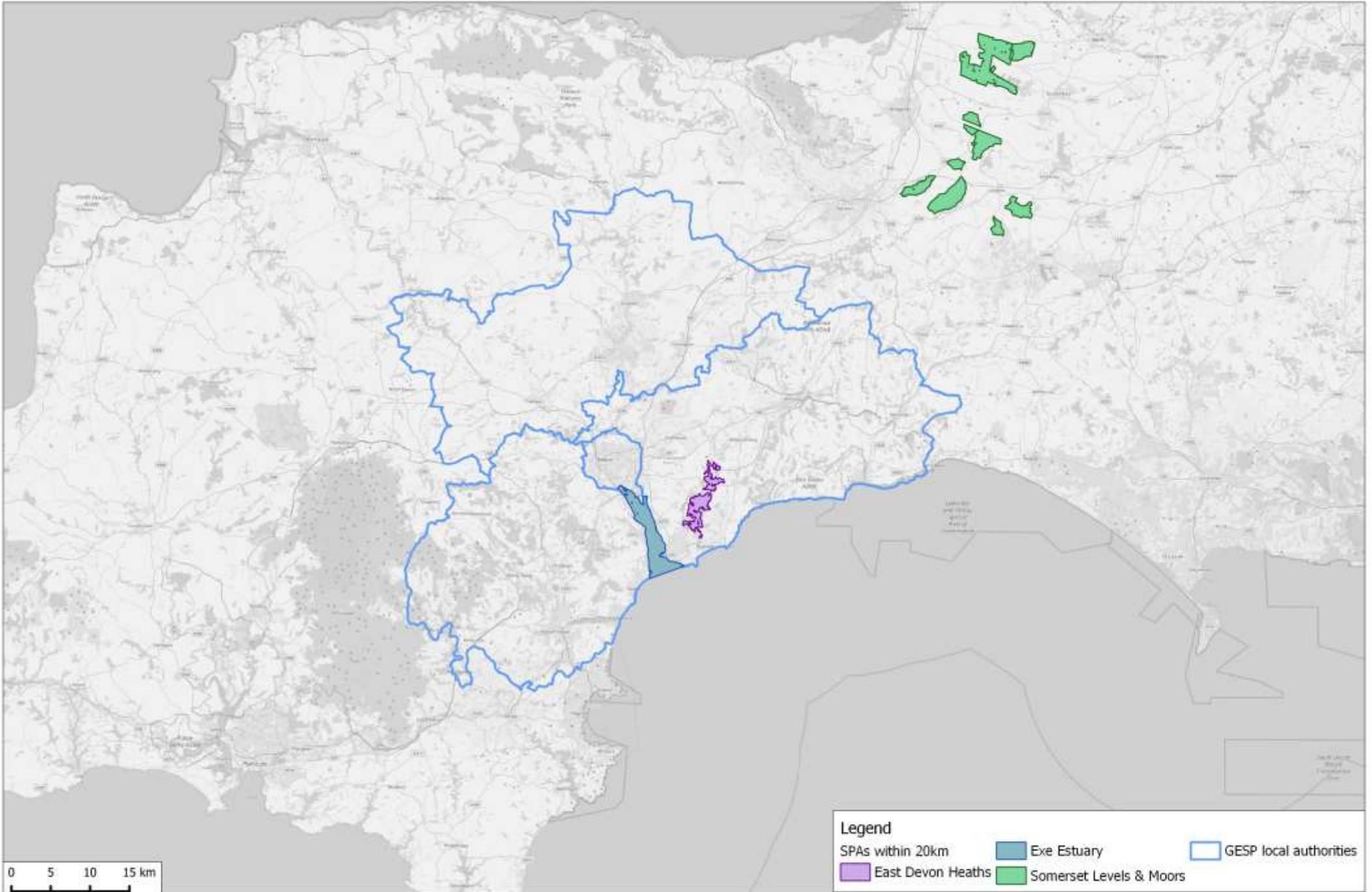
SAC	SPA	Ramsar
Beer Quarry & Caves	East Devon Heaths	Exe Estuary
Bracket's Coppice	Exe Estuary	Somerset Levels & Moors
Culm Grasslands	Somerset Levels & Moors	
Dartmoor		
Dawlish Warren		
East Devon Pebblebed Heaths		
Exmoor & Quantock Oakwoods		
Exmoor Heaths		
Hestercombe House		
Holme Moor & Clean Moor		
Lyme Bay & Torbay		
Quants		
River Axe		
Sidmouth To West Bay		
South Dartmoor Woods		
South Hams		
West Dorset Alder Woods		

Map 2: SACs within 20km of GESP plan area



0 5 10 15 km

Map 3: SPAs within 20km of GESP plan area



The relevance of HRA within biodiversity aspects of national policy

- 2.10 The NPPF 2019 states that sustainable development is the achievement of social, economic and environmental aspirations, and these three dimensions of sustainable development are mutually dependant. For the natural environment, the NPPF advises that sustainable development should include protecting, enhancing and improving biodiversity, and moving from a net loss of biodiversity to achieving net gains. The Defra 25-year plan¹² sets out an ambitious programme for improving the natural environment, including the achievement of environmental net gains through development, of which biodiversity is an important part.
- 2.11 The Defra strategy follows on from the review of England's wildlife sites and ecological network, set out in the report to Defra (Lawton et al., 2010), entitled 'Making Space for Nature'. Within this report, Lawton *et al.* identified that to make our ecological networks and wildlife sites capable of future resilience, there was a need for more wildlife sites, and that existing networks need to be bigger, better and more connected. The future health of designated sites is very much dependant on the future health of wider biodiversity and the ecological networks that sustain them. In planning for the long-term sustainability of designated sites, it is therefore necessary to protect and enhance wider biodiversity through the planning system as well as the designated sites.
- 2.12 The NPPF 2019 sets a requirement for biodiversity net gain as part of development, and the forthcoming Environment Bill proposes to make this requirement mandatory. Draft policy GESP34 (Rebuilding Biodiversity) requires a 10% net gain for biodiversity in the Greater Exeter area, with use of Natural England's biodiversity metric to calculate net gain. It is within this wider context of a need to ensure that biodiversity is central to spatial planning, that HRA fits, securing protection and enhancement of the most important wildlife assets at an international scale.
- 2.13 As this HRA progresses, the importance of protecting, enhancing and restoring biodiversity as a whole, both within and outside designated wildlife

¹² <https://www.gov.uk/government/publications/25-year-environment-plan>

sites will be recognised within the appropriate assessment section, particularly in relation to biodiversity gains through planning.

- 2.14 When embarking on new HRA work, it is important to take stock and consider how well the measures recommended or put in place to protect European site interest in previous plan iterations have progressed, and what evidence there is available to support the continuation of such measures, or to indicate that they may need modification. Future iterations of this HRA will therefore check the measures that were recommended by the previous HRA and what progress has been made, if any, since those recommendations. In order to protect European sites, any changes in circumstances, evidence, statutory advice or local understanding of the issues needs to be considered. A summary of previous and other relevant HRA work is also provided in this section below.

Previous HRA work and existing strategic mitigation

- 2.15 The following documents, guidance and mitigation strategies are of relevance to this HRA due to their consideration of the natural environment and resources, which includes the historic HRA work for the Local Authorities involved with GESP.

Existing Plan-level HRAs

- 2.16 The Teignbridge Local Plan 2013-2033 was adopted in 2014. The HRA (Oxford, Liley, & Jenkins, 2013) included detailed assessment of four key impacts: urbanisation, recreational pressure, water resources and water quality, and air quality.
- 2.17 Urbanisation issues were primarily in relation to Greater Horseshoe Bats and South Hams SAC, arising from the proposed new development in the plan. Mitigation recommendations included a series of policy restrictions and caveats applied to specific policies. It was also recommended that the Council prepare a joint Greater Horseshoe Bat Mitigation Strategy with partner authorities across South Devon to achieve a coordinated approach and identify measures required at the landscape scale to ensure adequate connectivity across the landscape and to mitigate in-combination effects.
- 2.18 Air quality recommendations were precautionary, mainly relating to putting in place more comprehensive monitoring. It should be noted that the HRA

preceded the Wealden decision¹³, which now highlights the need for more thorough scrutiny. Water quality and water resources recommendations were informed by the information provided in a Water Cycle Study which set out that consent of any large-scale future development would be dependent upon obtaining written confirmation from South West Water that both water supply and water treatment can be accommodated within existing infrastructure provision.

- 2.19 Recreation issues were identified in particular for the Exe Estuary SPA/Ramsar and for Dawlish Warren SAC. The HRA was able to rule out adverse effects on integrity due to the anticipated implementation of the South-east Devon European Site Mitigation Strategy.
- 2.20 The East Devon Local Plan 2013-2031 was adopted in 2016. As with the Teignbridge HRA, detailed assessment work considered urbanisation, recreational pressure, water resources, water quality and air quality. Specific recommendations were made with regard to urbanisation, highlighting concerns with development close or adjacent to the East Devon Pebblebed Heaths SAC/SPA, the Exe Estuary SPA/Ramsar and the Beer Quarry and Caves SAC. As with Teignbridge, air quality recommendations related to the need to put in place more comprehensive monitoring, to inform future HRA work. Water quality and water resources recommendations identified that further information and assurance should be obtained from the Environment Agency, and that East Devon District Council and Natural England should be closely involved in any consideration of new consents or licences to accommodate growth.
- 2.21 With respect to recreational pressure (East Devon Pebblebed Heaths SAC/SPA and the Exe Estuary SPA/Ramsar) it was recognised that implementation of the (then close to being finalised) mitigation and delivery strategy would ensure adequate mitigation to rule out adverse effects on integrity.
- 2.22 The Exeter City Core Strategy was adopted in 2012. HRA work (WSP Environmental, 2010) identified a number of potential significant negative effects mainly associated with population increase, recreation and potential development near to the Exe Estuary SPA/Ramsar, Dawlish Warren SAC and

¹³ Wealden District Council v Secretary of State for Communities and Local Government, Lewes District Council and the South Downs National Park Authority and Natural England (Interested Party) [2017] EWHC 351. 20th March 2017.

the East Devon Pebblebed Heaths SAC/SPA. A number of recommendations were made in relation to avoidance and mitigation.

2.23 Mid Devon's Local Plan Review 2013-2033 was submitted to the Planning Inspectorate in 2017 and examination hearings took place in 2018 and 2019. Following the examination, a number of main modifications were prepared and were subject to consultation in early 2020. HRA work (Nicholls, Gwilym, MacLellan, & Moroney, 2015; Sydney, 2016b) identified a number of the policies that may result in likely significant effects on European sites, in relation to potential offsite damage/disturbance to habitats and nonphysical disturbance, increased air pollution and increased recreation pressure. A further HRA report (Sydney, 2016a) specifically considered an update to the Plan to include a proposed allocation (for leisure, tourism and retail) at Junction 27 of the M5 and air quality impacts for the Culm Grasslands SAC. It concluded that the allocation (in-combination with other proposals in the Local Plan Review) would increase NO_x levels immediately adjacent to the A361 over the plan period; however, the effects would be very localised within the SAC. The J27 site allocation would cause a negligible increase in nutrient nitrogen and acid nitrogen deposition, although critical loads for these were already being exceeded and would continue to be so in 2022, despite expected decreases in background concentrations. Mitigation measures were discussed. A 2019 HRA report looked at the implication of the Inspector's Main Modifications, but again no change to the 2015 and 2016 HRA findings were identified (see Nicholls, 2019).

2.24 While outside the GESP plan area, HRA work for Dartmoor National Park is relevant to this HRA. The final draft Dartmoor Local Plan Review went out for consultation in 2019. The HRA work (Carroll & Jeffreys, 2019) concluded at the screening stage that adverse effects on the integrity of European sites outside of the National Park were not expected in relation to air quality changes, disturbance, changes to water quality or levels, or habitat loss/fragmentation. However, there was uncertainty with regards to the potential for likely significant effects associated with air quality, disturbance and habitat loss or fragmentation on the three SACs located within the National Park boundary (Dartmoor, South Dartmoor Woods, and South Hams SACs). These issues were considered in more detail through an Appropriate Assessment and adverse effects on integrity were ruled out in relation to air quality and habitat loss or fragmentation. In relation to recreation, while adverse effects on the integrity of European sites were ruled out in relation to effects arising from the Dartmoor National Park Local Plan Review alone, there was some uncertainty regarding the potential for

in-combination effects on the Dartmoor, South Dartmoor Woods, and South Hams SACs from increased recreation pressure resulting from the growth planned outside the National Park boundary.

South-east Devon European Site Mitigation Strategy

- 2.25 A strategic approach to mitigation was established in 2014, developed with partnership working between East Devon, Exeter and Teignbridge local planning authorities, with input from a number of wider organisations involved in the protection and management of the three European sites. The South-east Devon European Site Mitigation Strategy (Liley, Hoskin, Lake, Underhill-Day, & Cruickshanks, 2014) set out a zone of influence (i.e. the evidence based zone within which it is deemed that mitigation measures are required) and series of mitigation measures that worked together to provide robust protection for the three European sites.
- 2.26 The strategic approach was designed in light of the 30,000 new dwellings anticipated within the zone of influence and planned to run over the lifetime of the relevant Local Plans, and then beyond as a continual rolling programme, but with interim reviews. Since 2014, the strategy has been progressed by the three local planning authorities and dedicated staff are in place to facilitate implementation. There has been some very positive progression of measures, including education and awareness raising, on-site ranger presence, provision of suitable alternative natural greenspace ('SANGs', e.g. Dawlish Countryside Park) and the establishment of voluntary refuges within the Exe Estuary.
- 2.27 The strategy provides an established and accepted mitigation approach and is in-line with similar strategies in other parts of the UK, such as the Solent, the Thames Basin Heaths, the Dorset Heaths, the North Kent coast, the Suffolk Coast and Cannock Chase. To ensure close alignment with both the GESP and Local Plans an update of the South-east Devon European Site Mitigation Strategy is being produced. This will build on the existing mitigation approach, bringing it up to date in the context of the GESP and updated housing targets, which relate to both strategic housing targets for large scale sites that will be allocated in the GESP and local level housing needs that will be met through the individual Local Plans. The strategy will continue to be a partnership led strategy, ensuring that together the relevant local authorities will implement integrated measures that avoid and mitigate for potential impacts on the relevant European sites. It is anticipated that the strategy will be finalised alongside the submission version of GESP.

South Hams Bats

- 2.28 Guidance aimed at those preparing and validating planning applications in the South Devon area which may impact on the South Hams SAC population of greater horseshoe bats was first produced in 2010 (Sclater, 2010) and updated in 2019 (Dartmoor National Park Authority, Devon County Council, Teignbridge District Council, South Hams District Council, Torbay Council and Natural England, 2019). The guidance provides advice on which applications may have a likely significant effect on the SAC greater horseshoe bat population.
- 2.29 The updated guidance contains maps of roost sites, sustenance zones and connectivity zones which form the consultation area. A flow chart to help identify whether likely significant effects might be triggered by particular developments and what any HRA would need to consider within each area.

Initial review of sites and potential impact pathways

- 2.30 In the early stages of GESP plan making, a review of all European sites and issues was undertaken. This step was a sensitivity analysis and ensured HRA issues could be identified in advance and used to inform potential site options.
- 2.31 Working with the Devon County Ecologist, Natural England and planners, we reviewed all the European sites within 20km. We identified a list of potential impact pathways - ways in which elements of the plan might impact the European sites. These impact pathways, which informed GESP site option identification and policy drafting, are summarised in Table 2.

Table 2: Impact Pathways

Pathway	Explanation
Direct loss of interest feature	Direct, physical loss of European site habitat. Mortality of fauna from collision (e.g. traffic, wind turbines)
Fragmentation/ Isolation	Development around a European site which causes site to become more isolated in the landscape.
Loss of supporting habitat (functionally linked land)	Loss, deterioration or compromise of habitat outside a European site boundary that serves a supporting role for the European site, as reservoirs of mobile species migrating in and out of a European site or providing genetic exchange, as roosting, foraging or breeding sites for species present in SAC, or as stepping stones between European sites and equivalent habitat.
Recreation impacts	Effects on a European site caused by human use of site for recreational activities and their consequences, including walking, riding, sports, organised activities etc. Effects may include direct disturbance of species by people, dogs or vehicles, trampling, erosion, fire, vandalism, fly tipping.
Air Quality	Effects on a European site from altered local air quality.
Water Quality	Effects on a European site from altered local water quality.
Water Availability	Effects on a European site from interruption, reduction or other interference of local hydrology, including groundwater, surface standing water or watercourses.
General urbanisation effects	Effects on a European site from nearby development, including light, noise, domestic cats, spread of invasive species, etc. Either adding to existing levels in urban areas or creating new issues in non-urban areas, for example affecting the ability of light sensitive species to navigate the landscape or deterring use of existing habitat/feeding/roosting sites.

2.32 For each European site we identified which pathways were relevant, where there were likely to be particular concerns and where further information might be required. The results of this initial work are set out in a separate report (Saunders & Hoskin, 2019).

2.33 Impact pathways for each European site are summarised by site in Table 3.

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Table 3: Potential impact pathways with a tick indicating where the pathway is relevant to the site. See Saunders & Hoskin 2019 for full details and explanation. Grey shading indicates those sites where there are no plausible impact pathways.

Site	General urbanisation effects	Direct loss of interest feature	Fragmentation/ Isolation	Loss of supporting habitat	Recreation impacts	Water Quality	Water Availability	Air Quality
Beer Quarry & Caves SAC	✓	✓	✓	✓	✓			
Bracket's Coppice SAC								
Culm Grasslands SAC		✓	✓	✓	✓		✓	✓
Dartmoor SAC	✓				✓	✓	✓	✓
East Devon Pebblebed Heaths SAC	✓	✓	✓	✓	✓	✓	✓	✓
East Devon Heaths SPA	✓	✓	✓	✓	✓			
Dawlish Warren SAC	✓	✓	✓	✓	✓			
Exe Estuary Ramsar	✓	✓	✓	✓	✓	✓	✓	
Exe Estuary SPA	✓	✓	✓	✓	✓	✓	✓	
Exmoor & Quantock Oakwoods SAC	✓			✓	✓	✓		
Exmoor Heaths SAC			✓	✓	✓	✓	✓	✓
Hestercombe House SAC								
Holme Moor & Clean Moor SAC								
Lyme Bay & Torbay SAC					✓	✓		
Quants SAC			✓	✓				✓
River Axe SAC	✓	✓				✓		✓
Sidmouth to West Bay SAC					✓	✓		
Somerset Levels & Moors Ramsar								
Somerset Levels & Moors SPA								
South Dartmoor Woods SAC	✓				✓			✓
South Hams SAC	✓	✓	✓	✓	✓			✓
West Dorset Alder Woods SAC								

2.34 Based on the initial reviews it was possible to identify a number of sites (within 20km of the GESP area) that could be screened out at an early stage as there were no potential pathways by which a likely significant effect could be triggered. These sites, with an explanation, are given in Table 4 and were checked and agreed with Natural England and the County Ecologist.

GESP HRA: Draft Policies and Site Options
Consultation

Table 4: Sites screened out as no potential pathways by which likely significant effect might be triggered

Site	Site information	Explanation
Bracket's Coppice SAC	<p><u>Annex I Habitats</u> <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)</p> <p><u>Annex II Species</u> Bechstein's bat (<i>Myotis bechsteinii</i>)</p>	This site can be screened out from impacts due to the distance of the site and the site interest. It does not have visitor infrastructure, is not well publicised and not well visited for recreation.
Hestercombe House SAC	<p><u>Annex I Habitats</u> -</p> <p><u>Annex II Species</u> Lesser horseshoe bat maternity roost <i>Rhinolophus hipposideros</i></p>	This site can be screened out from impacts due to the distance of the site and any associated habitat from the GESp area.
Holme Moor & Clean Moor SAC	<p><u>Annex I Habitats</u> Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)</p>	This site can be screened out from impacts due to the distance of the site, and any associated habitat, from the GESp area + as no rivers in the GESp area which feed into Holme Moor.
Somerset Levels and Moors SPA/ Ramsar	<p><u>Article 4.1</u> Wintering Bewick's Swan and Golden Plover</p> <p><u>Article 4.2</u> Wintering Shoveler, Teal, Wigeon + wetland assemblage of international importance.</p>	This site can be screened out from impacts due to the distance of the site and any associated habitat from the GESp area.
West Dorset Alderwoods SAC	<p><u>Annex I Habitats</u> Alluvial forest with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i>, <i>Molinia</i> meadows on calcareous, peaty or clay-silt-laden soils (<i>Molinion caeruleae</i>), old acidophilous oak woods with <i>Quercus robur</i> on sandy plains</p> <p><u>Annex II Species</u> Marsh fritillary butterfly (<i>Euphydryas aurinia</i>) and great crested newt (<i>Triturus cristatus</i>)</p>	<p>Potential impact on associated Marsh Fritillary habitat. However, there is no Marsh Fritillary habitat within 10km of the SAC and within the GESp area.</p> <p>Potential loss of species and associated impact on Marsh Fritillaries due to nitrous oxide emissions from traffic. This can be screened out due to the distance of the site from the GESp area.</p> <p>Impacts on Great Crested Newts can be screened out due to the distance of the site from Devon.</p>

3. Initial Screening for Likely Significant Effects

- 3.1 HRA follows a stepwise process. GESP provides the sites necessary to deliver sustainable development in Greater Exeter, and whilst protection and enhancement of the natural environment is an integral part of sustainable development, the plan is not singularly focussed on European site management. Screening for likely significant effects will therefore be necessary.
- 3.2 The screening for likely significant effects is necessary on all policies within the plan. It is an initial check, made on a precautionary basis, to determine whether any part of the plan poses a risk to European sites in terms of its future implementation.
- 3.3 When an HRA is being undertaken on a plan or project that is initiated by the competent authority themselves, there is greater opportunity to identify potential issues arising from the plan or project in the initial stages of design or preparation. Where a competent authority is approving a project being proposed by another party, the application for permission is usually made when the proposal has already been designed and all details finalised, thus the opportunity to identify issues early on is more limited unless an applicant chooses to hold early discussions with the competent authority.
- 3.4 For the GESP, the local authority is both the plan proposer and the competent authority, thus allowing the HRA to influence the plan in its earlier stages, at later refining stages and up to submission for Examination. Screening at this stage in the plan making is therefore preliminary.

What constitutes a likely significant effect?

- 3.5 At the screening stage of HRA, there is the opportunity to identify changes to the plan that could be made to avoid risks to European sites, and this is particularly relevant at this stage in the plan making as issues can be identified up front and resolved with later iterations of the plan. It should also be noted that the preliminary work identifying impact pathways and issues has already been running parallel to the plan making and has informed the choice of location and options included in the plan at this stage.
- 3.6 Where the screening identifies risks that cannot be avoided with simple clarifications, corrections or instructions for project level HRA, a more detailed assessment is undertaken to gather more information about the

likely significant effects and give the necessary scrutiny to potential mitigation measures. This is the appropriate assessment stage of HRA.

- 3.7 A likely significant effect could be concluded on the basis of clear evidence of risk to European site interest, or there could be a scientific and plausible justification for concluding that a risk is present, even in the absence of direct evidence. The latter is a precautionary approach, which is one of the foundations of the high-level of protection pursued by EU policy on the environment, in accordance with the EU Treaty¹⁴. The precautionary principle should be applied at all stages in the HRA process and follows the principles established in case law relating to the use of such a principle in applying the European Directives and domestic Habitats Regulations. In particular, the European Court in the 'Waddenzee' case¹⁵ refers to "*no reasonable scientific doubt*" and in the 'Sweetman' case¹⁶ the Advocate General identified that a positive conclusion on screening for likely significant effects relates to where there "*is a possibility of there being a significant effect*".
- 3.8 The screening in this report looks at policies and options prior to any avoidance, reduction/mitigation measures in line with People Over Wind¹⁷. Mitigation potential can only be considered at Appropriate Assessment stage. People Over Wind clarified the need to carefully explain actions taken at each HRA stage, particularly at the screening for likely significant effects stage. The Judgment highlights the need for clear distinction between the stages of HRA, and good practice in recognising the function of each. The screening for likely significant effects stage should function as a screening or checking stage (regardless of avoidance, reduction/mitigation measures), to determine whether further assessment is required. Assessing the nature and extent of potential impacts on European site interest features, and the robustness of mitigation options, should be done at the appropriate assessment stage.

Initial screening conclusions

- 3.9 Table 5 (below) provides a record of screening of the entire plan at Draft Policies and Site Options stage. The initial screening was undertaken prior to

¹⁴ Article 191 of the Treaty on the Functioning of the EU. Previously Article 174 of the Treaty of the EC.

¹⁵ Waddenzee: European Court of Justice case C - 127/02

¹⁶ Sweetman: European Court of Justice case C - 258/11

¹⁷ People Over Wind: European Court Case C-323/17 People Over Wind & Peter Sweetman v Coillte Teoranta 12 April 2018

the finalisation of the document for public consultation. A re-screen of the plan at later stages will also be made, and this will make a record of any amendments to the plan made by the Council in response to this report and discussions between Footprint Ecology and the Planning Officers. The pre-submission version of the HRA is the point at which the appropriate assessment of all risks identified as requiring further assessment in the screening table will be prepared. The HRA will then potentially require further updates, either to inform the Examination in Public and/or on any proposed modifications which arise during the Examination of the plan, prior to adoption. This ensures that the final adopted plan has an up to date HRA report.

3.10 Table 5 records the conclusions drawn and recommendations made with a check of each draft policy and site option for likely significant effects at this early stage in the plan making. Potential risks are highlighted. In order to effectively screen the site options, within the GIS the distance from each site option to all relevant European sites was calculated. These data are included in Appendix 4.

3.11 The initial screening table identified all impact pathways as requiring further detailed consideration at the appropriate assessment stage. Likely significant effects are triggered by a range of individual draft policies and site options, and there are also risks from the overall quantum of development and air pollution, or the overall quantum of development and water availability. Policies for which likely significant effects cannot be ruled out at this stage include virtually all the site options and the following draft policies:

- GESP9: Economic Targets
- GESP10: Transformational Sectors
- GESP11: Employment Land
- GESP16: Housing Target and Distribution
- GESP14: Exeter Airport
- GESP21: Accommodation for the Gypsy and Traveller Communities
- GESP25: Long Distance Trails
- GESP29: Highway Links and Junction Improvements
- GESP31: Settlement Specific Enhancements.

3.12 The screening table (Table 5) for likely significant effects also includes a number of recommendations and minor changes relating to the wording of draft policies or supporting text, in some cases highlighting where there are opportunities to strengthen the content in relation to the HRA or where maps or diagrams that have not yet been incorporated into the plan should

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highlight particular information. These minor points and checks relate to the following draft policies and changes were made to the Draft Policies and Site Options prior to consultation:

- GESP1: Sustainable Development;
- GESP4: Low Carbon Energy;
- GESP5: Heat Networks;
- GESP6: Suitable Areas for Solar PV Development;
- GESP7: Suitable Areas for Onshore Wind Development;
- GESP13: Strategic Economic Assets;
- GESP21: Accommodation for the Gypsy and Traveller Communities;
- GESP34: Rebuilding Biodiversity;
- GESP36: Exe Estuary, Dawlish Warren and East Devon Pebblebed Heaths;
- GESP37: Clyst Regional Park;
- GESP38: Great Places;
- GESP39: Garden City Principles.

Table 5: Preliminary screening for likely significant effects – at Draft Polices and Site Options Consultation. Note that minor comments or recommendations were fed to the GESP team prior to the consultation and incorporated into the consultation draft.

Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
Chapter 1: Role of the Greater Exeter Strategic Plan	Text is for information and clarity, explaining the geographic area, how GESP fits with other plans, the timetable etc.		
Chapter 2: Consultation Process	Text is for information and clarity on the consultation process.		
Chapter 3: List of Policies	Text is for information and clarity on the consultation process.		
Chapter 4: Draft Vision	No LSE – Vision very strategic, contains greater places for nature – rebuilding biodiversity.		
GESP1: Sustainable Development	No LSE – no quantum of development or location set and very general.	Point C does state that sustainable development will “ <u>contribute to</u> protecting and enhancing our natural.... environment” [own emphasis]. Wording is perhaps ambiguous given protection afforded to European sites and the need for public bodies to prevent deterioration of European sites.	
Chapter 5: Climate Emergency	Chapter overview sets out background to climate emergency status and GESP		

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Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
	role in transition to a net-zero carbon future.		
GESp2: Climate Emergency	No LSE – policy sets target to achieve net zero carbon emissions by 2040. Environmentally positive policy, ultimately likely to benefit European sites.		
GESp3: Net Zero Carbon Development	No LSE – policy requires carbon statement from development, statement will demonstrate proposals deliver net-zero carbon emissions. Environmentally positive policy, ultimately likely to benefit European sites.		
GESp4: Low Carbon Energy	No LSE – policy provides in principle support for low carbon and renewable energy schemes.	Wording slightly ambiguous with respect to impacts on natural environment and should be tightened. Policy wording states that “Proposals should avoid, or where reasonable, minimise ... impacts upon...the natural... environment”. As written implies proposals that have some impact could proceed.	
GESp5: Heat Networks	No LSE – policy provides in principle support for heat networks.	Opportunities to be taken “where viable and feasible”. Policy wording could clarify that project level HRA may	

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
		be required for opportunities to be feasible.	
GESp6: Suitable Areas for Solar PV Development	No LSE – policy provides support in principle for suitable areas for solar PV development.	Policies map should exclude any areas functionally linked to European sites (e.g. wader roost sites or foraging areas around the Exe Estuary) and be checked at next iteration.	
GESp7: Suitable Areas for Onshore Wind Development	No LSE – policy sets criteria for where onshore wind development will be supported.	Policies map should exclude any areas functionally linked to European sites (e.g. Greater Horseshoe Bat sustenance areas or landscape connectivity zones). Given the particular nature conservation risks, policy could in addition be tightened by adding qualification that project-level HRA should be able to conclude no likely significant effect.	
GESp8: Energy Storage	No LSE. Policy sets out in principle support for energy storage and contains specific wording relating to European sites.		
Chapter 6: Prosperity	Chapter overview sets out targets for major growth: 35,000 extra jobs, doubling of the economy, 150ha of employment land, develop and enhancement of airport.		
GESp9: Economic Targets	LSE. Policy proposes to double the size of the		Policy sets umbrella targets that are linked to employment development, increased traffic and

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
	economy, increase earnings and increase the number of jobs by 35,000.		increased local population. Proposal for a magnitude of change that alone would be likely to have a significant effect on European sites. Issues are considered in the appropriate assessment topics through the consideration of individual site options (which see for relevant sites and impact pathways).
GESp10: Transformational Sectors	LSE. Policy allocates about 70ha of employment land (see also GESp11) and promotes employment in particular sectors.		Proposal for a magnitude of change that alone would be likely to have a significant effect on European sites. Issues are considered in the appropriate assessment topics through the consideration of individual site options (which see for relevant sites and impact pathways).
GESp11: Employment Land	LSE. Sets target to develop about 150ha of land for B1, B2 and B8 uses.		Proposal for a magnitude of change that alone would be likely to have a significant effect on European sites. Issues are considered in the appropriate assessment topics through the consideration of individual site options (which see for relevant sites and impact pathways).
GESp12: Economic Delivery	No LSE. Proposes that the Greater Exeter councils will act corporately and in partnership to establish the locational and physical requirements of new businesses and guide them accordingly. Policy is very general and encourages development. No quantum or specific locations defined however.		

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Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
GESP13: Strategic Economic Assets	No LSE. Protects existing strategic economic assets (sites and employers) from loss or change and proposals for enhancement also supported. Enhancements are not specific.	Supporting text could make clear that any enhancements will only be supported where no adverse effects on integrity.	
GESP14: Exeter Airport	LSE. Policy supports the airport and new employment development in Airport Development Zone (ADZ).		Yes. Policy alone triggers LSE for impacts on water quality (Exe Estuary SPA/Ramsar) and air quality.
GESP15: Inclusive Employment and Skills	No LSE. General policy promoting wider access to jobs.		
Regional Sports Hub	Potentially LSE. Text explaining a regional sports hub concept and feasibility study has been undertaken and further consideration will be given potential as GESP progresses.		No location at present, but potential risks (e.g. from lighting and bats) that may require assessment as the plan progresses and location confirmed.
Chapter 7: Homes	Chapter overview, setting target of 53,260 homes 2020-2040.		
GESP16: Housing Target and Distribution	LSE. Sets target of 2,663 homes per annum (53,260 homes 2020-2040).		Yes, large increase in housing. Overall quantum itself has potential for impacts from direct loss of interest features, fragmentation/isolation, loss of supporting habitats, recreation, air quality, water quality and water availability. Issues are considered in the appropriate assessment topics through the consideration of

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
			individual site options (which see for relevant sites and impact pathways).
GESp17: Affordable Homes	No LSE. Sets targets for affordable housing and identifies allocations and percentages of build to rent properties. LSE triggered by the allocations themselves and totals in GESp16, rather than the percentage of different dwelling types.		
GESp18: Build to Rent Homes	No LSE. Sets targets for build to rent and identifies allocations and percentages of build to rent properties. LSE triggered by the allocations themselves and totals in GESp16, rather than the percentage of different dwelling types.		
GESp19: Custom and Self Build Homes	No LSE. Sets targets for and criteria for custom and self build. LSE triggered by the allocations themselves and totals in GESp16, rather than the percentage of different dwelling types.		
GESp20: Accessible Homes	No LSE. Sets proportions for accessible homes. LSE triggered by the allocations		

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
	themselves and totals in GESP16, rather than the percentage of different dwelling types.		
GESP21: Accommodation for the Gypsy and Traveller Communities	LSE. Provides for access and appropriate accommodation for gypsy and travelling communities. Policy sets requirement for 116 pitches and 3 transit sites.	Supporting text states that the locations of additional permanent pitches, transit sites and sites for travelling show people will be chosen on the basis that they have minimal impact on the environment. Wording should be tightened so that no ambiguity on impacts on European sites.	Identifies need for pitches and travelling sites outside allocations. While specific allocations not named, adds to the overall quantum of growth and increase in population. Implications for direct loss of interest features, fragmentation/isolation, loss of supporting habitats, recreation, air quality, general urbanisation, water quality and water availability.
Chapter 8: Movement and Communication	Chapter introduction provides overview of policies which include transport strategy and digital communication.		
GESP22: Transport Strategy	No LSE - Strategic overview of strategy to create sustainable transport network.		
GESP23: Sustainable Travel in New Developments	No LSE – policy sets need for active travel and sustainable travel options within development.		
GESP24: Travel Planning	No LSE – sets out requirements for travel plans.		
GESP25: Long Distance Trails	LSE – policy sets out network of strategic long distance cycle trails. All are well away		LSE alone in terms of recreation to Exe Estuary SPA/Ramsar.

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Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
	from European sites with the exception of the Clyst Valley Trail, which links directly to the Exe Estuary SPA/Ramsar.		
GESP26: Rail and Bus Projects	No LSE – policy sets out transport infrastructure requirements. All are well away from European sites.		
GESP27: Park and Ride Around Exeter	No LSE - Identifies need for 6 park and ride facilities. All are well away from European sites.		
GESP28: Electric Vehicles	No LSE - Outlines requirements for provision of charging points, ducting etc.		
GESP29: Highway Links and Junction Improvements	LSE Identifies a series of improvements and changes to highway links and junctions.		All are outside European sites but the A382 works are within Greater Horseshoe Bat landscape connectivity zone and the Peamore A379 – A38 junction which just borders the Greater Horseshoe Bat landscape connectivity zone. LSE for policy alone with respect to South Hams SAC and loss of supporting habitat, fragmentation and collision risk.
GESP30: Movement in Exeter	No LSE – environmentally positive policy to reduce dominance of car-use in Exeter.		
GESP31: Settlement Specific Enhancements	LSE. Transport improvements identified for selected settlements. Improvements include		LSE for policy alone with respect to recreation on the Exe Estuary SPA/Ramsar, East Devon Pebblebed Heaths SPA/SAC and Dawlish Warren SAC.

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Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
	comprehensive pedestrian and cycle networks and settlements include Exmouth.		
GESp32: Gigabit Ready Developments	No LSE. Policy ensures that residents and businesses in new buildings have access to a choice of fixed and mobile internet services.		
GESp33: Digital Spine	No LSE – Policy provides for digital fibre spine providing high speed fibre connectivity between set locations. Locations shown in transport diagram and will not require works on European sites.		
Chapter 9: Nature	Chapter introduction setting out proposed environmental approach including overall gain in biodiversity.		
GESp34: Rebuilding Biodiversity	No LSE. Positive policy setting out net gain in biodiversity. Policy is not intended to relate to European sites and any potential for harm to such sites (see column to right)	Supporting text identifies that where there is potential for a proposed development to cause harm to internationally designated sites, applicants would still need to undertake appropriate surveys and assessment to a nationally recognised standard prior to the submission of a planning proposal. This wording potentially ambiguous in identifying potential for harm to European sites.	

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Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
		Ultimately it is the responsibility of local authority as competent authority to ensure compliance to Habitats Regulations.	
GESp35: Woodland Creation	No LSE. Environmentally positive if planting involves suitable tree species in suitable locations. Priority Areas map has been checked and does not promote planting within European sites.		
GESp36: Exe Estuary, Dawlish Warren and East Devon Pebblebed Heaths	Sets out the requirement for mitigation and cross references to the strategic mitigation scheme	Supporting text contains reference to cat predation as the need for the 400m development exclusion around the East Devon Pebblebed Heaths. This could be strengthened as the 400m will provide protection with respect to general urban effects, recreation and fragmentation/isolation and would be best applied to the SAC and SPA (the boundaries are the same).	Will be excluded from consideration in formal screening. Appropriate assessment section will need to check the mitigation is sufficiently secured and fit for purpose. The mitigation strategy will need to be finalised alongside the plan and later versions of the HRA.
GESp37: Clyst Regional Park	No LSE – policy provides for SANG and also large areas of land where nature and recreation will be promoted. Proximity to the East Devon Pebblebed Heaths and the Exe Estuary SPA/Ramsar means likely benefits for	Policy proposes park to provide SANG. Draft GESp needs to ensure any SANG can be secured and effective, and achieve commitment to “Where irreconcilable conflicts exist between the conservation of priority habitats or species and public enjoyment, then conservation interest will take priority”.	Will be excluded from consideration in formal screening. Appropriate assessment section will need to check the mitigation is sufficiently secured and fit for purpose. The mitigation strategy will need to be finalised alongside the plan and later versions of the HRA.

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
	these sites in terms of absorbing recreation use and nature conservation.		
Chapter 10: Quality Places and Infrastructure	Chapter introduction, purpose to include policies which seek to direct the delivery of great places in the Greater Exeter area		
GESp38: Great Places	No LSE - policy sets out how strategic allocations will be planned to ensure they deliver high quality development with coordinated infrastructure	There could be opportunities within the concept and master plans to ensure SANGs are incorporated effectively and delivery phased as necessary.	
GESp39: Delivering Homes and Communities	No LSE – policy sets out how delivery might be helped and secured.		
GESp40: Garden City Principles	No LSE – policy applies garden city principles to certain allocations.	Potential opportunity for benefit to European sites through the application of the principles to help ensure resident’s recreation use is focussed within the allocation.	
GESp41: Infrastructure Classification	No LSE – policy simply identifies how infrastructure will be classified.		
GESp42: Strategic Infrastructure	To be confirmed. Policy still to be updated to include list of infrastructure projects which will need checking for LSE.		Possibly, to be confirmed as the plan progresses and more detail provided.

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Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
GESP43: Viability	No LSE. Policy simply sets out criteria for when deviations from policy due to viability issues will be considered.		
Chapter 11: Spatial Development Strategy	Chapter discusses the level of growth and sets out the different options for growth.		Overall level of growth and spatial distribution will result in risks for all impact pathways. No specific policy included in this chapter however.
Central Strategic Growth Area Site Options			
SA-EX-1 (Attwells Farm)	Potentially 400 new dwellings, LSE triggered for range of sites and issues.		5.4km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-ED-26 (Cowley)	Potentially 500 new dwellings, LSE triggered for range of sites and issues.		6.6km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-MD-3 (Crediton South)	Potentially 750 new dwellings, LSE triggered for range of sites and issues.		Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues (Culm Grassland SAC).
SA-EX-19 (East Gate)	Potentially 1160 new dwellings, LSE triggered for range of sites and issues.		3.2km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. Risks in-combination with other site options (and other plans/projects) to multiple European

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
			sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-EX-5 (Exeter St David's Station)	Potentially 660 new dwellings, LSE triggered for range of sites and issues.		4.7km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-T-16 (Exminster West)	Potentially 200 new dwellings, LSE triggered for range of sites and issues.		0.8km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and loss/impacts to supporting habitat for the Exe Estuary SPA/Ramsar. Risks in-combination with other site options (and other plans/projects) with respect to water-related issues and the Exe Estuary SPA/Ramsar. 8.9km from Dawlish Warren and LSE for policy alone with respect to recreation. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality.
SA-ED-7 (Higher Greendale)	Potentially 1300 new dwellings, LSE triggered for range of sites and issues.		2.1km from East Devon Pebblebed Heaths SAC/SPA and LSE for policy alone with respect to risks from recreation and from loss/impacts to supporting habitat. 3.1km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to risks from recreation. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-ED-3 (Hill Barton)	Potentially 10000 new dwellings, LSE triggered for range of sites and issues.		2.9km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to risks from recreation. 2.6km from East Devon Pebblebed Heaths SAC/SPA and LSE for

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Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
			policy alone with respect to risks from recreation and from loss/impacts to supporting habitat. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-EX-9 (Howell Road Car Park)	Potentially 106 new dwellings, LSE triggered for range of sites and issues.		4.0km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-T-17 (Markham Lane)	Potentially 1100 new dwellings, LSE triggered for range of sites and issues.		2.5km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-EX-10 (Marsh Barton)	Potentially 5544 new dwellings, LSE triggered for range of sites and issues.		1.4km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-MD-4 (Newton St Cyres and Sweetham)	Potentially 1200 new dwellings, LSE triggered for range of sites and issues.		9.7km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.

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Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
SA-EX-7 (North Gate)	Potentially 310 new dwellings, LSE triggered for range of sites and issues.		3.8km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-ED-2 (Oil Mill Lane)	Potentially 4000 new dwellings, LSE triggered for range of sites and issues.		1.2km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. 3.0km from East Devon Pebblebed Heaths SAC/SPA and LSE for policy alone with respect to risks from recreation and from loss/impacts to supporting habitat. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-T-18 (Peamore)	Potentially 1500 new dwellings, LSE triggered for range of sites and issues.		0.8km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and loss of supporting habitat for the Exe Estuary SPA/Ramsar. 9.8km from Dawlish Warren and LSE for policy alone with respect to recreation and Dawlish Warren SAC. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar. Site boundary just clips South Hams SAC landscape connectivity zone and therefore in-combination loss of supporting habitat for South Hams SAC.
SA-EX-18 (Pinhoe Trading Estate)	Potentially 278 new dwellings, LSE triggered for range of sites and issues.		4.4km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. 9.4km from East Devon Pebblebed Heaths

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Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
			SAC/SPA and LSE for policy alone with respect to risks from recreation. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-ED-27 (Poltimore East)	LSE. Motorway services Area well away from European sites.		LSE for policy alone from recreation to Exe Estuary SPA/Ramsar, Dawlish Warren SAC and East Devon Pebblebed Heaths SAC/SPA if option includes hotel.
SA-EX-26 (Sandy Gate)	Potentially 1050 new dwellings, LSE triggered for range of sites and issues.		1.8km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. 7.3km from East Devon Pebblebed Heaths SAC/SPA and LSE for policy alone with respect to risks from recreation. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-EX-8 (South Gate)	Potentially 300 new dwellings, LSE triggered for range of sites and issues.		3.2km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-EX-23 (South Street, Fore Street, Market Street)	Potentially 175 new dwellings, LSE triggered for range of sites and issues.		3.5km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-ED-1 (Sowton)	LSE. Employment development.		Risks in-combination with other site options (and other plans/projects) to various sites due to traffic.

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
SA-EX-4 (Stoke Hill)	Potentially 768 new dwellings, LSE triggered for range of sites and issues.		5.0km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination or water-related issues and the Exe Estuary SPA/Ramsar.
SA-EX-3 (Topsham and M5)	Potentially 1500 new dwellings, LSE triggered for range of sites and issues.		0.2km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and loss of supporting habitat for the Exe Estuary SPA/Ramsar. 6.4km from East Devon Pebblebed Heaths SAC/SPA and LSE for policy alone with respect to recreation and East Devon Pebblebed Heaths SAC/SPA. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-EX-6 (Water Lane)	Potentially 1570 new dwellings. LSE triggered for range of sites and issues.		1.4km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-EX-22 (West Gate)	Potentially 620 new dwellings, LSE triggered for range of sites and issues.		3.4km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
SA-ED-25 (Westclyst and Mosshayne)	Potentially 1600 new dwellings, LSE triggered for range of sites and issues.		5.0km from Exe Estuary SPA/Ramsar and LSE for policy alone with respect to recreation and Exe Estuary SPA/Ramsar. 7.1km from East Devon Pebblebed Heaths SAC/SPA and LSE for policy alone with respect to recreation and East Devon Pebblebed Heaths SAC/SPA. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
North Strategic Growth Area Site Options			
SA-MD-9 (Culm Garden Village)	Potentially 5000 new dwellings, LSE triggered for range of sites and issues.		15.9km from the Quants SAC and LSE for policy alone with respect to loss/impacts to supporting habitat. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Culm Grasslands SAC.
SA-MD-10 (Hartnoll Farm)	Potentially 950 new dwellings, LSE triggered for range of sites and issues.		19.1km from the Quants SAC and LSE for policy alone with respect to loss/impacts to supporting habitat. 14.6km from the Culm Grasslands SAC and LSE for policy alone with respect to loss/impacts to supporting habitat. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Culm Grasslands SAC.
SA-MD-12 (Sampford Peverell South)	Potentially 2200 new dwellings, LSE triggered for range of sites and issues.		14.4km from the Quants SAC and LSE for policy alone with respect to loss/impacts to supporting habitat. 17.4km from the Culm Grasslands SAC and LSE for policy alone with respect to loss/impacts to supporting habitat. Risks in-combination with other site options

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
			(and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Culm Grasslands SAC.
South Strategic Growth Area Site Options			
SA-T-8 (Land north of Forches Cross)	LSE. Employment development.		Within South Hams SAC Landscape Connectivity Zone, and LSE for policy alone with respect to loss/impacts to supporting habitat. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality, in-combination for recreation and Dartmoor SAC (site option is 12.1km from SAC), in-combination for recreation and South Dartmoor Woods SAC (site option is 6.6km from the SAC) and in-combination for water-related issues and Dartmoor SAC.
SA-T-3 (Houghton Barton West)	Potentially 1750 new dwellings, LSE triggered for range of sites and issues.		Within South Hams SAC Landscape Connectivity Zone, and LSE for policy alone with respect to loss/impacts to supporting habitat. Within 5.8km of South Dartmoor Woods and in-combination risks from recreation. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality, in-combination for recreation and Dartmoor SAC (site option is 10.9km from SAC), in-combination for recreation and South Dartmoor Woods SAC (site option is 5.8km from the SAC) and in-combination for water-related issues and Dartmoor SAC.
SA-T-22 (Ilford Park)	LSE. Employment development.		Within South Hams SAC Landscape Connectivity Zone, and LSE for policy alone with respect to loss/impacts to supporting habitat. Risks in-combination with other site

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
			options (and other plans/projects) to multiple European sites with respect to air quality, in-combination for recreation and Dartmoor SAC (site option is 10.8km from SAC), in-combination for recreation and South Dartmoor Woods SAC (site option is 5.2km from the SAC) and in-combination for water-related issues and Dartmoor SAC.
SA-T-5 (South of Priory Road)	Potentially 500 new dwellings, LSE triggered for range of sites and issues.		Within South Hams SAC Landscape Connectivity Zone, and LSE for policy alone with respect to loss/impacts to supporting habitat. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality, in-combination for recreation and Dartmoor SAC (site option is 16.6km from SAC), in-combination for recreation and South Dartmoor Woods SAC (site option is 11.9km from the SAC) and in-combination for water-related issues and Dartmoor SAC.
East Strategic Growth Area Site Options			
SA-ED-8 (Airport Business Park)	LSE. Employment development.		Within 3.5km of East Devon Pebblebed Heaths SAC/SPA and LSE for policy alone with respect to loss/impacts to supporting habitat. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-ED-5 (Airport North)	LSE. Employment development.		Within 4.9km of East Devon Pebblebed Heaths SAC/SPA and LSE for policy alone with respect to loss/impacts to supporting habitat. Risks in-combination with other site options (and other plans/projects) to multiple European

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Consultation Document Section	Initial Likely significant effect (LSE) screening	Minor comments or recommendations for text changes at Draft Policy & Site Options	Appropriate Assessment considerations
			sites with respect to air quality and in-combination for water-related issues and the Exe Estuary SPA/Ramsar.
SA-ED-19 (Axminster South)	Potentially 540 new dwellings, LSE triggered for range of sites and issues.		0.4km from River Axe SAC Risks in relation to water quality and LSE for policy alone with respect to water-related impacts. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality.
SA-ED-15 (Feniton)	Potentially 2800 new dwellings, LSE triggered for range of sites and issues.		6.3km from the East Devon Pebblebed Heaths SAC/SPA and LSE for policy alone with respect to recreation. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality.
SA-ED-18 (Honiton East)	Potentially 1100 new dwellings, LSE triggered for range of sites and issues.		Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality.
SA-ED-12 (Whimble)	Potentially 2500 new dwellings, LSE triggered for range of sites and issues.		3.9km from the East Devon Pebblebed Heaths SAC/SPA and LSE for policy alone with respect to recreation and from loss/impacts to supporting habitat. Risks in-combination with other site options (and other plans/projects) to multiple European sites with respect to air quality.

4. Appropriate Assessment of Impact Pathways: Overview

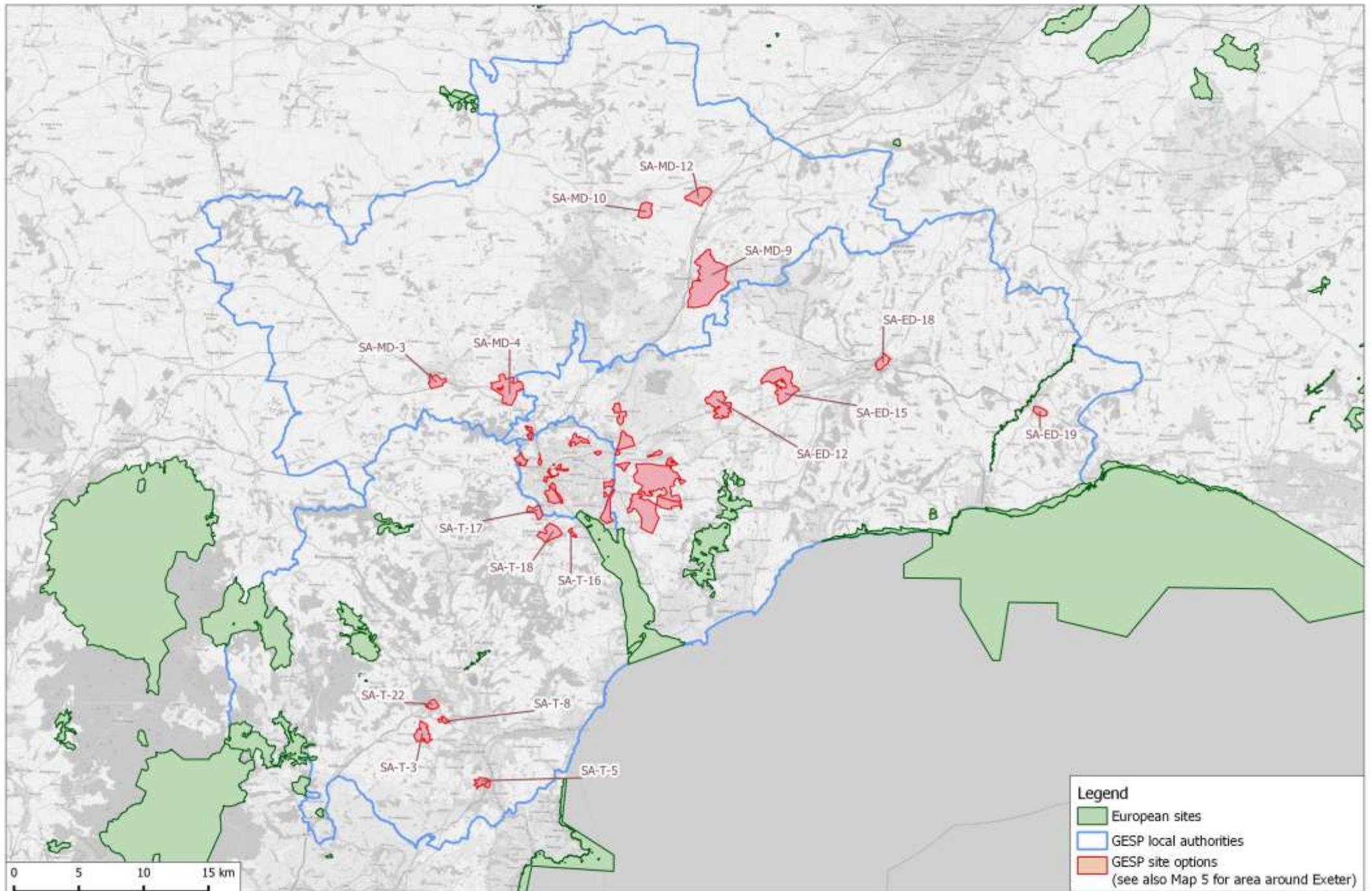
- 4.1 The screening for likely significant effects (Table 5) has identified a number of recommended text changes that can strengthen policy or completely avoid risks with the removal of potentially harmful aspects. These are clarifications, corrections or instructions for the development project HRA, that do not require further scrutiny at the appropriate assessment stage.
- 4.2 Additionally, the screening table has flagged key topics for more in-depth consideration within an appropriate assessment. The appropriate assessment topics are highlighted in this HRA report at the Draft Policies and Site Options stage to advise on the scope of the appropriate assessment and inform the evidence that will need to be gathered as the plan progresses. These impact pathways will to be assessed in detail within the appropriate assessment prepared at the next plan version: the Draft Plan stage.
- 4.3 Once a likely significant effect has been identified, the purpose of the appropriate assessment is to examine evidence and information in more detail to establish the nature and extent of the predicted impacts, in order to answer the question as to whether such impacts could lead to adverse effects on European site integrity.
- 4.4 Appropriate assessments at the plan stage are often undertaken with enough evidence to give confidence in potential mitigation options, and then project level HRAs remain critical in determining the detail of such mitigation.
- 4.5 The 'precautionary principle' is described in the screening section. It is an accepted principle that is embedded within the wording of the legislation, and latterly within case decisions, both European and domestic. Essentially, the appropriate assessment stage, in accordance with the Habitats Regulations, is an assessment that enables a competent authority to only give effect to a plan or authorise/undertake a project after having ascertained that it will not adversely affect the integrity of the European site. Fundamentally this therefore means that in the absence of certainty, the plan or project should not normally proceed.
- 4.6 Later stages of this assessment are structured to address the different issues that have emerged from the screening. We broadly address the impact pathways set out in the earlier parts (see Table 3), however we structure the

sections slightly differently, to allow us to focus on the relevant issues. We use the following key headings for the appropriate assessment sections:

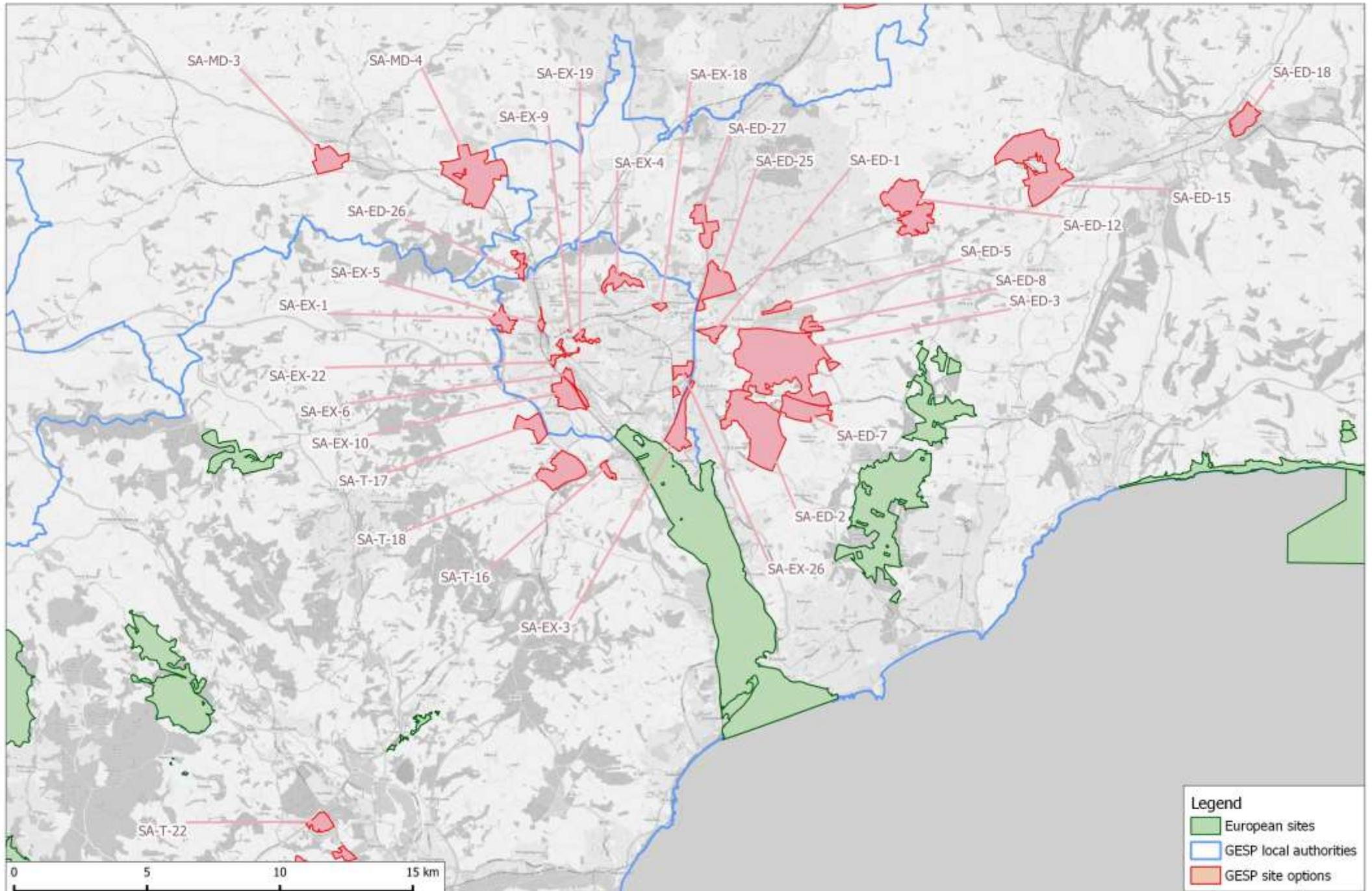
- General urbanisation effects
- Bat SACs: Loss of supporting habitat, fragmentation and collision risk
- Loss/impacts to supporting habitat around European sites (non-bat sites)
- Recreation
- Water-related issues
- Air Quality

4.7 Individual site options are shown in Maps 4-6 which provide an overview of the potential quantum of development and the locations of the sites in relation to European sites. Maps 4 and 5 are the same but different scales: labels on Map 4 show the site options away from Exeter and Map 5 labels site options in the vicinity of Exeter. Map 6 shows all site options and the symbols indicate the scale of potential development at each site.

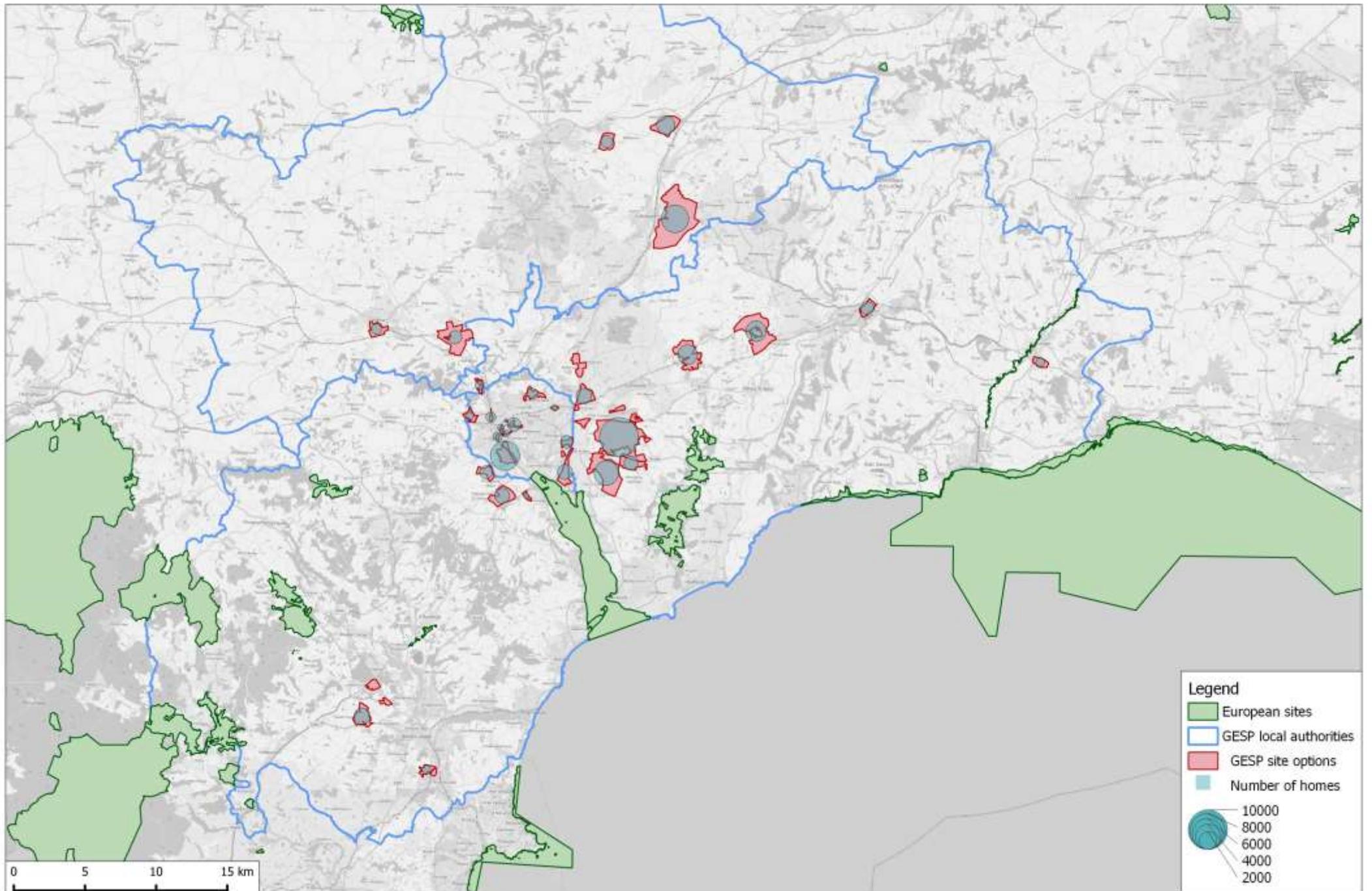
Map 4: GESP site options and European sites



Map 5: GESP site options and European sites - Exeter area only



Map 6: Site options, potential housing numbers and European sites



5. Appropriate assessment topic: general urbanisation effects

Introduction

- 5.1 Urbanisation effects relate to issues where development is close to the European site boundary and is an umbrella term relating to impacts such as light, noise, cat predation, fly tipping, increased fire risk, spread of invasive species (e.g. from gardens and garden waste) and vandalism. Note that the impacts on lighting for bats foraging in the wider landscape is considered in the topic relating to Bat SACs: Loss of supporting habitat, fragmentation and collision risk.
- 5.2 Studies of fire incidence have shown that heathland sites with high levels of housing within 500m of the site boundary have a higher fire incidence (Kirby & Tantram, 1999). Fires can start in a range of ways, including deliberate arson, children playing, campfires, barbeques, sparks from vehicles, discarded cigarettes etc.
- 5.3 Where housing is directly adjacent to sites, access can occur directly from gardens and informal access points. Use will spill over from adjacent gardens and adjacent green space next to urban areas is often subject to a range of activities that are not necessarily compatible with nature conservation. Fly-tipping and dumping of garden waste can be more common. As such, managing and looking after such sites can be more challenging.
- 5.4 Of the sites at risk in GESP, urban issues are perhaps most relevant to heathland sites, which are vulnerable to fire, nutrient enrichment and heathland SPA sites hold sensitive ground-nesting birds. The issues are not restricted to heathlands however and can be relevant for a range of sites. For example, cats are known to predate bats (Ancillotto, Serangeli, & Russo, 2013), invasive species are a risk for a range of habitats including riparian ones.
- 5.5 A development exclusion zone has been established around many other European sites to reflect the particular risks with development directly adjacent to the boundary. Local plans and strategic mitigation schemes

include a presumption against development within these areas and such zones have become an established policy approach.

5.6 Examples of areas where a zone is in place include:

- Across the Thames Basin Heaths (11 local planning authorities)
- Around the Dorset Heaths (five local planning authorities)
- In the Brecks (e.g. Breckland District)
- Around the East Devon Pebblebed Heaths (East Devon District Council)
- Around Cannock Chase SAC (e.g. Cannock Chase Council Local Plan)
- At Ashdown Forest SPA/SAC (e.g. Wealden District's Core Strategy Local Plan)

5.7 All the above examples are heathland sites and a 400m zone is used. The approach is widely accepted and reduces the risks from increasing urbanisation. It provides greater certainty that mitigation measures (such as access management) for cumulative levels of urban growth will be successful as such measures can be targeted to those travelling some distance.

5.8 The choice of 400m is based on the literature (summarised in Underhill-Day, 2005) and to some extent is a pragmatic choice. For example, 400m reflects distances at which sites will be 'local' and easily accessible from nearby housing and fits with the fire research outlined above. Studies of cat roaming behaviour have shown 400m to be an appropriate buffer width to limit cats in very urban environments (Thomas, Baker, & Fellowes, 2014), however in more rural areas cats can roam considerably further and some studies have suggested ranges over 2km for more rural situations (Hall et al., 2016; Metsers, Seddon, & van Heezik, 2010).

Relevant sites

5.9 Urban effects are potentially relevant to the following sites:

- East Devon Pebblebed Heaths SAC
- East Devon Heaths SPA
- Exe Estuary Ramsar
- Exe Estuary SPA
- River Axe SAC

5.10 These are sites where there is potential for urban effects to undermine the conservation objectives, for example affecting the structure and function of the habitats of the qualifying features, the supporting processes on which

the habitats of the qualifying features rely and the distribution of qualifying features. For these sites there are also site options relatively close. For all other European sites GESP site options are at least 3km away (South Hams SAC) and for most well over 5km.

Draft policy GESP36 (Exe Estuary, Dawlish Warren and East Devon Pebblebed Heaths)

- 5.11 Draft policy GESP36 (Exe Estuary, Dawlish Warren and East Devon Pebblebed Heaths) states that additional residential development will not be permitted within 400m of the East Devon Heaths SPA and development will only be permitted within 400m of the Exe Estuary Special Protection Area and Dawlish Warren Special Area of Conservation where an Appropriate Assessment can show there will be no adverse effects to those sites, including effects arising from urbanisation impacts.

Individual site options

- 5.12 There is one site option, SA-EX-3 (Land between M5 and Topsham) where the boundary comes to within 200m of the Exe Estuary SPA/Ramsar. This site could be for 1,500 homes, after factoring in the various requirements being considered for the GESP. The consultation document identifies that there are multiple applications for piecemeal residential development within the site at various stages, from submitted to approval granted at appeal. Permissions have been granted for 286 dwellings (54 under construction); two care homes and 47 assisted living apartments.
- 5.13 The location is screened from the estuary by existing residential areas, with various rows of houses and large gardens between the foreshore and the edge of the site option. As such issues from lighting and garden waste are unlikely to be an issue. The location is such that tall buildings (which could interrupt flight lines or deter birds due to the potential for them to act as perches for predators such as Peregrines) are unlikely to be an issue. Fire risk is not a threat for the estuary. Cat predation could be a problem, however the nearest parts of the estuary do not hold major concentrations of roosting birds and the intertidal areas are unlikely to be areas that cats will hunt. As such it is likely to be possible to rule out adverse effects on integrity for SA-EX-3 in relation to general urban effects and the Exe Estuary SPA/Ramsar, alone or in-combination. If this site option is included within the GESP, given the proximity of the site option to the Estuary and the scale

of the development, it will be important that any master planning or site plans take into account the risk to the Estuary and further checks should be undertaken when further details are available to ensure the site can be delivered without adverse effects on integrity. At project-level HRA it will then be necessary to ensure any necessary design features and mitigation are in place, in-line with draft Policy GESP36 (Exe Estuary, Dawlish Warren and East Devon Pebblebed Heaths).

- 5.14 Aside from SA-EX-3 the next closest development to the Exe Estuary SPA/Ramsar is SA-T-16 (West of Exminster), which at its closest is 800m from the European site boundary. This site option is separated from the SPA/Ramsar by the whole of Exminster and as such urban effects can clearly be ruled out.
- 5.15 Aside from the Exe Estuary SPA/Ramsar the only other site option to flag with respect to urban effects is SA-ED-19 (Axminster South). This is the only other site option within 1km of a European site and at its closest it is 400m from the River Axe SAC. The site option is separated from the SAC by the A358 (which runs in a cutting) and by a field, there is some hydrological connectivity with the SAC via a ditch. Urban effects that could impact the SAC include the spread of invasive species (which are identified in the conservation objectives). Water quality (e.g. from run-off) is also relevant and is considered in the water quality section of the HRA.
- 5.16 The main invasive plant species within the Axe catchment include Himalayan Balsam, Japanese Knotweed and Giant Hogweed. The most notable of these is Himalayan balsam which is almost ubiquitous throughout the catchment. The balsam out-competes native flora and covers riverbanks during the summer months. At the start of the winter it dies back leaving the banks exposed, which leads to increased rates of erosion. This accelerates the deposition of sediment into the river channel. Risks from development would relate to soil disturbance and dumped soil during construction and then spread from gardens, garden waste, recreational use etc.
- 5.17 Given the physical separation of the site option from the riparian zone and the cutting on the A358, risks are potentially relatively low. Adverse effects on integrity to the River Axe SAC could be avoided through survey work to inform the layout and design, vegetation management (ensuring species of concern are not present within the site and around the site), site design (to ensure no risk of invasive species spreading along the ditch running from the application site) and carefully planned construction, with necessary site

checks and controls in place. Some of these will issues can safely be deferred to project level HRA, however if this site is progressed within GESP it will be necessary to have confidence that the issues can be addressed and there is no uncertainty.

Key findings: general urbanisation effects

Urbanisation effects relate to issues where development is close to the European site boundary and is an umbrella term relating to impacts such as light, noise, cat predation, fly tipping, increased fire risk, spread of invasive species (e.g. from gardens and garden waste) and vandalism.

There are two site options with potential risks relating to urbanisation effects:

SA-EX-3 Land between M5 and Topsham lies within 200m of the Exe Estuary SPA/Ramsar. Risks from the general urban effects at this site seem low. If this site option is included within the GESP, given the proximity of the site option to the Estuary and the scale of the development, it will be important that any master planning or site plans take into account the risk to the Estuary and further checks should be undertaken when further details are available to ensure the site can be delivered without adverse effects on integrity from urban effects. At project-level HRA it will then be necessary to ensure any necessary design features and mitigation are in place, in-line with draft Policy GESP36 (Exe Estuary, Dawlish Warren and East Devon Pebblebed Heaths).

SA-ED-19 Axminster South is around 400m from the River Axe SAC. Risks here relate to the possibility of invasive species being spread through construction and the urbanisation. Adverse effects on integrity to the River Axe SAC could be avoided through survey work to inform the layout and design, vegetation management (ensuring species of concern are not present within the site and around the site), site design (to ensure no risk of invasive species spreading along the ditch running from the application site) and carefully planned construction, with necessary site checks and controls in place. Some of these issues can safely be deferred to project level HRA, however if this site is progressed within GESP it will be necessary to have confidence that the issues can be addressed and there is no uncertainty.

6. Appropriate assessment topic: Bat SACs and loss of supporting habitat, fragmentation and collision risk

Introduction

- 6.1 Three different European sites (among those included in the screening, see Table 3) support bats. These are:
- Beer Quarry & Caves SAC (Greater Horseshoe Bat, Lesser Horseshoe Bat, Bechstein's Bat)
 - Exmoor & Quantocks Oakwoods SAC (Bechstein's Bat and Barbastelle)
 - South Hams (Greater Horseshoe Bat)
- 6.2 These bats use networks of roost sites, foraging habitats and commuting routes which connect roosts to other roosts and roosts to foraging areas. Different roost sites are used through the year, for example different sites are used during the winter for hibernation to those used for raising young ('maternity roosts'). While some roosts will hold very large concentrations of bats others can be small and be used for only short time windows. Bats are however faithful to roost sites and return each year. For the two Horseshoe Bat species, hibernacula tend to be in caves while maternity and summer roosts can be in caves and/or buildings. Bechstein's Bats roost in woodlands during the summer, typically in old oak woods. Females tend to roost in old woodpecker holes and regularly move between different trees. The species then over-winters in caves and mines. Barbastelles are another woodland species and roosts in trees all year round, with hibernation sites tending to be in cavities deep within trees.
- 6.3 For Greater Horseshoe Bats colony size is positively related to landscape features surrounding the roost such as the amount of broadleaf woodland and grassland, and density of linear features, while the amount of artificial light at night has a significant negative effect (Froidevaux, Boughey, Barlow, & Jones, 2017).
- 6.4 Greater Horseshoe Bats feed in areas with mixed deciduous woodland and grazing pastures on steep south-facing slopes. Preferred habitats are pastures with cattle (either single/mixed stock) followed by ancient semi-woodland and pastures with non-cattle stock (Duvergé & Jones, 1994). Woodlands and pasture close to woodland are used to a greater extent in

spring and early summer while pasture tend to be predominantly used in summer. Radio-tracking of Lesser Horseshoe Bats has shown them to forage in woodland habitats (particularly broadleaf) and to prefer to forage in areas with a high habitat diversity (Bontadina, Schofield, & Naef-Daenzer, 2002). Barbastelles feed on moths and range widely in the landscape, even ranging up to 20km from the roost (Zeale, Davidson-Watts, & Jones, 2012)

- 6.5 Connectivity is important. Bats will range widely over the landscape to visit suitable feeding locations. Adult Greater Horseshoe Bats for example will tend to range within 4km of maternity roosts (Dartmoor National Park Authority, Devon County Council, Teignbridge District Council, South Hams District Council, Torbay Council and Natural England, 2019). Rides, footpaths, hedges and treelines are used by greater horseshoe bats when flying in feeding areas, and the bats are rarely less than 2m away from these structures (Duvergé & Jones, 1994). Pinaud *et al.* (2018) found that a distance of 38m (maximum of 50m) between landscape features ensures an effective connection for Greater Horseshoe Bats.
- 6.6 Loss of suitable foraging habitat, roost sites or connectivity are risks for these species. Development which results in a loss of potential feeding habitat, potential roost sites or results in a break in landscape features such as hedgerows or woodland strips is likely to impact on the species. Further risks can result in issues from disturbance such as from lighting (e.g. Stone, Jones, & Harris, 2009). Roads are a particular issue as bats tend to avoid crossing roads (Bennett & Zurcher, 2013) and there are also risks from collision with road traffic and therefore direct mortality, low-flying species such as Greater Horseshoe Bats are particularly vulnerable (Fensome & Mathews, 2016). There are therefore clear risks from urban development in landscapes that are important to bats (Jung & Threlfall, 2016).
- 6.7 The issues are clearly set out in the conservation objectives (supplementary advice) and loss or deterioration of foraging habitat and flight lines clearly have the potential to undermine the conservation objectives (Table 6).

Table 6: Supplementary Conservation Objectives relating to supporting habitat: structure and function. See [Natural England website](#) for full details.

Attribute	Target	Supporting & explanatory notes
Supporting off-site habitat (foraging areas)	Restore any core areas of feeding habitat outside of the SAC boundary that are critical to Greater Horseshoe bats during their breeding and hibernation period.	Roost choice, and the presence of bats within the SAC, is likely to be influenced by the site's ability to provide bats with food and shelter. Key feeding areas around a roost, and the commuting routes (or flight-lines) between them, will be an important element of sustaining the SAC population. Feeding areas used by SAC bats may be outside of the SAC boundary but be critical to successful hibernation (these undesignated areas are sometimes referred to as 'sustenance zones' or 'functionally-linked land'). Target set to Restore because the wider agricultural landscape beyond the SAC boundary, on which the bats rely for foraging, is, to some extent, degraded by agricultural intensification so that the habitat supports fewer invertebrate food sources and offers less shelter.
Supporting off-site habitat (flightlines)	Maintain and Restore the presence, structure and quality of any linear landscape features which function as flightlines. Flightlines should remain unlit, functioning as dark corridors.	Non-breeding greater horseshoe adults can forage at least 4km from roost sites. For breeding females and juveniles, the average distance tends to be roughly half this i.e. 2km (English Nature, 2003). Greater horseshoes commute and forage along linear features, over grazed pasture and in woodland. Permanent pasture and ancient woodland linked with an abundance of tall bushy hedgerows is ideal supporting habitat for this species. (English Nature, 2003). Flightlines will extend beyond the designated site boundary into the wider local landscape. In general, low intensity management (e.g. cutting hedgerows on long rotations) is required to maintain the structure and quality of linear landscape features. Target includes Restore because some flightlines have been fragmented and disrupted, for example by light pollution. NATURAL ENGLAND. 2010. South Hams SAC – Greater horseshoe bat consultation zone planning guidance. Natural England. Available from Natural England on request Page 59 of 64 Attributes Targets Supporting and Explanatory Notes Sources of site-based evidence (where available) Local Planning Authorities are taking account of greater horseshoe bats in decision-making following principles outlined in Natural England (2010) (as amended). Occasional vegetation management is required to maintain suitable vegetation cover around roost entrances.

Site options

6.8 The consultation document contains no site options within 10km of the Beer Quarry & Caves SAC and no site options within 15km of the Exmoor & Quantocks Oakwoods SAC. Adverse effects on integrity in relation to the bat interest and loss of supporting habitat, fragmentation and collision risk can therefore be ruled out for these sites, as the distances are too great.

6.9 There are however a number of site options in the area around the South Hams SAC. For this SAC detailed guidance (Dartmoor National Park Authority, Devon County Council, Teignbridge District Council, South Hams District Council, Torbay Council and Natural England, 2019) sets out the extent of the sustenance zones (i.e. foraging areas around the key roosts) and landscape connectivity zones (i.e. the area that includes a complex network of Commuting Routes used by the SAC population of greater horseshoe bats and providing connectivity between the Designated Roosts). These zones are shown in Figure 1 of the guidance.

6.10 There are no site options within the sustenance zones, but the following site options are within the landscape connectivity zone:

- **SA-T-3 Land West of Houghton Barton**, 126ha, potentially 1750 dwellings. Site adjacent to Seale Hayne, comprised of rolling countryside, rising up Ingsdon Hill and Seale Hayne ridgeline to the north;
- **SA-T-5 Priory Road**, 63ha, potentially 500 dwellings. 3km south of Newton Abbot, adjacent to the A380 and close to existing allocation NA3, the area is primarily in agricultural use.
- **SA-T-8 Land North of Forches Cross**, 24ha, Employment use only. gently undulating fields west of the A382, approximately 2.5 km north of Newton Abbot and 1.5 km south of Drumbridges (A38).
- **SA-T-22 Ilford Park**, 46ha, Employment use only. The site is adjacent to the A38 Drumbridges junction and Trago Mills and comprised of flat land currently in use as forestry, with some commercial and residential (C2) uses.

6.11 In addition, the following site is virtually entirely outside the Landscape Connectivity Zone but clips the edge:

- **SA-T-18 Peamore**, 146ha, potentially 1500 dwellings. Site is to the west of Exeter and comprised of undulating land with some steep slopes.

6.12 Within the landscape connectivity zone, Greater Horseshoe Bats are expected to occur in lower numbers and be more widely dispersed. The guidance therefore considers that only proposals that could severely restrict the movements of bats at a landscape scale may have a likely significant effect. However, there may be exceptions as the guidance highlights the potential for pinch points – locations where commuting routes are restricted (e.g. by the sea/estuaries or urban encroachment).

- 6.13 The individual site options are large and together the 4 sites comprise 259ha, potentially some 2,250 dwellings and employment land. Depending on the site options progressed into the draft GESP there is clearly potential for bat movements at a landscape scale to be restricted.
- 6.14 Checks on the Devon County Council web mapping system, that provides access to the data on known pinch points and other relevant features shows that there are no known pinch points within any of the sites. However, at both SA-T-8 and SA-T-22 there are Greater Horseshoe Bat mitigation features – i.e. dedicated features already established as mitigation for other development. These comprise a culvert at the south-eastern corner of SA-T-8 that allows bats to cross the A382 and at the south-eastern corner of SA-T-22 there is the Stover Bridge that again provides a crossing point over the A382. As such, both these site options are clearly close to, or adjacent to, strategic crossing points for Greater Horseshoe Bats.
- 6.15 At the GESP level of plan-making, it will be necessary for the final HRA to be able to show that the selected site options are deliverable. For all the site options, checks and survey work will therefore be required for the presence and use of the areas by Greater Horseshoe Bats. The HRA work may need to consider the potential impacts of the site options in-combination and it is recommended that the survey work and information gathering are co-ordinated across various sites. Survey work and the information collected will need to conform to the relevant guidance (see Dartmoor National Park Authority, Devon County Council, Teignbridge District Council, South Hams District Council, Torbay Council and Natural England, 2019). The results from the survey work will need to feed into the master planning and the boundary or scale of the site may need to be revised. For SA-T-8 and SA-T-22 it will be necessary for the survey work to check the use of the mitigation features and ensure they can continue to function in the long-term.
- 6.16 If any of the 5 site options is progressed, project-level HRA will be necessary to ensure the necessary detail is in place; a tailored bat mitigation plan is likely to be required.
- 6.17 Alongside the site options, increased traffic flows along some roads may pose problems for bats in terms of collision risk and increased avoidance of roads due to more traffic on them. When there is greater clarity on the options to be included within GESP, checks will be required of traffic changes, based on traffic flow modelling, alongside information on key areas

for bats, to ensure that there are no issues in this respect and to allow adverse effects on integrity to be ruled out.

6.18 Draft Policy GESP29 (Highway Links and Junction Improvements) contains road improvements that are within the landscape connectivity zone and may serve to further disrupt flyways and connectivity for Greater Horseshoe Bats. Two elements of the policy pose risks:

- A382 (Newton Abbot to Drumbridges) – widening of highway from Jetty Marsh Road with addition of cycle routes and improved junctions including new roundabout at Forches Cross and link road to A383;
- Junction of A379 at Peamore with A38 to create north bound onslip.

6.19 The A382 works commenced in 2020 and a suite of bat mitigation measures were secured.

6.20 Further details of the improvements at the junction of the A379 at Peamore with the A38 will be required before the next iteration of the HRA. It will be necessary to determine that the road improvements (including any lighting infrastructure) can be put in place without disruption to bats, and then detailed project level assessment will be necessary, incorporating field data on bat use of the relevant areas to ensure the detailed design is sufficient to rule out adverse effects on integrity. Survey work and the information collected will need to conform to the relevant guidance (see Dartmoor National Park Authority, Devon County Council, Teignbridge District Council, South Hams District Council, Torbay Council and Natural England, 2019).

Key findings: Bat SACs and loss of supporting habitat, fragmentation and collision risk

Bats can roam widely in the landscape, utilising different locations for roosting through the year and around the roost sites they fly out in darkness to feed, often ranging considerable distances from the roost. Loss of feeding areas, loss of connectivity within the landscape and risks of collision from roads and other structures pose particular risks.

The following site options and draft policy pose risks for the South Hams SAC:

- SA-T-3 Land West of Houghton Barton;
- SA-T-5 Priory Road;
- SA-T-8 Land North of Forches Cross;
- SA-T-18 Peamore;
- SA-T-22 Ilford Park;
- GESP 29 Highway Links and Junction Improvements.

All lie within or very close to the landscape connectivity zone - within which the bat interest is expected to occur in low numbers and be more widely dispersed. Nonetheless, the site options could all have the potential to severely restrict the movements of bats at a landscape scale.

For all site options, survey work will be required to check for the presence and use of the area by Greater Horseshoe Bats. The results from the survey work will need to feed into the master planning and the boundary or scale of the site option may need to be revised. For SA-T-8 and SA-T-22 it will be necessary for the survey work to check the use of the mitigation features and ensure they can continue to function in the long-term. For all 5 housing site options, if progressed into the plan, a tailored bat mitigation plan is likely to be required to ensure adverse effects on integrity can be ruled out, for the sites alone or in-combination. It may be necessary to consider the potential impacts of the site options together and it is recommended that the survey work is co-ordinated across the various sites. Survey work and the information collected will need to conform to the relevant guidance. For the relevant road junctions, further details of the improvements for these locations are required before adverse effects on integrity can be ruled out.

7. Appropriate assessment topic: loss/impacts to supporting habitat around European sites (non-bat sites).

Introduction

7.1 For a number of sites and species there are areas outside the boundary of the European site that are likely to be important and at risk from development. There are therefore risks to sites through the loss, deterioration or compromise of habitat outside a European site boundary that serves a supporting role for the European site, as reservoirs of mobile species migrating in and out of a European site or providing genetic exchange, as roosting, foraging or breeding sites for species as stepping stones between European sites and equivalent habitat. Where European sites are isolated in the landscape there is greater risk of species extinctions and little chance of recolonisation.

7.2 The following sites and issues are potentially relevant:

- **Exe Estuary SPA/Ramsar:** land outside the SPA may support high tide roosts for waterbirds or provide foraging sites for waterfowl such as Dark-bellied Brent Geese.
- **East Devon Heaths SPA:** Nightjar are known to roam widely from breeding sites and feed in a range of habitats away from heaths.
- **Culm Grasslands and Quants SAC:** Marsh Fritillary butterflies can range widely and numbers fluctuate between years. There is evidence that metapopulations are formed across multiple sites and 'clusters' of sites and adjacent habitat are important to maintain populations.

Exe Estuary SPA/Ramsar

7.3 Around the Exe Estuary key areas will be grazing marsh and other wetland habitats and also areas of grassland where geese might feed. In the long-term, coastal squeeze and sea-level rise will result in the loss of roost sites within the estuary and sites outside the SPA boundary are likely to become more important. A selection of locations are mapped by Liley *et al.* (2014). More recent evidence comes from ringing studies around the estuary and other monitoring. For example, following recent declines of Oystercatchers on the Estuary, birds have been colour-ringed and tracked to help

understand how individual birds use the SPA and surrounds. While the project continues, preliminary results indicate that some areas outside the SPA such as the Golf Course at Cockwood may be important¹⁸.

7.4 The following site options are relatively close to the estuary and contain habitats that could be used by geese or waders:

- SA-T-16 West of Exminster
- SA-ED-2 Oil Mill Lane

7.5 Risks with both sites are low as they are on high ground and set back from the estuary. As such their location is likely to mean it will be possible to rule out adverse effects on integrity, for the two sites alone or in-combination. If the sites progress into the draft GESP, checks will be necessary for both sites at the master planning stage to ensure there are no known roosts or records of waterbirds using the relevant areas. Should records show any use, then mitigation will be possible, either by securing the relevant part of the site for nature conservation or ensuring suitable land nearby is managed to provide better roosting/feeding habitat.

East Devon Heaths SPA

7.6 Nightjar are an interest feature of the East Devon Heaths SPA and studies of Nightjar in Dorset have shown that birds will fly a considerable distance away from the breeding sites to feed at night (Alexander & Cresswell 1990; Cresswell 1996). These studies radio-tracked birds and showed that they were leaving forest clearings (most of the tracking was conducted in conifer plantations) to feed in deciduous woodland, orchards, village gardens and they also used wetland sites such as streams, small ponds and water meadows. Cresswell (1996) also notes that radio-tracking from an open heathland site (Hartland Moor) found birds were using nearby saltmarsh.

7.7 Nightjar feed on insects and predominantly catch them in flight, either in sustained flight or 'fly-catching' from a perch or the ground (see Cresswell 1996 for details). Cresswell (1996) argues that habitats used on foraging trips - deciduous woodland and wet grassland in particular - may be of considerable importance to Nightjar: "when it comes to Nightjar

¹⁸ Preliminary results have been presented by [Natural England](#); see also page of the [local wader ringing group](#)

conservation, we believe that there may be a need to consider both breeding and feeding habitats".

- 7.8 Significant urban growth around the East Devon Heaths SPA may therefore impact on Nightjar. The concerns would relate to:
- The direct loss of foraging habitat that is functionally linked to the SPA;
 - Flight paths and access to foraging habitat being blocked or restricted by the presence of built development.
- 7.9 Nightjar are summer migrants and on territory from May through to August. During this time, it is likely that different areas and habitats will be important for foraging. Different areas are likely to be important depending on the weather (for example some areas will be more sheltered than others), depending on prey abundance (different insects will peak at different times and in different habitats) and for individual Nightjar (for example requirements may be different just after migration or when feeding chicks), as such it is expected that a range of habitats are likely to be important.
- 7.10 Off-site foraging for Nightjar has been a focus in the area around Poole in recent years, where there has been growing pressure to develop sites around Canford Heath. HRA work undertaken for the Borough of Poole Local Plan in 2018 (see Hoskin, Liley, & Underhill-Day, 2018) drew on GPS tracking, commissioned by developers (Souter, 2017). The use of GPS tags allows the locations of birds to be recorded at very regular intervals – for example every 2 minutes. Results highlighted that Nightjar were using areas outside the heaths, often for extended periods. Multiple birds were using some locations and there appeared to be limited use of urban areas. The tagging surveys have been continuing and a ringing group has also been undertaking GPS tracking at other Dorset heathland sites. The complete results from these studies are likely to be available soon and should provide useful context for the East Devon Heaths SPA. The results should help clarify the ranges that Nightjar will roam and the risks from development in the wider area.
- 7.11 The East Devon Heaths SPA supported 83 churring males in 1992, representing 2.4% of the then British population. The last national survey in 2004 recorded 80 churring males and in 2017 there were 113 churring males recorded (figures from the supplementary conservation objectives and also from Panter, Lake, & Liley, 2019). There have been no studies of off-site foraging by Nightjars around the SPA, the conservation objectives

(supplementary advice) for the SPA are however clear on the importance of the issue and set a number of targets that relate to off-site foraging (see Table 7).

Table 7: Supplementary Conservation Objectives relating to supporting habitat (outside of the SPA): extent and distribution. See [Natural England website](#) for full details.

Attribute	Target	Supporting & explanatory notes
Connectivity with supporting habitats	Maintain the safe passage of breeding Nightjar moving between their nesting and feeding areas	The ability of the feature to safely and successfully move between feeding and nesting areas using flight-lines and movement routes is critical to their breeding success and to adult fitness and survival. This target will apply within the site boundary and where birds regularly move to and from off-site habitat where this is relevant. The foraging range of nightjar is known to extend up to several kilometres from their nest sites.
Conservation measures	Maintain management or other measures (whether within and/or outside the site boundary as appropriate) necessary to maintain the structure, function and/or the supporting processes associated with breeding Nightjar and its supporting habitats.	Active and ongoing conservation management is often needed to protect, maintain or restore this feature at this site. Other measures may also be required, and in some cases, these measures may apply to areas outside of the designated site boundary in order to achieve this target. Further details about the necessary conservation measures for this site can be provided by Natural England. This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, Site Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI and/or management agreements. Management measures for desired conservation outcomes would include: Habitat management to maintain predominantly low heath or grassland with small patches (>2m square) of dry, bare ground Avoid mechanised bracken control wherever nightjars might be nesting, and Avoid all other mechanised management operations between May and September when they may destroy nests. Management of regular recreational access
Food availability within supporting habitat	Maintain a high abundance and availability of key prey items (e.g. moths, beetles) at prey sizes preferred by Nightjar.	The availability of an abundant food supply is critically important for successful breeding, adult fitness and survival and the overall sustainability of the population. As a result, inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of prey may adversely affect the population.
Landscape	Maintain the amount of open and unobstructed patches within nesting and foraging areas used by Nightjar, including areas of clear-fell, windfall, wide tracks, open forest and heath.	This feature is known to favour large areas of open terrain, largely free of obstructions, in and around its nesting, roosting and feeding areas. Often there is a need to maintain an unobstructed line of sight within nesting, feeding or roosting habitat to detect approaching predators, or to ensure visibility of displaying behaviour. An open landscape may also be required to facilitate movement of birds between the SPA and any off-site supporting habitat.
Extent and distribution of supporting habitat	Maintain the extent, distribution and availability of off-site habitat known to support the SPA's breeding Nightjar population during its breeding cycle (for feeding, foraging, roosting)	Conserving or restoring the extent of supporting habitats and their range will be key to maintaining the site's ability and capacity to support the SPA population. The information available on the extent and distribution of supporting habitat used by the feature may be approximate depending to the nature, age and accuracy of data collection. The extent and distribution of supporting habitat used by Nightjar will also vary over time in relation to habitat management,

succession, and ad-hoc events such as heath fires. This target will apply to supporting feeding or roosting habitat outside of the SPA boundary where this is of critical importance in maintaining or restoring the SPA population ('functionally-linked land'). This has been included as Nightjars are known to forage several kilometres away from their nesting territory

7.12 In the absence of the complete results from the recent Dorset studies using GPS trackers, the original radio-tracking studies in Dorset provide the best guide as to the range that birds will travel off-site, with birds reported travelling up to 7km (Cresswell, 1996). A 7km radius is shown in Map 7. There are 8 site options that lie within (or partly within) 7km of the SPA (Table 8).

Table 8: Site options within 7km of the East Devon Heaths SPA.

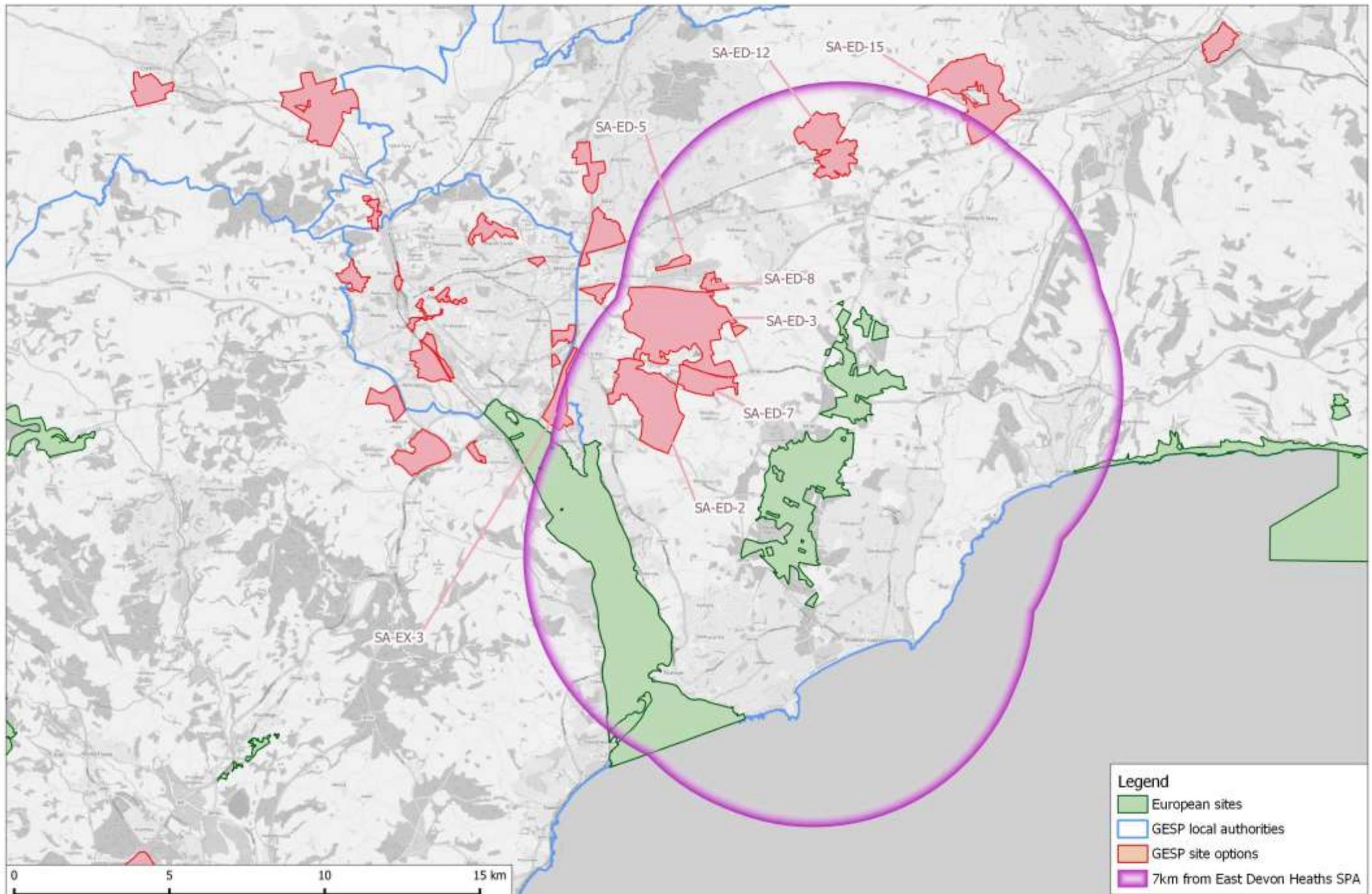
Site Option	Site Option Name	Potential number homes	Area (ha)	Distance to East Devon Heaths SPA (km)
SA-ED-7	Higher Greendale	1300	107	2.1
SA-ED-3	Hill Barton	10000	660	2.6
SA-ED-2	Oil Mill Lane	4000	380	3.0
SA-ED-8	Airport Business Park	0	27	3.5
SA-ED-12	Whimble	2500	242	3.9
SA-ED-5	North of Exeter Airport	0	22	4.9
SA-ED-15	Feniton	2800	364	6.3
SA-EX-3	Land between M5 and Topsham	1500	7	6.4

7.13 It can be seen from Map 7 that together the above site options cover a large proportion of the potential foraging habitat for Nightjar within 7km. Sites SA-ED-2, SA-ED-3 and SA-ED-7 are particularly large and lie in relative proximity to the SPA. While it may be possible that the flood-plain of the River Otter provides much of the foraging land, given the lack of evidence on this issue and the scale of growth, caution is necessary.

7.14 Furthermore, there is emerging evidence from the Dorset GPS studies that Nightjar switch regularly between different heaths and move between sites. As such connectivity to sites just to the east (e.g. Lambert's Castle area), to the north (Ashclyst Forest) and the West (Haldon) may be important. Sites SA-ED-6 and SA-ED-12 lie between Ashclyst and the East Devon Heaths SPA and continued development here may block linkages between the sites.

- 7.15 In order to rule out adverse effects on integrity in relation to off-site foraging by Nightjar it will be necessary to check the extent to which Nightjars roam from the SPA, the habitats they use and the relative importance of the land within any of the 8 site options listed above that progress into the draft GESP. Such work will also need to consider in-combination risks from other development (outside GESP) in the wider area. At this stage in the plan making process it is important that the issue is identified and surveys done prior to any master planning to ensure any areas important to foraging Nightjar or routes used can be protected and enhanced. This may reduce the amount of housing feasible in particular locations. Results from recent studies in Dorset, using GPS tags on Nightjars around Poole, may provide further insights and understanding, when available.

Map 7: GESP site options within 7km of the East Devon Heaths SPA



Culm Grasslands SAC & Quants SAC

- 7.16 It has long been recognised that Marsh Fritillary populations typically span networks of patches of suitable habitat, these patches are often small but interlinked (Bulman et al., 2007; Warren, 1994). The butterfly usually breeds in damp acidic grassland but also occurs on calcareous grassland. Colonies are often in very small patches and numbers fluctuate from year to year. Fluctuations relate to a parasitic wasp, as well as climate and habitat management. Certain patches appear to be transient or suboptimal and are only occupied in certain years, and as such the populations are dynamic. Maintaining the interconnected networks of suitable habitat – i.e. clusters of habitat patches - is essential to maintain the population.
- 7.17 The Supplementary Conservation Objectives for both the Culm Grasslands SAC and the Quants SAC recognise the importance of connectivity in the wider landscape for Marsh Fritillary. This is especially the case at the Quants SAC where Marsh Fritillaries became extinct in 2011. The nearest extant population is approximately 6km due south at Middle Barton. There is also a large population at Southey Moor.
- 7.18 The conservation objectives advise that Marsh Fritillaries can disperse up to 15-20km. Reviewing the site options there is only one within 15km of either SPA and only a small number within 20km (Table 9 and Table 10). Reviews of data on the NBN Atlas¹⁹ for Marsh Fritillary indicate very scattered records in the north GESP area and none close to the site options. As such it would appear that risks are relatively low.

Table 9: Site options within 20km of the Quants SAC.

Site Option	Site Option Name	Number homes	Area (ha)	Distance to the Quants SAC (km)
SA-MD-12	Area south of Sampford Peverell	2200	167	14.4
SA-MD-9	East of Cullompton	5000	802	15.8
SA-ED-18	Honiton East	1100	75	15.9
SA-ED-15	Feniton	2800	364	18.9
SA-MD-10	Land at Hartnoll Farm	950	101	19.1

¹⁹ See

https://records.nbnatlas.org/occurrences/search?q=lsid:NHMSYS0000516340#tab_mapView

Table 10: Site options within 20km of the Culm Grasslands SAC.

Site Option	Site Option Name	Number homes	Area (ha)	Distance to the Culm Grasslands SAC (km)
SA-MD-12	Area south of Sampford Peverell	2200	167	17.4
SA-MD-10	Land at Hartnoll Farm	950	101	14.6

7.19 Given the scale of the respective developments, as part of the master planning exercise for the site options listed within 20km, checks should be made by a suitably qualified ecologist for any suitable Marsh Fritillary habitat and a more detailed and thorough check made for records of the species. This will need to feed into later iterations of the HRA and will inform whether the plan will have no effect at all (ruling out adverse effects alone or in-combination) or whether the appropriate assessment will have to be extended to consider the possible cumulative effects alongside other plans or projects. Given that the site options are located well away from the relevant SACs, the risks are low and will mean the sites are likely to be deliverable without adverse effects on the integrity of the Culm Grasslands SAC and the Quants SAC, through the loss of supporting habitat. Masterplans may need to take into account the need to protect particular habitat and ensure connectivity.

Key findings: loss/impacts to supporting habitat around European sites (non-bat sites)

Nightjars

There is no information on off-site foraging use by Nightjars around the East Devon Heaths SPA. The risks relate to:

- The direct loss of foraging habitat that is functionally linked to the SPA;
- Flight paths and access to foraging habitat being blocked or restricted by the presence of built development.

The following site options fall within 7km of the SPA (7km reflecting the distances Nightjar have been shown to fly in Dorset) (sites are listed in order of proximity):

- SA-ED-7 Higher Greendale;
- SA-ED-3 Hill Barton;
- SA-ED-2 Oil Mill Lane;
- SA-ED-8 Airport Business Park;
- SA-ED-12 Whimble;
- SA-ED-5 North of Exeter Airport;
- SA-ED-15 Feniton;
- SA-EX-3 Land between M5 and Topsham.

Together these site options represent a total of 22,100 new houses and significant employment development. Furthermore, some lie between the SPA and other sites that support breeding Nightjar, potentially creating barriers to movement by the birds. In order to rule out adverse effects on integrity in relation to off-site foraging by Nightjar it will be necessary to check the extent to which Nightjars roam from the SPA, the habitats they use and the relative importance of the land within any of the 9 site options listed above if progressed into the draft GESP. Such work will also need to consider in-combination risks from other development (outside GESP) in the wider area. At this stage in the plan making process it is important that the issue is identified and surveys done prior to any master planning to ensure any areas important to foraging Nightjar or routes used can be protected and enhanced. This may reduce the amount of housing feasible in particular locations. Results from recent studies in Dorset, using GPS tags on Nightjars around Poole, may provide further insights and understanding, when available. Policy wording for these site options will need to highlight the off-site foraging issue for Nightjars.

Marsh Fritillaries

Marsh Fritillaries can disperse 15-20km. The following site options are within 20km of either the Culm Grasslands SAC and the Quants SAC:

- SA-MD-12 Area south of Sampford Peverell;
- SA-MD-9 East of Cullompton;
- SA-MD-18 Honiton East;
- SA-MD-15 Feniton;
- SA-MD-10 Land at Hartnoll Farm.

Checks need to be made by a suitably qualified ecologist for any suitable Marsh Fritillary habitat and a more detailed and thorough check made for records of the species. This will need to feed into later iterations of the HRA and will inform whether the plan will have no effect at all (ruling out adverse effects alone or in-combination) or whether the appropriate assessment will have to be extended to consider the possible cumulative effects alongside other plans or projects. Given that the site options are located well away from the relevant SACs, the risks are low and will mean the sites are likely to be deliverable without adverse effects on the integrity of the Culm Grasslands SAC and the Quants SAC, through the loss of supporting habitat. Masterplans may need to take into account the need to protect particular habitat and ensure connectivity.

8. Appropriate assessment topic: Recreation

Introduction

- 8.1 Postcode data from 2020 indicates that there are around 191,596 residential properties within East Devon, Exeter City, Teignbridge and Mid Devon. The GESP target of 53,260 homes (2,663 per year) between 2020-2040 therefore is equivalent to a 28% increase in the amount of housing. Such a marked increase in housing is likely to result in a marked increase in people, and therefore potential recreational use.
- 8.2 In the UK there is considerable overlap between nature conservation and recreation. Many of our most important nature conservation sites have legal rights of access, for example through Public Rights of Way or Open Access through the Countryside and Rights of Way Act (CRoW) 2000. People are often drawn to sites that are important for nature conservation as they are large, scenic and often few other alternatives exist. Recreation use can include a variety of activities, ranging from the daily dog walks to competitive adventure and endurance sports. There can be a difficult balancing act between providing for an increasing demand for access without compromising the integrity of protected wildlife sites.
- 8.3 There is now a strong body of evidence showing how increasing levels of access can have negative impacts on wildlife. Visits to the natural environment have shown a significant increase in England as a result of the increase in population and a trend to visit more (O'Neill, 2019). The issues are particularly acute in southern England, where population density is highest. Issues are varied and include disturbance, increased fire risk, contamination and damage (for general reviews see: Liley et al., 2010; Lowen, Liley, Underhill-Day, & Whitehouse, 2008; Ross et al., 2014; Underhill-Day, 2005).
- 8.4 The issues are not however straightforward. It is now increasingly recognised that access to the countryside is crucial to the long term success of nature conservation projects, for example through enforcing pro-environmental behaviours and a greater respect for the world around us (Richardson, Cormack, McRobert, & Underhill, 2016). Access also brings wider benefits to society that include benefits to mental/physical health (Keniger, Gaston, Irvine, & Fuller, 2013; Lee & Maheswaran, 2011; Pretty et al., 2005) and economic benefits (ICF GHK, 2013; ICRT, 2011; Keniger et al., 2013; The Land Trust, 2018). Nature conservation bodies are trying to encourage people to

spend more time outside and government policy is also promoting countryside access in general (e.g. through enhancing coastal access).

Potential sites and risks

8.5 Recreation issues are relevant for a number of different European sites (see Table 11).

Table 11: European sites and potential recreation impacts relevant at the appropriate assessment stage. Relevant pressures/threats from Site Improvement Plans (SIPs) are drawn from Appendix 3. Direct impact from third party can include unauthorised access and fire.

Site	Recreation impacts/risks	Relevant pressures/threats from SIPs		
		Direct impact from third party	Wildfire/arson	Public access/disturbance
Beer Quarry & Caves SAC	Disturbance to roosting bats.	✓		
Culm Grasslands SAC	Dog fouling, trampling and fire risk.	✓		
Dartmoor SAC	Increased fire incidence, dog fouling and trampling to habitats; Salmon (and Otter) potentially at risk from access to rivers.		✓	
Dawlish Warren SAC	Trampling damage to dune habitats, dog fouling, fire incidence.			✓
East Devon Pebblebed Heaths SAC	Trampling damage, dog fouling, increased fire risk.		✓	✓
East Devon Heaths SPA	Disturbance to Nightjar and Dartford Warbler; also fire risk.		✓	✓
Exe Estuary Ramsar	Disturbance to waterbirds.			✓
Exe Estuary SPA	Disturbance to waterbirds.			✓
Exmoor & Quantock Oakwoods SAC	Possible risks to bat roosts from disturbance.			
Exmoor Heaths SAC	Increased fire incidence, dog fouling and trampling to habitats	✓		
Lyme Bay & Torbay SAC	Disturbance from diving.			✓
River Axe SAC	Damage to riparian vegetation and potential for spread of invasive species			
Sidmouth to West Bay SAC	Trampling damage, dog fouling.	✓		
South Hams SAC	Disturbance to roosting bats.			✓
South Dartmoor Woods SAC	Trampling damage, dog fouling.			

Variation around European sites in the scale of change

8.6 In order to check the scale of possible change as a result of the site options in the GESP consultation document, we calculated for each of the European sites in Table 9 the current amount of housing (in 2020) and then the potential additional housing. We summarised current and future housing within 0-5km and within 0-10km and where an site options spanned a particular band, we estimated the amount of housing within the band simply based on the relative proportion of the site options within each band. Results are summarised in Table 12.

Table 12: Number of residential properties currently around relevant European sites, new housing within site options and the % change.

European site	Current		GESP		% change	
	0-5km	0-10km	0-5km	0-10km	0-5km	0-10km
Beer Quarry & Caves SAC	6,676	16,583	0	0	0	0
Culm Grasslands SAC	1,521	10,443	0	0	0	0
Dartmoor SAC	13,931	58,675	0	0	0	0
Dawlish Warren SAC	26,494	39,628	0	5,145	0	13
East Devon Pebblebed Heaths SAC/SPA	31,895	70,725	13,124	26,842	41	38
Exe Estuary SPA/Ramsar	83,598	102,330	26,642	34,547	32	34
Exmoor & Quantock Oakwoods	4,177	10,645	0	0	0	0
Exmoor Heaths SAC	3,603	11,450	0	0	0	0
Lyme Bay and Torbay SAC	91,244	120,009	0	2,540	0	2
River Axe SAC	14,849	29,662	540	632	4	2
Sidmouth to West Bay SAC	30,390	46,763	0	540	0	1
South Dartmoor Woods SAC	17,235	90,479	0	3,400	0	4
South Hams SAC	17,255	85,863	0	4,356	0	5

8.7 The approach used to derive the data in Table 12 is relatively simplistic, using two distance bands (5km and 10km). These should however provide an indication of the potential change within the distances recreation typically originates from. The results show a very clear pattern. The East Devon Pebblebed Heaths SAC/SPA and the Exe Estuary have potentially a very large volume of new housing within the site options – representing an increase between 32% and 41% when compared to current housing levels. If all these site options therefore are to go forward, the pressure on these two European sites in particular will be very large. Alongside these two sites, there is also a reasonably marked increase – of 13% for Dawlish Warren. For the East Devon Pebblebed Heaths SAC/SPA, the Exe Estuary SPA/Ramsar and Dawlish Warren SAC the scale of potential development could trigger a need

to ensure a robust package of mitigation is in place. A initial basis for such mitigation is set out in draft Policy GESP36 (Exe Estuary, Dawlish Warren and East Devon Pebblebed Heaths) and considered in more detail below.

- 8.8 Looking more widely, away from the East Devon Pebblebed Heaths SAC/SPA, the Exe Estuary SPA/Ramsar and Dawlish Warren SAC, the scale of potential change is much less. Detailed sections on the two Dartmoor SACs and the River Axe are set out below. For other sites, using Table 12, adverse effects on integrity can be ruled out, as the level of change is either very low or very small. For South Hams SAC, unauthorised access to caves and roost sites is of concern, but given there is no increase in housing within 5km of the SAC boundary this is considered unlikely.

Draft Policy GESP36 (Exe Estuary, Dawlish Warren and East Devon Pebblebed Heaths) and the South-east Devon European Site Mitigation Strategy

- 8.9 Our analysis of potential housing change highlights very marked pressure on the East Devon Pebblebed Heaths SAC/SPA, the Exe Estuary SPA/Ramsar and Dawlish Warren SAC. Not all the site options will progress into the draft GESP, so this illustrates the most extreme case.
- 8.10 The East Devon Pebblebed Heaths SAC/SPA is currently largely rural in feel and provides extensive open space with attractive views. The site draws visitors for dog walking, walking and also activities such as mountain biking and horse riding. There is an existing visitor management plan (Liley, Panter, & Underhill-Day, 2016). That plan sets out the issues with recreation, presents visitor survey data and sets out measures designed to address the issues with recreation from housing, as set out in the relevant local plans adopted at the time. The potential scale of further development in GESP, in relatively close proximity, with easy, direct road access would mean a further, very marked shift in access. Depending on the site options progressed to the draft GESP, comprehensive mitigation could be necessary.
- 8.11 Similarly, for the Exe Estuary, including Dawlish Warren, the scale of change from the total of the site options is large and the existing mitigation approach will need to accommodate a step change in local housing if sites were progressed.
- 8.12 A strategic and plan led approach to protecting European sites from the impact of recreation is now widely recognised as being more effective than

dealing with these impacts on a development by development basis. For example, educating visitors, reinforcing messages with site-based staff, and providing the right infrastructure to meet visitor needs and influence visitor behaviour cannot all be funded through an individual development. Mitigation for recreation pressure needs to be a multi measure approach, with measures working together in an integrated way (i.e. as a package of different measures) to give confidence that adverse effects can be ruled out.

8.13 Draft Policy GESP36 sets out requirements for mitigation the East Devon Pebblebed Heaths SAC/SPA, the Exe Estuary SPA/Ramsar and Dawlish Warren SAC:

- Development of residential or holiday accommodation within 10km of one or more of the protected sites will be required to pay a Strategic Access Management and Monitoring (SAMM) fee per additional dwelling or tourist bedspace, to be calculated annually based on the most up to date South East Devon Habitats Mitigation Strategy (or equivalent) and its implementation plan.
- Development of residential or holiday accommodation within 10km of one or more of the protected sites will be required to provide and maintain Suitable Alternative Natural Greenspace (SANG) in perpetuity, either:
 - In accordance with SANG provision as set out in a development plan allocation, at the expense of the development and early in the delivery of the site, or
 - Where development is without an associated SANG identified in an allocation policy, pay a financial contribution to the Local Planning Authority sufficient to provide and maintain 180 square metres of SANG per dwelling or tourist bedspace in an appropriate strategic location
- Provide any other specific measures to avoid residual impacts identified from Appropriate Assessment.

8.14 This policy is in line with the existing strategic mitigation approach that has been in place since 2014 and reflects the emerging update (see earlier paras 2.25-2.27 for context). Given the scale of the site options in GESP, likely significant effects from recreation are triggered for the sites on their own. The strategy will need to deliver mitigation for these sites as well as the many smaller sites that will be coming forward outside of GESP and for which the issues are more likely to relate to in-combination effects.

- 8.15 In order to be able to rule out adverse effects on integrity for the relevant European sites it will be necessary that the updated strategy is finalised alongside GESP.
- 8.16 The draft policy suggests a 180m² of SANG per dwelling within 10km of one of the relevant European sites. This level of SANG delivery is broadly equivalent to that used in other parts of the UK, such as the Thames Basin Heaths. In total there are nearly 40,000 homes considered in the site options that lie within 10km of the East Devon Pebblebed Heaths SAC/SPA, the Exe Estuary SPA/Ramsar or Dawlish Warren SAC (Table 13). The overall quantum of SANG, locations and design will need to be finalised in the mitigation strategy and future iterations of the GESP plan will need to ensure this is cross-referenced and the SANG requirements set out in policy.

Table 13: Potential GESP site options that lie within 10km of either the East Devon Pebblebed Heaths SAC/SPA, the Exe Estuary SPA/Ramsar or Dawlish Warren SAC and indicative SANG requirements (using 180m² per dwelling). SANG areas rounded to nearest hectare. All site options listed lie wholly within the 10km. SA-MD-4 is omitted from the table as it just clips the 10km buffer.

Site Option	Site Option name	Number of homes	Indicative SANG requirement (ha)
SA-ED-3	Hill Barton	10000	180
SA-EX-10	Marsh Barton	5544	100
SA-ED-2	Oil Mill Lane	4000	72
SA-ED-15	Feniton	2800	50
SA-ED-12	Whimple	2500	45
SA-ED-25	Westclyst & Mosshayne Farms	1600	29
SA-EX-6	Water Lane	1570	28
SA-EX-3	Land between M5 and Topsham	1500	27
SA-T-18	Peamore	1500	27
SA-ED-7	Higher Greendale	1300	23
SA-EX-19	East Gate	1160	21
SA-T-17	Markham Lane, Ide	1100	20
SA-EX-26	Sandy Gate	1050	19
SA-EX-4	North of Stoke Hill	768	14
SA-EX-5	Land adjacent Exeter St David's Station	660	12
SA-EX-22	West Gate	620	11
SA-ED-26	Cowley	500	9
SA-EX-1	Attwells, North of Exwick	400	7
SA-EX-7	North Gate	310	6
SA-EX-8	South Gate	300	5
SA-EX-18	Pinhoe Trading Estate	278	5
SA-T-16	West of Exminster	200	4
SA-EX-23	Land between South, Market and Fore Street	175	3
SA-EX-9	Howell Road Car Park	106	2
Total		39,941	719

8.17 The updated mitigation strategy will set out SANGs requirements in more detail, likely including reflection on overall quantum, minimum sizes, design, parking requirements and other elements. How the SANG model works for mitigating impacts arising within Exeter city will also be reviewed. We are aware further work is being carried out by Exeter City Council looking at the role and function of the Valley Park network. Future iterations of the HRA will need to check SANG provision to ensure that it is achievable and that suitable sites are available and able to be secured. Alongside SANG delivery

the strategy will set out SAMM provision including wardening and engagement. The levels of SAMM will need to relate to the overall level of growth, both within GESP and the other relevant local plans.

- 8.18 In addition to the site options identified above, site option SA-ED-27 Poltimore East includes motorway services that may include accommodation. Draft policy GESP36 has potential to provide mitigation for the motorway services proposal as it considers tourist accommodation. This matter will be kept under review in the next iteration of the HRA.
- 8.19 Draft policy GESP 25 Long Distance Trails sets out a network of strategic long distance cycle trails and these include the Clyst Valley Trail, which links directly to the Exe Estuary SPA/Ramsar. Further information on the location, route and how this will link with the existing cycle trails around estuary will be necessary. These design elements will need to feed into the next iteration of the HRA. Similarly, Draft Policy GESP 31 Settlement Specific Enhancements includes comprehensive pedestrian and cycle networks at locations including Exmouth, with risks to the Exe Estuary SPA/Ramsar, Dawlish Warren SAC and the East Devon Pebblebed Heaths SAC/SPA. Further details of design and likely use are necessary to feed into the next iteration of the HRA.

The River Axe SAC and site option SA-ED-19

- 8.20 The River Axe SAC is the only additional site with any change within 5km. The relevant development here is SA-ED-19 Axminster South. The site option (potentially 540 homes) is just 400m from the SAC and there are footpath links. Issues are specific to this site option and should be addressed through an access and visitor management plan for the area around the site option. There are public footpaths that provide access along the river banks and link to the site. Risks will relate to trampling of the riparian vegetation, disruption to the grazing and possibly damage to the banks from people and their pets trying to access the water. This has the potential to undermine the conservation objectives, for example the supplementary conservation objectives for the SAC set a target for the riparian zone to *“restore a patchy mosaic of natural woody and herbaceous (tall and short swards) riparian zone”*.
- 8.21 As GESP progresses, if this site option is included, it will be necessary to have confidence that any risks can be addressed. Given that the issues will be likely to be restricted to the particular stretch of the River close to the site option and can potentially be resolved through fencing, vegetation management and signage, mitigation should be achievable and will allow

adverse effects on integrity to the SAC from recreation to be ruled out. The access and visitor management plan will need to be finalised and agreed with Natural England prior to submission of a planning application to allow project level HRA to rule out adverse effects on integrity.

Dartmoor SAC and South Dartmoor Woods SAC

- 8.22 For the South Dartmoor Woods SAC, there is a potential change in housing of around 4% within 10km, as a result of the site options being considered for GESP alone. Not all the site options will progress into the draft GESP, so this illustrates the most extreme case. For the Dartmoor SAC there are no site options within 10km, however given the draw of Dartmoor in terms of the access opportunities and national profile, visitors will travel from a wide area. As such the Dartmoor sites warrant particular consideration in terms of recreation use.
- 8.23 Postal survey results (Cruickshanks & Liley, 2012), although dated, provide some information on recreation use of Dartmoor by residents living within the GESP plan area. Teignbridge District residents undertook the most visits to Dartmoor (compared to those living in Exeter or East Devon), with an average of 30.9 visits per year per household. Dartmeet, Postbridge and Steps Bridge were the most popular target locations. Widecombe-in-the-Moor and Yarner Wood were the most visited locations by residents from the Teignbridge area whereas Steps Bridge, Postbridge and Dartmeet stood out for Exeter City and East Devon residents. Due to the nature of the National Park a very high proportion of visits were made by car and travel distances were typically higher than for other sites (such as the Exe Estuary or East Devon Heaths), due to the attractiveness of the site for day trips and days out. Therefore, whilst people may travel further to reach Dartmoor, they visited the site less frequently. Walking and dog walking were the main activities, but due to the terrain, other activities such as mountain biking, remote camping, horse riding and rock climbing featured. Most dog walking visits to Dartmoor were made by residents of Teignbridge District.
- 8.24 More recently, work on recreation pressure for Dartmoor National Park and the impacts of growth in the wider area, have been undertaken by Exeter University (Day, Harwood, Tyler, & Zonneveld, 2018). Their modelling indicated that there are currently around 7 million day trips per year to Dartmoor from residents of the eight neighbouring local authorities. Increased populations in those authorities was predicted to result in more than 870,000 additional annual visits to Dartmoor per year, a rise of some

12%. The report considers the impacts from the additional recreation, and highlights a range of species that are considered vulnerable, based on expert review. While many of these do not relate to the SAC interest, they did include Salmon and it was suggested that recreation issues were possible or minor. The analyses also considered trampling damage to habitats and they estimated that increasing recreational pressure on Dartmoor could result in 10,854 m² of bare ground being exposed along the path network and increased gullying along 42km of path. The Park Authority have drafted wording for the Dartmoor Local Plan Review which considers recreation across the National Park and potential needs for mitigation (Strategic Policy 4.9).

8.25 Based on our understanding of the issues, concerns from recreation in terms of the European site interest relate to:

- Dartmoor SAC: dog fouling, conflicts with land management (grazing), increased fire risk, trampling damage, impacts to spawning Salmon (e.g. from canoe launching).
- South Dartmoor Woods: dog fouling, trampling, increased fire risk, trampling damage.

8.26 There is a general lack of original research for these issues, however the work by Exeter University flags the need for ongoing consideration. Dartmoor is a national park and visitor use includes a mix of day trips and visits from further afield. As such the impacts from housing growth are complex and potentially relate to a wide area. It should be noted that there are two statutory purposes for national parks in England and Wales. The first is to conserve and enhance natural beauty, wildlife and cultural heritage and the second is to promote opportunities for the understanding and enjoyment of the special qualities of national parks by the public. This second purpose includes opportunities for open air recreation. However, if it appears that there is a conflict between the two National Park purposes, the Environment Act 1995 requires greater weight to be attached to the purpose of conserving and enhancing the natural beauty, wildlife and cultural heritage of the National Park (this is known as the Sandford Principle²⁰).

8.27 It is potentially a challenge for Dartmoor National Park to continue to manage the growing recreation use without harm to the ecological interest and where that increase is linked to growth in housing within the adjacent

²⁰ Named after Lord Sandford, who chaired the 1974 National Parks Policy Review Committee.

local authorities the challenges are harder. This is because such visitor use will not be staying visitors who are likely to plan their visit carefully in advance using the National Park website, go to visitor centres etc.

- 8.28 HRA work for the Teignbridge Local Plan (Oxford et al., 2013) was not able to rule out adverse effects arising from recreational disturbance on the integrity of either the Dartmoor SAC or the South Dartmoor SAC. Oxford *et al.* advised that ongoing monitoring of visitor pressure and possible associated biological change would be needed to provide early warning should impacts occur that could have an adverse effect of the integrity of the Dartmoor and South Dartmoor Woods SAC. As such, they advised that Teignbridge District Council should liaise with Dartmoor National Park Authority, other local planning authorities and Natural England to ensure that adequate monitoring is in place. Furthermore, given that the impacts of recreation they identified related to specific locations and areas within the SAC (such as salmon spawning areas), mitigation measures could be established if required.
- 8.29 The HRA for the Plymouth and South West Devon Joint Local Plan (Anon, 2017) concluded there would be no adverse effects on integrity to the two Dartmoor SACs as a result of the development proposed alone. In-combination, the HRA followed the approach of Teignbridge, recommending monitoring and close working with the National Park Authority. The HRA concluded this would be sufficient to rule out adverse effects from the development in the Plan in-combination with neighbouring authorities.
- 8.30 There is uncertainty around this issue at this point in the GESP. Given the scale of potential growth that could be included in the GESP, further evidence will be necessary before adverse effects on integrity can be ruled out, either from the development in GESP alone or in-combination with other plans or projects. Discussion is required with the neighbouring authorities and Dartmoor National Park to consider the monitoring currently in place and the potential for mitigation intervention. Given the National Park's role in promoting and managing recreation, it should be possible to ensure any issues can be resolved, as there is a body that can oversee and deliver mitigation. Any solution will require working with the National Park and potentially other authorities and will require some further policy wording within GESP. It should then be possible to reach a conclusion of no adverse effects on integrity at submission.

Key findings: Recreation

Draft Policy GESP36 (Exe Estuary, Dawlish Warren and East Devon Pebblebed Heaths) and the South-east Devon European Site Mitigation Strategy

Together, the site options involve a marked housing change around the East Devon Pebblebed Heaths (potentially a 41% increase within 5km), the Exe Estuary (potentially a 32% increase within 5km) and Dawlish Warren SAC (13% increase within 10km). Not all the site options will progress into the draft GESP, so this illustrates the most extreme case. These site options fall within an area covered by an existing mitigation strategy and this strategy is being updated to address any potential additional growth. It will be essential that the strategy is finalised alongside GESP so that mitigation requirements are clear and suitable mechanisms for timely delivery are secured. Draft policy GESP36 is the relevant policy which sets out mitigation requirements and this cross-references to the strategy.

Depending on the size and location of the site options progressed a significant quantum of suitable alternative natural greenspace (SANG) will need to be secured. This will be set out in the updated mitigation strategy.

Draft policy GESP 25 Long Distance Trails sets out a network of strategic long distance cycle trails and these include the Clyst Valley Trail, which links directly to the Exe Estuary SPA/Ramsar. Further information on the location, route and how this will link with the existing cycle trails around estuary will be necessary. These design elements will need to feed into the next iteration of the HRA.

Draft Policy GESP 31 Settlement Specific Enhancements includes comprehensive pedestrian and cycle networks at locations including Exmouth, with risks to the Exe Estuary SPA/Ramsar, Dawlish Warren SAC and the East Devon Pebblebed Heaths SAC/SPA. Further details of design and likely use are necessary to feed into the next iteration of the HRA.

The River Axe SAC and Site Option SA-ED-19

SA-ED-19 Axminster South is an allocation for a potential of 540 houses and is just 400m from the River Axe SAC. Risks from recreation pressure for the SAC in the vicinity of the allocation will need to be resolved through an access and visitor management plan. The appropriate assessment for the GESP will need this to be progressed sufficiently to ensure adverse effects on integrity can be ruled out. Any plan will need to be finalised and agreed with Natural England prior to submission of a planning application to allow project level HRA to rule out adverse effects on integrity.

Dartmoor SAC and South Dartmoor Woods SAC

There are no GESP site options within the immediate vicinity of either of the Dartmoor SACs. However, recent research has flagged nature conservation issues with recreation use across Dartmoor National Park. Further discussion is necessary with the National Park and potentially neighbouring authorities and some further policy wording and agreed mitigation approach is likely to be necessary.

9. Appropriate Assessment topic: Water-related Issues

Introduction

- 9.1 Run-off, outflow from sewage treatments and overflow from septic tanks can result in increased nutrient loads and contamination of water courses. This can have consequences for European sites which contain wetland or aquatic features, as the pollution will affect the ability of the site to support the given interest.
- 9.2 Furthermore, abstraction and land management can influence water flow and quantity, resulting in reduced water availability at certain periods or changes in the flow. This can exacerbate issues relating to water quality.
- 9.3 These impact pathways can be specific to particular parts of European sites or particular development locations and are also relevant to the overall quantum of development.

Water supply

- 9.4 It is the role of the Environment Agency to make sure that abstraction is sustainable and does not damage the environment. Water abstraction is managed through a licensing system originally introduced by the Water Resources Act 1963.
- 9.5 The Environment Agency is the competent authority for the Water Framework Directive and it oversees the publication of River Basin Management Plans which are a requirement of the Directive. These plans set out how the management of water bodies will be undertaken, the roles of relevant bodies and the steps undertaken to ensure environmental targets are met.
- 9.6 The first River Basin Management Plans were produced in 2009 and then updated in 2015. In the more recent, second cycle river basin management plans the Environment Agency has committed to ensure abstraction licensing strategies and actions fully incorporate all environmental objectives and align with river basin management plans. The Agency will assess all licence applications and only issue licences that adequately protect and improve the environment. They will only grant replacement licences where the abstraction is environmentally sustainable and abstractors can

demonstrate they have a continued need for the water and that they will use it efficiently. In addition, for existing licences, the Agency will prioritise actions to protect and improve Natura 2000 sites and address the most seriously damaging abstractions during this plan period. All abstractors in surface water and groundwater bodies where serious damage is occurring or could occur without action should expect that their licences will be constrained over the next 6 years.

9.7 The South West Water, Water Resources Management Plan²¹ predicts demand for water and issues around supply. The GESP area is supplied with domestic water from the Roadford Water Resource Zone (WRZ) and the Wimbleball WRZ. The Roadford WRZ covers north and south parts of Devon, including Plymouth, Torbay, and Barnstaple. The Wimbleball WRZ covers the area to the east, including Exeter and Tiverton. Forecasts are made based on population forecasts from the Office of National Statistics and property forecasts from local plans. The Resources Management Plan used water supply and demand forecasts, together with climate change and target headroom values to forecast baseline supply demand for a 25 year period, to 2044/5. This shows that, without any interventions:

- The Wimbleball WRZ is in surplus until the very end of the planning period with a minor deficit in 2044/45.
- The Roadford WRZ drops into deficit in 2028/9 and remains in deficit until the end of the planning period.

9.8 These predictions take into account abstraction licence changes and renewals, including information provided by the Environment Agency on actions that companies need to undertake to contribute towards meeting environmental obligations, including any required changes to abstraction licences.

9.9 Based on these forecasts, a series of interventions are set out that include, in the short-term, reducing South West Water's consumption of water at large sewage treatment works, reducing leakage and helping customers reduce water use. Also proposed is a feasibility study on a Roadford pumped storage scheme, checking the feasibility of such an option should leakage and demand management savings not materialise. With these interventions in place, the Water Resources Management Plan indicates there is sufficient surplus of water. Prior to further iterations of the HRA, checks should just be

²¹ See [South West Water website](#)

made with the relevant bodies that forecasts are still appropriate given the scale of development within GESP. A further strategic point, given the reliance of the Water Resources Management Plan on interventions to reduce water consumption, is that water efficiency measures could be given greater emphasis in the Local Plan, in accordance with South West Water advice.

Water quality

- 9.10 Wastewater or sewage is very damaging to water bodies as it can contain large amounts of nutrients (such as phosphorus and nitrates), ammonia, bacteria, harmful chemicals and other damaging substances. Issues arise where sewage treatment technology to remove enough of the phosphorus and harmful chemicals doesn't exist, where leakages occur from privately owned septic tanks and, in wet weather, storm overflows can discharge untreated sewage. Increases in housing increase pressure on the sewage network and the volume of wastewater.
- 9.11 River Basin Management Plans provide the framework for protecting and enhancing the water environment. The relevant plan for the South West²² sets out statutory objectives for protected areas and a programme of measures to achieve those objectives. We draw on the relevant supporting data in the South West River Basin Plan in the site specific text below.

Relevant European sites

- 9.12 Water-related issues are potentially relevant for the sites listed in Table 14. For all other European sites, not included in the table, the interest features are either not relevant or there are no plausible ways that the development in GESP could impact the water flow or quality.

²² See [Environment Agency website](#)

Table 14: European sites and water-related issues relevant at the appropriate assessment stage. Relevant pressures/threats from Site Improvement Plans (SIPs) are drawn from Appendix 3.

European site	Relevant threats/ pressures from SIP		Notes
	Hydrological change	Water pollution	
Culm Grasslands SAC	✓		Water availability critical to damp grassland habitat
Dartmoor SAC	✓	✓	Water quality and availability important for Salmon in particular, with impacts relevant outside the SAC given that Salmon migrate.
East Devon Pebblebed Heaths SAC		✓	Water availability and quality important for Southern Damselfly and mire habitat
Exe Estuary Ramsar			Water quality has potential to influence algae and prey availability
Exe Estuary SPA			Water quality has potential to influence algae and prey availability
River Axe SAC		✓	Water quality and availability relevant
Sidmouth to West Bay SAC		✓	Sea cliff vegetation potentially vulnerable to water quality.

Culm Grasslands SAC

9.13 The Purple Moor Grass rush pasture and the wet heaths that are the interest features of this SAC occur on poorly drained soils and partly waterlogged soils and so ensuring water levels are high enough is therefore important for the site. The site improvement plan highlights hydrological change as a pressure/threat, however this is linked to the surrounding field drainage and not related to water abstraction. The supplementary conservation advice sets targets for water quality and also for hydrology. For example, for water quality, the targets state *“where the feature is dependent on surface water and/or ground water, restore water quality and quantity to a standard which provides the necessary conditions to support the feature”*.

9.14 The site options within the GESP consultation document are all set well away from the Culm Grasslands SAC. The Mid Devon Local Plan HRA did not

identify any water issues for the Culm Grasslands and ruled out likely significant effects from water availability.

- 9.15 As such it should be possible to rule out adverse effects on integrity for the Culm Grasslands from GESP, alone or in-combination. Checks should be made with the Environment Agency prior to the next iteration of the HRA to ensure adequate surplus of water is in place such that all the allocations and the overall quantum of growth set out in GESP can be delivered.

Dartmoor SAC

- 9.16 The Site Improvement Plan for Dartmoor SAC identifies hydrological change as a pressure/threat for blanket bogs. The issue here relates to old drainage networks and peat cuttings that have a negative impact on the conservation status of the habitat, drying out the bog. Actions to resolve this pressure/threat will involve blocking erosion gullies, drainage channels and rewetting old peat cuttings. There is therefore no link between policies in GESP and the hydrology of the blanket bog.
- 9.17 Atlantic Salmon are an Annex II species which are a qualifying feature for Dartmoor SAC, although not a primary reason for site selection. The salmon migrate from the sea to breed in freshwater, selecting shallow gravelly areas in clean rivers and streams where there is a swift flow of water.
- 9.18 New development has the potential to impact the rivers and streams used by the Atlantic Salmon. Any changes to water level, flow rate or water quality on the rivers and streams coming off Dartmoor, even changes that occur well outside the SAC, would have the potential to impact this interest feature.
- 9.19 As a competent authority, the Environment Agency has assessed the effects of existing abstraction licencing on water dependent European sites and has undertaken a Review of Consents. In preparing the South West Water Resources Management Plan all abstraction licences have been reviewed and reductions instigated where necessary for the European site interest. Any further licence applications will be subject to HRA by the Environment Agency. As such, there are strategic mechanisms in place to ensure adverse effects on the integrity of Dartmoor SAC and Salmon can be ruled out, both alone and in-combination. Checks should be made with the Environment Agency prior to the next iteration of the HRA to ensure adequate surplus of water is in place such that all the allocations and the overall quantum of growth set out in GESP can be delivered.

Exe Estuary SPA/Ramsar

- 9.20 The Environment Agency classification for the Estuary under the Water Framework Directive in 2016 are Moderate for both Ecological and Chemical items²³. Issues preventing waters reaching good status and the sectors identified as contributing to them include pollution from towns, cities and transport.
- 9.21 Checks will be necessary with Natural England and the Environment Agency to ensure water quality issues from any growth around the estuary can be accommodated.
- 9.22 Draft Policy GESP37 Clyst Valley Regional Park includes delivery of an improvement in the water quality of the River Clyst and tributaries, thereby achieving Water Framework Directives.

River Axe SAC

- 9.23 The Lower Axe is classified by the Environment Agency in 2016 as in poor overall status²⁴. Reasons include pollution from wastewater and in particular sewage discharge (Phosphate, Macrophytes and Phytobenthos). The supplementary site conservation objectives include targets for water quality, water chemistry and flow. Notably the objectives highlight that the target for maximum phosphorous concentrations is not achievable in 5 years.
- 9.24 A Nutrient Management Plan is in preparation (to be finalised in 2020) to establish how East Devon District Council can ensure housing development in the River Axe catchment can be delivered with no net increase in phosphate within the river. This highlights the issues with the current nutrient levels and the need for significant off-site projects to deliver mitigation, including addressing run-off from farmland in the catchment.
- 9.25 There is one site option with GESP that falls within the Axe catchment: SA-ED-19 Axminster South. For this option to go ahead it will be necessary to have confidence that there will be no net increase in Phosphorous and other nutrients into the Axe. In addition, the site is 400m from the SAC and, from aerial photographs, there appears to be a ditch feeding directly into the

²³ See relevant page in the [Environment Agency Catchment Data Explorer](#)

²⁴ See relevant page in the [Environment Agency Catchment Data Explorer](#)

River. There are therefore potential risks from pollution events during construction, from run-off and contamination from sewage overflow.

- 9.26 These issues will need to be addressed through detailed site design at the masterplan level to give confidence that the site is deliverable without adverse effects on integrity, if the site progresses into the draft GESP. The need to address these issues should be highlighted in the relevant policy wording.

Sidmouth to West Bay SAC

- 9.27 The site improvement plan identifies that the cliff vegetation may be vulnerable to changes in water quality. The issues relate to poor water quality arising from agricultural run off or other human activity landwards of the cliffs. The plan sets out the need for further investigation to ascertain if the SAC is, or could be, affected.
- 9.28 Issues here are therefore local and relate to development close to the SAC and issues such as leaking septic tanks, slurry lagoons etc. Given the no site option has been identified close enough to affect these matters, adverse effects on integrity can be entirely ruled out, both alone and in-combination.

Key findings: Water-related issues

Run-off, outflow from sewage treatments and overflow from septic tanks can result in increased nutrient loads and contamination of water courses. This can have consequences for European sites which contain wetland or aquatic features, as the pollution will affect the ability of the site to support the given interest. Furthermore, abstraction and land management can influence water flow and quantity, resulting in reduced water availability at certain periods or changes in the flow. This can exacerbate issues relating to water quality. These impact pathways can be specific to particular parts of European sites or particular development locations and are also relevant to the overall quantum of development.

Once site options are confirmed, checks are necessary with South West Water and the Environment Agency to ensure that the forecasts in the Water Resources Management Plan do include the quantum of growth set out in GESP and that there are no issues with water supply for any European site. Given that the Water Resources Management Plan does rely on helping customers reduce their water consumption, water efficiency measures could be given greater emphasis in the GESP, in accordance with South West Water advice.

In addition, checks should be made with the Environment Agency and Natural England regarding the following sites or site specific issues related to water.

- Culm Grasslands SAC and water availability;
- Dartmoor SAC and Salmon (which migrate along rivers and therefore also occur outside the SAC), checking water flow in particular;
- Exe Estuary SPA/Ramsar and water quality;

Site option SA-ED-19 is the only site option within the Axe catchment. For this option to go ahead it will be necessary to have confidence that there will be no net increase in Phosphorous and other nutrients into the Axe. In addition, site option SA-ED-19 is 400m from the River Axe SAC and is likely to have direct hydrological surface links to the SAC. As such there are potential risks from pollution events during construction, from run-off and contamination from sewage overflow. If the site progresses into the draft GESP, it will be necessary to have confidence that these issues can be addressed and detailed site design at the masterplan level will be necessary to inform project-level HRA.

10. Appropriate Assessment topic: Air Quality Impacts

Introduction

- 10.1 Increased growth within Local Plans is of relevance to HRAs where increased traffic volumes as a result of new growth will occur in close proximity to European sites hosting habitats that are sensitive to reduced air quality. In addition, Draft Policy GESP14 promotes Exeter Airport, with provision for an improved/enhanced/new terminal building, freight services and aviation training.
- 10.2 Historically, HRA consideration of air quality from traffic emissions has predominantly relied upon the advice given within the Design Manual for Roads and Bridges (DMRB)²⁵, a Highways England publication that provides the national standards for road and bridge design, construction and operation, including assessment of impacts.
- 10.3 A recent and highly relevant judgment from the domestic courts, known as 'the Wealden Judgment', together with a number of European cases and a range of new evidence, advice and guidance to inform HRA assessments in relation to air quality, provides clear reasons for ensuring that this HRA is prepared with full regard for current information, whilst still having regard for the DMRB advice.

Summary of atmospheric pollution

- 10.4 Atmospheric pollutants of concern to sensitive habitats that are derived from vehicles include oxides of nitrogen (NO_x), ammonia (NH₃) and the consequential deposition of nitrogen (N) and acid, which can then lead to changes in species composition and mortality.
- 10.5 It is known that traffic emissions lead to an increase in N, and that this presents a major concern for sensitive habitats. Sites listed in Table 3 are sensitive to increased N, whereby the composition of a plant community changes to favour those that are most successful in high N environments. Critical thresholds, beyond which plant communities may change in response to pollutants, have been developed for a range of habitat types, and are available from the [Air Pollution Information Service](#) (APIS). This

²⁵ See [LA 105 air quality](#), issued Nov 2019

database is funded and provided by the Centre for Ecology and Hydrology and the UK pollution and conservation agencies including Natural Resources Wales (NRW), the Environment Agency, Northern Ireland Environment Agency, Natural England, the Joint Nature Conservation Committee (JNCC), Scotland and Northern Ireland Forum for Environmental Research (SNIFFER), the Scottish Environment Protection Agency (SEPA), and Scottish Natural Heritage (SNH).

10.6 APIS holds data and threshold information specifically in relation to habitat sensitivity rather than human health. Summary information of relevance is given in Table 15.

Table 15: Summary of key air pollutants

Pollutant	Source	National trend	Impact
NO _x	Combustion, mainly vehicles and power stations	Decline (55% since 1986)	Mainly through N deposition, but also gaseous NO _x close to source. Synergy with SO ₂
NH ₃	Natural and anthropogenic; main source is agriculture	Smaller decline which has now flattened	Direct toxicity and N-accumulation

10.7 The main impacts of NO_x and NH₃ are through N deposition and acidification. N deposition can lead to an increase in N loving species at the expense of other species; an increased risk of frost damage in spring, increased sensitivity to drought; increased incidence pest and pathogen attack and direct damage to sensitive species. The impacts of acid deposition are often indirect, resulting from a change of pH in soils and water. Chemical changes lead to nutrient deficiencies, release of toxins and changes in microbial N transformations.

10.8 The implications of the GESP in relation to air quality need to be assessed against background trends and the trajectory of vehicle emission improvements. Assessment of improvements in vehicular technology and in particular Euro6/VI standards that all vehicles are currently being manufactured to, may outweigh impacts from new development. The improvements may be retarded by additional development, but future background levels of nitrogen are expected to decline with Government clean air strategies.

Recent case decisions and guidance

10.9 The GESP is being assessed with the benefit of a number of recent case decisions that provide an interpretation of the application of the Habitats

Regulations and its parent European Directives in relation to air pollution. These are discussed here to highlight their relevance to appropriate assessment.

Guidance on assessing air quality impacts for designated sites

- 10.10 The Design Manual for Roads and Bridges (DMRB) has been the standard source of guidance for considering traffic generated air quality impacts. The DMRB has a specific section (LA105) on air quality, and this highlights the potential for impacts on sensitive habitats within 200m of a road, and the need for further assessment where changes to the road network or traffic volumes might increase daily traffic flows by 1,000 Average Annual Daily Traffic (AADT) or more. This is a simple measurement of change, using the total volume of traffic on a road and dividing it by 365 days to give a daily average.
- 10.11 Natural England and its partner UK statutory nature conservation bodies have a specialist air quality technical group known as the Air Quality Technical Advisory Group (AQTAG). This group regularly meets to discuss key issues in relation to air quality concerns for designated sites and will occasionally issue formal advice notes on key topics. AQTAG21 is an advice note that includes reference to a 1% threshold to be used in air quality assessments. This threshold has been consistently used by the statutory nature conservation bodies over a number of years to indicate where an increase in atmospheric pollutant might be deemed significant. The AQTAG21 refers to a 1% threshold in terms of the relevant critical load for the habitat type. Where the pollutant contribution is less than 1% of the critical load, it is deemed to be inconsequential (*de minimis*) and does not warrant further consideration for likely significant effects.
- 10.12 The Institute of Air Quality Management published guidance in June 2019 entitled 'A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites'.
- 10.13 This guidance contains detailed and relevant advice in relation to the assessment of traffic generated air quality impacts and highlights the 1% threshold as a widely used threshold, below which fluctuations are not likely to be discernible from background fluctuations/measurements, and above which a need for further assessment is identified but does not automatically imply damage will occur.

The Wealden Judgment

- 10.14** Use of the DMRB and AQTAG21 for the purposes of assessing air quality within a plan level HRA was scrutinised through a High Court Judgment²⁶ whereby Wealden District Council challenged the HRA conclusions of the Joint Core Strategy (JCS) for Lewes District and South Downs National Park. Whilst the HRA had made conclusions of no likely significant effect on the basis of growth within the JCS alone, the High Court found that the HRA had failed to consider the combined effect of growth within multiple Local Plans in the vicinity of Ashdown Forest, thus necessitating an appropriate assessment. Natural England's advice given at the time deemed both the DMRB 1000AADT and the 1% of the critical load to be thresholds below which further assessment was not required. The Judgment relies on the caveat set out within AQTAG21, which advises that if there was to be a concentration of plans or projects in the same area, at the same time, then there may be cause for case specific assessment and the 1% threshold may not automatically apply.
- 10.15** In light of this case it is important therefore for any HRA to refer to a range of evidence and advice when considering air quality impacts and the DMRB thresholds, the AQTAG21 advice and the findings of the High Court in the Wealden case should be considered together, alongside any other relevant research and evidence.

European Court - Joined Cases C-293/17 and C-294/17

- 10.16** Coöperatie Mobilisation (Joined Cases C-293/17 and C-294/17) are now being generally referred to as "the Dutch Case" for nitrogen deposition. This Netherlands co-joined case brought before the European Court is an important recent case in the interpretation of the European Directives for plans and projects with potential air pollution impacts. The case focusses on agricultural derived nitrogen deposition, and essentially questions whether it is appropriate to rely on strategic measures to alleviate air pollution that may create capacity for individual projects to be approved despite their individual contribution of additional pollutants.
- 10.17** The European Court Judgment focusses on the fact that where a European site is already deteriorating, projects that then worsen the situation should not be approved, unless there are clear and definitive measures underway to restore the situation and maintain favourable conservation status. The

²⁶ ²⁶ *Wealden v SSCLG (2017)*

Netherlands Government has an approach that relies upon a programme of nitrogen reduction measures. What is key to the assessment of traffic increases relating to Local Plans, and indeed the assessment of any other potential impacts at the plan level, is that the European Court was clear that measures should not be relied upon if they are uncertain, have not yet been carried out, are not certain to take place, or have poor scientific basis.

- 10.18 The case therefore highlights the need to have certainty in any measures being relied upon to allow a conclusion of no adverse effects where they are expected but not yet completed. Importantly, any such measures need to be scientifically certain and secured (in terms of responsibility, finances, practical delivery etc.), rather than just forecasts.

Natural England Guidance

- 10.19 With growing interest from competent authorities in the correct approach to assessing air quality impacts following recent court cases, Natural England has been assisting local planning authorities across the country with advice on what should be considered within an HRA. Natural England has a number of research reports available within its publications webpage.
- 10.20 Caporn et al (2016) highlights that the majority of designated sites in the UK are currently exceeding their critical loads for N deposition, and this is leading to significant changes in these sensitive habitats as a consequence. There are particular concerns in relation to lower plants, which are highly sensitive to N deposition.
- 10.21 Although habitat responses to N deposition are not fully understood, it is apparent that the relationship between increased pollutants and habitat deterioration (declines in species richness and species composition) is not linear. Critical loads identify a point at which significant vegetation change is likely to occur, but changes do not continue on a linear basis beyond the critical threshold.
- 10.22 Natural England's (2018) guidance on their approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations makes it clear that it is for the competent authority, not Natural England, to acquire enough evidence to support its HRA conclusions. Helpfully, the document highlights that the 1% threshold can be used to establish whether further assessment is necessary, but should not be used to determine whether an adverse effect can or cannot be ruled out.

- 10.23 Importantly, this document indicates that traffic management measures and habitat management measures or interventions that limit the dispersal of traffic emissions might constitute mitigation measures.
- 10.24 It is concluded that whilst these measures alone do not enable a conclusion of no adverse effect as the extent of their effectiveness is not yet quantified, they can be considered as additional measures that positively support such a conclusion.

Impacts

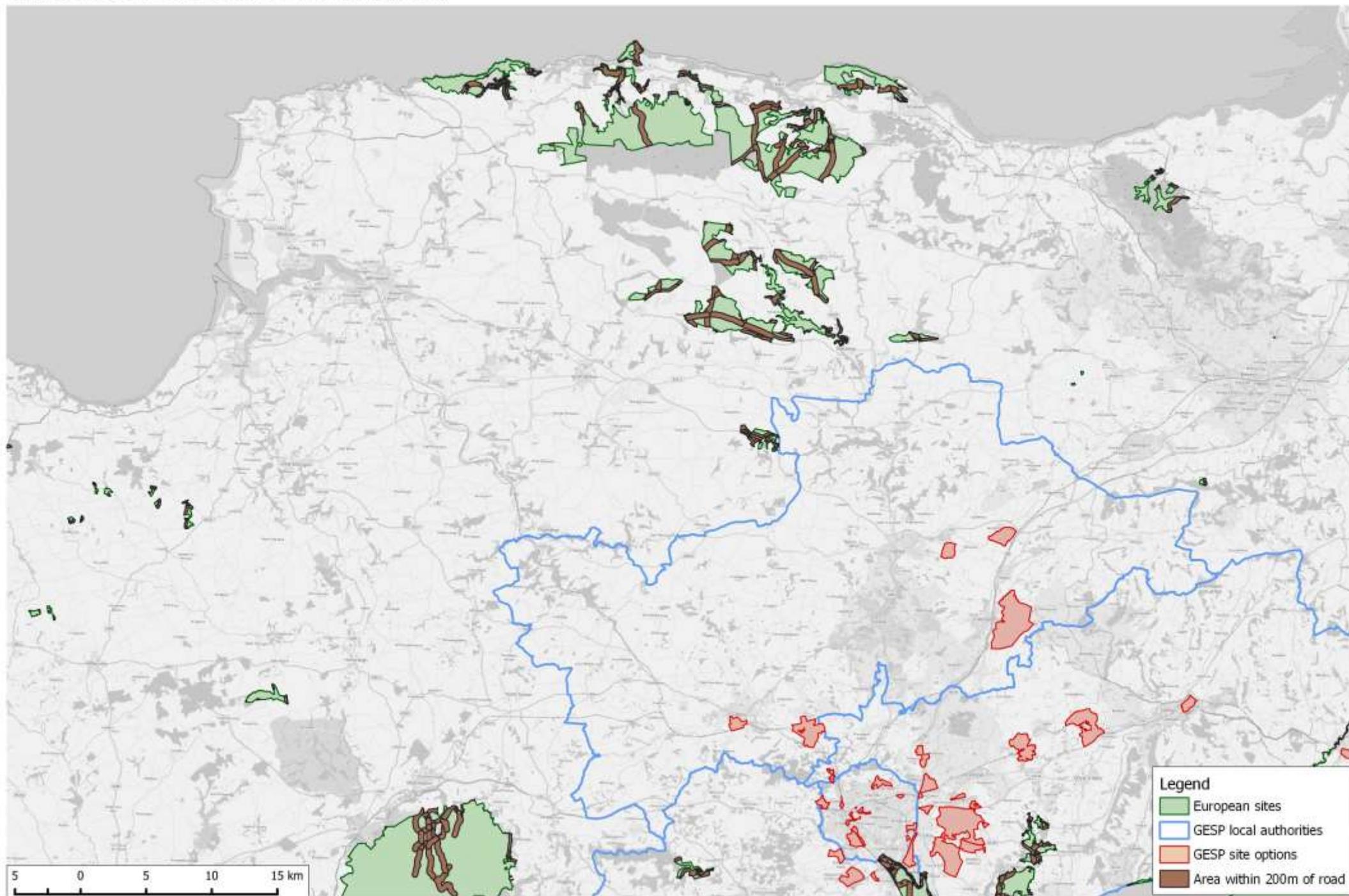
- 10.25 In Appendix 5 we summarise features of relevant sites where there are potential risks from air pollution derived from traffic. In Appendix 6 we summarise impacts from air pollution on the interest features, listing impacts for relevant species and habitats.

Relevant sites

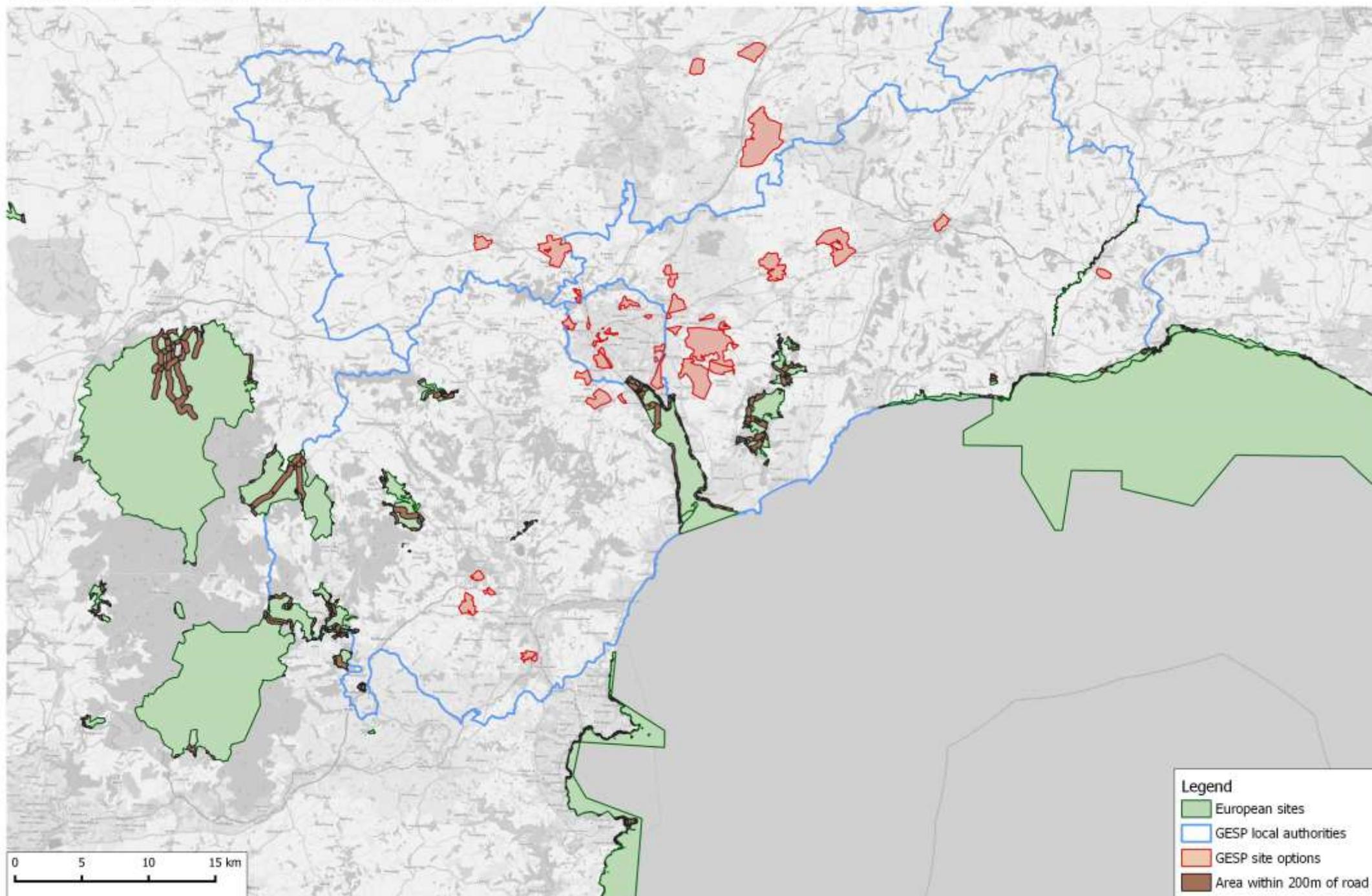
- 10.26 All site options and the overall quantum of growth will potentially result in increased traffic, and therefore air quality issues will be triggered by all growth. Given the distribution of the options and their scale, there will be differences in the scale of impact and this can only be ascertained through traffic modelling work. Further consideration is necessary to consider the overall cumulative effects of traffic increases associated with GESP in context with the traffic forecasts and traffic increases associated with growth in local plans.
- 10.27 For each European site for which air pollution has been identified as a possible impact pathway, Map 8 and Map 9 show the area of each site that falls within 200m of an A or B road or motorway. These are the Culm Grasslands SAC, Exe Estuary SPA/Ramsar, East Devon Pebblebed Heaths SPA/SAC, Dartmoor SAC, Exmoor Heaths SAC, Exmoor and Quantock Oakwoods SAC, River Axe SAC, South Dartmoor Woods SAC and South Hams SAC. Further checks are required involving modelling to predict changes in traffic and, based on the results of the traffic modelling, air quality modelling may also be required to inform later iterations of the HRA.
- 10.28 While, at this stage, it is important not to pre-empt the results of any such modelling work, it should be noted that Dartmoor SAC Exmoor Heaths SAC and the Exmoor and Quantock Oakwoods SAC lie well away from any of the GESP site options and implications for these sites may therefore be relatively low – from road traffic at least.

- 10.29 Further checks are necessary with respect to the Airport and the implications for air quality.

Map 8: European sites within 200m of roads (north)



Map 9: European sites within 200m of roads (south)



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Table 16: The area of each European site that falls within 200m of different classes of road (minor and unclassified roads are excluded). The area figures take into account overlaps between roads (e.g. at junctions) – so for example the value for B roads at a particular European site is for B roads only and excludes any area that is within 200m of an A road and a B road. Note that the figures for the Culm Grassland SAC relate to Hare’s Down, Knowstone and Rackenford Moors SSSI only. Red shading reflects A roads and blue shading the Motorway

European site	Class	Area (ha) within 200m	% of European site
Culm Grasslands SAC (Hare’s Down, Knowstone and R’ford Moors SSSI only)	A Road	87.28	39
Dartmoor SAC	B Road	227.98	1
East Devon Pebblebed Heaths SAC/SPA	A Road	44.8	4
	B Road	156.94	14
Exe Estuary SPA/Ramsar	Motorway	38.65	2
	A Road	60.88	3
Exmoor & Quantock Oakwoods SAC	A Road	253.04	13
	B Road	200.28	11
Exmoor Heaths SAC	A Road	56.86	1
	B Road	244.37	2
River Axe SAC	A Road	2.38	10
	B Road	1.19	5
South Dartmoor Woods SAC	B Road	65.52	3
South Hams SAC	A Road	8.49	7
	B Road	8.239	6

Key Findings: Air Quality

Nine of the European sites that are within 20km of the GESP area have roads within 200m of the site boundary. These are the Culm Grasslands SAC, Exe Estuary SPA/Ramsar, East Devon Pebblebed Heaths SPA/SAC, Dartmoor SAC, Exmoor Heaths SAC, Exmoor and Quantock Oakwoods SAC, River Axe SAC, South Dartmoor Woods SAC and South Hams SAC. For these sites it will be necessary to understand the potential increase in traffic as a result of GESP and in addition the in-combination increase with other relevant plans, in context with any background traffic growth forecasts. If, in-combination, traffic volumes increase by more than 1000 AADT on roads within 200m of a European site, air quality modelling will be required. Issues will be particularly important where existing critical loads for N deposition are already exceeded or approaching exceedance. Without this traffic modelling it will not be possible to rule out adverse effects on integrity.

Further understanding of the impacts of the airport growth on air quality are necessary and it may be that any modelling work needs to also consider the implications of draft policy GESP14 Exeter Airport.

Modelling results should be checked with Natural England and in addition advice will be sought from Natural England regarding the progress with the Site Nitrogen Action Plans referred to in the relevant Site Improvement Plans and also to clarify how to interpret any modelling results with respect to those species and habitats for which there are not critical loads, including water courses, Barbestelle and Bechstein's bats.

11. Conclusions and Next Steps

- 11.1 This initial HRA report has been produced at the Draft Policies and Site Options consultation stage of the GESP. In carrying out this initial review of HRA matters we have been able to provide recommendations from the screening assessment for policy wording changes (which have been incorporated into the consultation document), and also identified key topic areas for consideration at appropriate assessment. For several these topic areas we have identified where further evidence gathering and information will be required, these are summarised in Table 17. The evidence required will be informed by which site options progress into the draft GESP.
- 11.2 This report will continue to be updated and reviewed at each plan making stage. Comments on this report will be invited alongside the GESP Draft Policies and Site Options consultation, and feedback will be considered as the HRA is updated. The next stage is the public consultation on the Draft Policies and Site Options, which may yield consultation responses that specifically relate to the HRA work undertaken to date and the scope of the appropriate assessment. Any such responses will be considered as the HRA is updated. The next stage of GESP is the Draft Plan when the options will be finalised. At that stage the HRA report will include detailed appropriate assessment.
- 11.3 It is currently too early to give a conclusion that the plan will not lead to any adverse effects on European sites and a number of key issues have been identified that require significant further work. This work will inform the next iteration of the HRA when it will be clear which site options are included, there will be more evidence on some of the issues and there will be greater clarity on mitigation. This will allow the appropriate assessment stage of the next iteration to consider whether adverse effects on integrity can be ruled out, alone or in-combination.

Table 17: Summary of impact pathways, relevant policies and site options, European sites and further evidence gathering required.

Impact Pathway	Report Section	Draft Policies	Site Options	Risk to European Site	Key evidence and information required for appropriate assessment
General Urbanisation Effects	5	None	SA-EX-3 Land between M5 and Topsham	Exe Estuary SPA/Ramsar	Master planning or site plans need to take into account the risk to the Estuary and further checks should be undertaken when further details are available to ensure the site can be delivered without adverse effects on integrity from urban effects.
		None	SA-ED-19 Axminster South	River Axe SAC	Survey work to inform the layout and design of the site to ensure risks from invasive species can be addressed.
Bat SACs and Loss of Supporting Habitat, Fragmentation and Collision Risk	6	GESP29 – Highway Links and Junction Improvements	SA-T-3 Land West of Houghton Barton; SA-T-5 Priory Road; SA-T-8 Land North of Forches Cross; SA-T-18 Peamore; SA-T-22 Ilford Park;	South Hams SAC	Survey work to check for the presence and use of the area by Greater Horseshoe Bats. The results from the survey work will need to feed into the master planning and the boundary or scale of the site option may need to be revised. For SA-T-8 and SA-T-22 it will be necessary for the survey work to check the use of the mitigation features and ensure they can continue to function in the long-term. For all 5 housing site options, if progressed into the plan, a tailored bat mitigation plan is likely to be required to ensure adverse effects on integrity can be ruled out.
Loss/impacts to supporting habitat around European sites (non-bat sites)	7	None	SA-ED-7 Higher Greendale SA-ED-3 Hill Barton SA-ED-2 Oil Mill Lane SA-ED-8 Airport Business Park SA-ED-12 Whimble SA-ED-5 North of Exeter Airport SA-ED-15 Feniton SA-EX-3 Land between M5 and Topsham	East Devon Heaths SPA	Surveys done prior to any master planning to ensure any areas important to foraging Nightjar or routes used can be protected and enhanced. Such survey work will be complex and potentially involve tagging Nightjars. Results may have implications for the amount of housing feasible in particular locations.

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Impact Pathway	Report Section	Draft Policies	Site Options	Risk to European Site	Key evidence and information required for appropriate assessment
		None	SA-MD-12 Area south of Sampford Peverell; SA-MD-9 East of Cullompton; SA-MD-18 Honiton East; SA-MD-15 Feniton; SA-MD-10 Land at Hartnoll Farm.	Quants SAC	Checks by a suitably qualified ecologist for any suitable Marsh Fritillary habitat and a detailed and thorough check made for records of the species. Masterplans or dedicated mitigation plans will then need to ensure any suitable habitat and connectivity are maintained and enhanced.
		None	SA-MD-12 Area south of Sampford Peverell; SA-MD-10 Land at Hartnoll Farm.	Culm Grasslands SAC	Checks by a suitably qualified ecologist for any suitable Marsh Fritillary habitat and a detailed and thorough check made for records of the species. Masterplans or dedicated mitigation plans will then need to ensure any suitable habitat and connectivity are maintained and enhanced.
Recreation	8	GESP36 (Exe Estuary, Dawlish Warren and East Devon Pebblebed Heaths) and the South-east Devon European Site Mitigation Strategy; GESP 16 Housing Target and distribution	SA-ED-3 Hill Barton SA-EX-10 Marsh Barton SA-ED-2 Oil Mill Lane SA-ED-15 Feniton SA-ED-12 Whimple SA-ED-25 Westclyst & Mosshayne Farms SA-EX-6 Water Lane SA-EX-3 Land between M5 and Topsham SA-T-18 Peamore SA-ED-7 Higher Greendale SA-EX-19 East Gate	Exe Estuary SPA/Ramsar; Dawlish Warren SAC; East Devon Pebblebed Heaths SAC/SPA	Listed site options fall within the area covered by the existing mitigation strategy. The strategy needs to be updated and finalised alongside GESP so that mitigation requirements are clear and suitable mechanisms for timely delivery are secured. GESP36 is the relevant policy setting out mitigation requirements and this cross-references to the strategy. The size of the allocations and their locations will mean a significant quantum of alternative greenspace (SANG) will need to be secured.

GESP HRA: Draft Policies and Site Options Consultation

Impact Pathway	Report Section	Draft Policies	Site Options	Risk to European Site	Key evidence and information required for appropriate assessment
			<p>SA-T-17 Markham Lane, Ide</p> <p>SA-EX-26 Sandy Gate</p> <p>SA-EX-4 North of Stoke Hill</p> <p>SA-EX-5 Land adjacent Exeter St David's Station</p> <p>SA-EX-22 West Gate</p> <p>SA-ED-26 Cowley</p> <p>SA-EX-1 Attwells, North of Exwick</p> <p>SA-EX-7 North Gate</p> <p>SA-EX-8 South Gate</p> <p>SA-EX-18 Pinhoe Trading Estate</p> <p>SA-T-16 West of Exminster</p> <p>SA-EX-23 Land between South, Market and Fore Street</p> <p>SA-EX-9 Howell Road Car Park</p>		
		None	SA-ED-19 Axminster South	River Axe SAC	Risks from recreation pressure for the SAC in the vicinity of the allocation will need to be resolved through an access and visitor management plan.
		GESP 16 Housing Target and distribution	Further checks required	Dartmoor SAC and S. Dartmoor Woods SAC	Further discussions with the National Park Authority and neighbouring local authorities to review risks to the SACs, monitoring and potential mitigation measures.

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Impact Pathway	Report Section	Draft Policies	Site Options	Risk to European Site	Key evidence and information required for appropriate assessment
		GESP 25 Long Distance Trails	None	Exe Estuary SPA/Ramsar	Further information on the location, route and how this will link with the existing cycle trails around estuary will be necessary. These design elements will need to feed into the next iteration of the HRA.
		GESP 31 Settlement Specific Enhancements	None	Exe Estuary SPA/Ramsar; Dawlish Warren SAC; East Devon Pebblebed Heaths SAC/SPA	Further details of design and likely use are necessary to feed into the next iteration of the HRA.
Water-related issues	9	None	All	Culm Grasslands SAC Dartmoor SAC East Devon Pebblebed Heaths SAC River Axe SAC	Once site options are confirmed, checks with South West Water and the Environment Agency to ensure that the forecasts in the WRMP do include the quantum of growth set out in GESP and that there are no issues with water supply for any European site. Given that the WRMP does rely on helping customers reduce their water consumption, water efficiency measures could be given greater emphasis in the GESP, in accordance with South West Water advice.
		None	Further checks required	Dartmoor SAC	Further information gathering required on Salmon and impacts of water quality and flow for rivers feeding from Dartmoor SAC.
		None	Further checks required	Exe Estuary SPA/Ramsar	As site options finalised, confirmation required that adequate capacity exists within Waste Water Treatment Works and to ensure water quality issues from any growth around the estuary can be accommodated
		None	SA-ED-19 Axminster South		For this option to go ahead it will be necessary to have confidence that there will be no net increase in Phosphorous and other nutrients into the Axe. In addition, there are potential risks from pollution events during construction and from run-off and contamination from sewage overflow. If the site progresses into the draft GESP, it will be necessary to have confidence that these issues can be addressed and

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Impact Pathway	Report Section	Draft Policies	Site Options	Risk to European Site	Key evidence and information required for appropriate assessment
					detailed site design at the masterplan level will be necessary to inform project-level HRA.
Air Quality	10	GESP 9 Economic targets; GESP 10 Transformational sectors, GESP 11 Employment land; GESP 14 Exeter Airport; GESP 116 Housing target and distribution	All	Culm Grasslands SAC, Exe Estuary SPA/Ramsar, East Devon Pebblebed Heaths SPA/SAC, Dartmoor SAC, Exmoor Heaths SAC, Exmoor and Quantock Oakwoods SAC, River Axe SAC, South Dartmoor Woods SAC South Hams SAC	Traffic modelling required to identify scale of change in traffic as a result of GESP. Air quality modelling work likely to also be required to identify impacts from changes in traffic flow.

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Appendix 1: Conservation Objectives

- 12.1 As required by the Directives, 'Conservation Objectives' have been established by Natural England, which should define the required ecologically robust state for each European site interest feature. All sites should be meeting their conservation objectives. When being fully met, each site will be adequately contributing to the overall favourable conservation status of the species or habitat interest feature across its natural range. Where conservation objectives are not being met at a site level, and the interest feature is therefore not contributing to overall favourable conservation status of the species or habitat, plans should be in place for adequate restoration.
- 12.2 Natural England has embarked on a project to renew all European site Conservation Objectives, in order to ensure that they are up to date, comprehensive and easier for developers and consultants to use to inform project level HRAs in a consistent way. In 2012, Natural England issued a set of generic European site Conservation Objectives, which should be applied to each interest feature of each European site. These generic objectives were the first stage in the project to renew conservation objectives, and the second stage, which is to provide more detailed and site-specific information for each site to support the generic objectives, has also been completed.
- 12.3 The list of generic Conservation Objectives for each European site includes an overarching objective, followed by a list of attributes that are essential for the achievement of the overarching objective. Whilst the generic objectives currently issued are standardised, they are to be applied to each interest feature of each European site, and the application and achievement of those objectives will therefore be site specific and dependant on the nature and characteristics of the site. The second stage, provision of the more supplementary information to underpin these generic objectives, is nearing completion and is now providing much more site-specific information, and this detail will play a fundamental role in informing HRAs, and importantly will give greater clarity to what might constitute an adverse effect on a site interest feature. Natural England advises that HRAs should be supported by comprehensive and up to date background information that is locally relevant.
- 12.4 For SPAs, the overarching objective is to:
- 'Avoid the deterioration of the habitats of qualifying features, and the significant disturbance of the qualifying features, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving the aims of the Birds Directive.'*

12.5 This is achieved by, subject to natural change, maintaining and 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 populations of the qualifying features.
- The distribution of the qualifying features within the site.

12.6 For SACs, the overarching objective is to:

'Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.'

12.7 This is achieved by, subject to natural change, maintaining and restoring:

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

12.8 Conservation objectives inform any HRA of a plan or project, by identifying what the interest features for the site should be achieving, and what impacts may be significant for the site in terms of undermining the site's ability to meet its conservation objectives. Site specific supplementary advice highlights the importance of typical species, processes or ecological characteristics that are critical to the interest features of the site. Within the supplementary advice these are normally referred to as 'attributes' and can refer to a range of ecological characteristics such as population number, extent of habitat or a supporting process such as hydrology. Each attribute has a 'target' for the required condition of the attribute.

12.9 In Appendix 2 the hyper-links cross reference to the relevant conservation objectives page (on the Natural England website) for all the relevant European sites.

Appendix 2: Summary of European Sites

Summary of European sites and their interest features. Links in the site column relate to the conservation objectives for each site or (in the case of the Ramsar sites) the relevant page with the information sheet on the Natural England website. # in the interest features column denotes an interest feature for which the UK has a special responsibility. Descriptions are drawn from the description in the relevant site improvement plans.

Site	Interest features	Description
Beer Quarry & Caves SAC	S1303 <i>Rhinolophus hipposideros</i> : Lesser horseshoe bat S1304 <i>Rhinolophus ferrumequinum</i> : Greater horseshoe bat S1323 <i>Myotis bechsteinii</i> : Bechstein`s bat	This complex of abandoned mines in south-west England is divided in two by a road, with a working quarry to the north and a disused quarry and cave system to the south. This site supports important populations of hibernating bats. Its use as a hibernation site by the Bechstein's Bat is the primary reason for its designation as a SAC. The area also supports a significant presence of both the Lesser Horseshoe Bat and the Greater Horseshoe Bat which are both qualifying features but are not primary reasons for the site's selection.
Bracket's Coppice SAC	S1323 <i>Myotis bechsteinii</i> : Bechstein`s bat H6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)	Bracket's Coppice lies close to Corscombe in the vales of West Dorset. The site comprises oak and ash woodland, wooded stream valleys, and a mosaic of herb rich grassland and fen-meadow contained within small fields bounded by tall native hedges. The site is designated for Bechstein's bat and Purple moor-grass <i>Molinia</i> meadow. One of the first maternity colonies of Bechstein's bat was discovered using bat-boxes in this small woodland.
Culm Grasslands SAC	H4010 Northern Atlantic wet heaths with <i>Erica tetralix</i> H6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)	Culm Grasslands represents Molinia meadows in south-west England. This site contains extremely diverse examples of the heathy type of M24

Site	Interest features	Description
	S1065 <i>Euphydryas (Eurodryas, Hypodryas) aurinia</i> : Marsh Fritillary butterfly	<i>Molinia caerulea</i> – <i>Cirsium dissectum</i> ; fen-meadow, ranging from short, grazed swards through to stands that are transitional to scrub. Structural diversity accounts for the conservation of a wide range of flora and fauna, particularly of species characteristic of south-western Europe, such as meadow thistle <i>Cirsium dissectum</i> and whorled caraway <i>Carum verticillatum</i> . Culm Grasslands contains the largest cluster of sites for Marsh fritillary <i>Euphydryas aurinia</i> in the south-west peninsula. It is judged to be the most important location for the species in its major south-west stronghold.
Dartmoor SAC	H4010 Northern Atlantic wet heaths with <i>Erica tetralix</i> H4030 European dry heaths H7130# Blanket bogs H91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles S1044 <i>Coenagrion mercuriale</i> : Southern damselfly S1106 <i>Salmo salar</i> : Atlantic salmon S1355 <i>Lutra lutra</i> : Otter	Dartmoor SAC consists of three separate blocks of upland within the Dartmoor National Park. These three constituent upland blocks contain a diverse range of habitats including large scale mosaics of wet and dry heaths and the most southerly upland peat masses in the UK. These habitats support a range of bird and invertebrate species including Southern damselfly. There are small areas of upland oak woods which support rare bryophyte species.
East Devon Pebblebed Heaths SAC	H4030 European dry heaths S1044 <i>Coenagrion mercuriale</i> : Southern damselfly H4010 Northern Atlantic wet heaths with <i>Erica tetralix</i>	The East Devon Pebblebed Heaths is the largest block of lowland heath in Devon, and it is internationally important for its Northern Atlantic wet heaths and extensive areas of lowland European dry heaths. The diversity of heathland reflects the varied topography, geology, hydrology and water chemistry of the area, and supports associated plant and animal communities. Among the 21 breeding dragonfly

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Site	Interest features	Description
East Devon Heaths SPA	A302(B) <i>Sylvia undata</i> : Dartford warbler A224(B) <i>Caprimulgus europaeus</i> : European nightjar	species recorded at the site is the southern damselfly, an Annex II species. The East Devon Pebblebed Heaths is the largest block of lowland heath in Devon. There is an important assemblage of birds, and breeding European nightjar and Dartford warbler afford the site SPA status.
Dawlish Warren SAC	H2190 Humid dune slacks S1395 <i>Petalophyllum ralfsii</i> : Petalwort H2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes") H2130# Fixed dunes with herbaceous vegetation ("grey dunes")	Dawlish Warren is a geomorphologically important sand spit which protects the mouth of the Exe estuary. Herb-rich neutral grassland hosts the only mainland population of the Warren sand crocus. A mosaic of reed bed, marsh, scrub and open water support several nationally rare plants.
Exe Estuary SPA	A141(NB) <i>Pluvialis squatarola</i> : Grey plover A046a(NB) <i>Branta bernicla bernicla</i> : Dark-bellied brent goose A132(NB) <i>Recurvirostra avosetta</i> : Pied avocet A156(NB) <i>Limosa limosa islandica</i> : Black-tailed godwit Waterbird assemblage A149(NB) <i>Calidris alpina alpina</i> : Dunlin A007(NB) <i>Podiceps auritus</i> Slavonian grebe A130(NB) <i>Haematopus ostralegus</i> : Eurasian oystercatcher	The Exe estuary is of international importance for wintering and migratory wetland birds. It is also of national importance for its marine life, especially that associated with intertidal sand and mud flats. Dawlish Warren is a geomorphologically important sand spit which protects the mouth of the Exe estuary. Salt marsh in the lee of the spit is an important habitat and provides a winter roost for wildfowl and waders, particularly dark-bellied Brent geese and oystercatcher.
Exe Estuary Ramsar	Waterfowl assemblage of international importance (under criterion 5) Species/populations occurring at levels of international importance (under criterion 6): <i>Branta bernicla bernicla</i> : Dark-bellied brent goose	As above.
Exmoor & Quantock Oakwoods SAC	H91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles H91E0# Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)	The SAC is nearly 1900 ha and has some of the largest woodlands in lowland England, including Horner Woods and Watersmeet, in seven blocks

Site	Interest features	Description
	<p>S1308 <i>Barbastella barbastellus</i>: Barbastelle bat S1323 <i>Myotis bechsteinii</i>: Bechstein`s bat S1355 <i>Lutra lutra</i>: Otter</p>	<p>separated by semi-natural habits or farmland and in the case of The Quantocks by Taunton Vale. The woodland is mainly ancient, semi-natural sessile oak woodland with rich lichen and bryophyte communities, occupying steep sided valleys. In some places, there are long transitions to other semi-natural habitats; small areas of heaths/scrub, grassland/bracken and small areas of sea cliffs, conifer or mixed woodland are included in the SAC. The European interest features represented include: Old sessile oak woods with holly and hard fern, Alluvial forests with alder and ash, Barbastelle and Bechstein`s bat, otter.</p>
<p>Exmoor Heaths SAC</p>	<p>H4030 European dry heaths H91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles H7130# Blanket bogs H7230 Alkaline fens H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts H4010 Northern Atlantic wet heaths with <i>Erica tetralix</i></p>	<p>Exmoor Heaths SAC is primarily designated for its European dry heaths, Northern Atlantic wet heaths, Blanket bogs and Vegetated sea cliffs. It also has some Old sessile oak woodland and very small areas of Alkaline fen. The wet heath is extremely variable in nature and has in places been modified by management, particularly burning. The Exmoor heaths are also important as the largest stronghold for the heath fritillary butterfly <i>Mellicta athalia</i>, associated with sheltered slopes in the transition to woodland.</p>
<p>Hestercombe House SAC</p>	<p>S1303 <i>Rhinolophus hipposideros</i>: Lesser horseshoe bat</p>	<p>Hestercombe House SAC is a Lesser horseshoe bat summer maternity roost and winter hibernacula of national importance in the vale of Taunton Deane. It consists of two roof voids within the former stable block and main house of Hestercombe House - a former country house and estate consisting of mixed woodland,</p>

Site	Interest features	Description
		<p>pasture, lakes and landscaped garden. This site holds a significant number of bats, and has been included as representative of the species in south-west England. The UK holds one of the largest populations of this species in western Europe.</p>
<p>Holme Moor & Clean Moor SAC</p>	<p>H6410 <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caerulea</i>) H7210# Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> H7230 Alkaline fens</p>	<p>Holme Moor and Clean Moor SAC is important as alkaline/calcareous fen, with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>, and is highly species rich, with transitions from <i>Cladium</i> fen to mire with Black Bog-Rush and Blunt-Flowered Rush. It consists of fen, marsh and swamp habitats associated with high water tables fed by base rich, nutrient poor ground water, and has <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils. Clean Moor supports the only Black bog-rush - Blunt-flowered rush calcareous flush community in Somerset, and Holme Moor supports a rare swamp community dominated by Great Fen-Sedge. Both sites are the only Somerset sites for Broad-leaved Cotton Grass.</p>
<p>Lyme Bay & Torbay SAC</p>	<p>H1170 Reefs H8330 Submerged or partially submerged sea caves</p>	<p>The two sections of the Lyme Bay and Torbay SAC off the Devon coast of England contain a greater diversity of habitats than found in other existing SACs in the Western English Channel and Celtic Sea. Within the Lyme Bay Reefs portion, bedrock and stony reef, boulders and cobble and sediments comprise a type of reef uncommon in the region. This complex and diverse reef habitat supports particularly high species richness. Hydroids, anemones, sea squirts, sponges and</p>

Site	Interest features	Description
		<p>corals populate the area to the extent the area has been identified as a marine biodiversity 'hotspot.' The pink sea fan and the nationally rare southern cup coral is found throughout the site. The diverse geology of the 'Mackerel Cove to Dartmouth Reefs' in Torbay, limestone reefs and outcrops, sandstone, slate reef, granite outcrops, and stony reef, supports a similarly rich assemblage of animal communities, including an extensive coverage of kelp and blue mussel communities on shallower reefs, and species of sponge, anemone, soft corals and crustaceans on the deeper reefs. The area also contains a diversity of wave-eroded sea caves at Babbacombe to Hopes Nose and Broad Sands to Berry Head. The freshwater and saltwater mix in these caves makes them some of the best examples of coastal solution caves in the UK. The caves also support a richness of animal life including many nationally significant species such as sponges, pink sea fingers, burrowing anemones and southern cup coral.</p>
<p>Quants SAC</p>	<p>S1065 <i>Euphydryas (Eurodryas, Hypodryas) aurinia</i>: Marsh fritillary butterfly</p>	<p>This damp and sheltered site supports a medium-sized but strong marsh fritillary population in a neutral grassland/fen mosaic. It is strategically placed close to other smaller sub-populations, with which it forms a metapopulation, and may exchange individuals with the large population at Southey Moor (outside the SAC series).</p>
<p>River Axe SAC</p>	<p>S1095 <i>Petromyzon marinus</i>: Sea Lamprey</p>	<p>The lower reaches of the River Axe feature a mixed catchment geology of sandstones and</p>

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Site	Interest features	Description
	<p>H3260 Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation S1096 <i>Lampetra planeri</i>: Brook Lamprey S1163 <i>Cottus gobio</i>: Bullhead</p>	<p>limestones giving rise to calcareous waters and associated Water-Crowfoots <i>Ranunculion fluitantis</i> and Water-Starworts <i>Callitricho batrachion</i>. The river also supports the significant presence of Sea Lamprey, Brook Lamprey and Bullhead</p>
<p>Sidmouth to West Bay SAC</p>	<p>H1210 Annual vegetation of drift lines H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts H9180# <i>Tilio-Acerion</i> forests of slopes, screes and ravines</p>	<p>Sidmouth to West Bay is an example of a highly unstable soft cliff coastline subject to mudslides and landslips. The principal rock types are soft mudstones, clays and silty limestones, with a small chalk outlier in the west. Vegetation is very varied and includes pioneer communities on recent slips, calcareous grassland and scrub on detached chalk blocks, and extensive self-sown woodland dominated by ash <i>Fraxinus excelsior</i> or sycamore <i>Acer pseudoplatanus</i>. This mosaic of habitats makes this site rich in invertebrates, especially bees and wasps. The Red Data Book lichen <i>Parmelia quercina</i> occurs on ash <i>Fraxinus excelsior</i> trees.</p>
<p>Somerset Levels & Moors SPA</p>	<p>A142(NB) <i>Vanellus vanellus</i>: Northern Lapwing A037(NB) <i>Cygnus columbianus bewickii</i>: Bewick Swan A140(NB) <i>Pluvialis apricaria</i> : European Golden Plover A052(NB) <i>Anas crecca</i>: Eurasian Teal Waterbird assemblage</p>	<p>The Somerset Levels and Moors are located in south-west England and are one of the largest and richest areas of traditionally managed wet grassland and fen habitats in lowland UK. The SPA is within this area, and covers about 35,000 ha in the floodplains of the Rivers Brue, Parrett, Tone and their tributaries. The majority of the site is only a few metres above mean sea level and drains through a large network of ditches, rhynes, drains and rivers. Flooding may affect large areas in winter depending on rainfall and tidal conditions. Parts of the site in the Brue Valley include areas of former raised peatbog</p>

Site	Interest features	Description
		that have now been substantially modified by agricultural intensification and peat extraction. This has created areas of open water, fen and reedbed. The site attracts important numbers of waterbirds (swans, ducks and waders) in winter.
Somerset Levels & Moors Ramsar	17 species of red-listed invertebrate (under criterion 2) Waterfowl assemblage of international importance (under criterion 5) Species/populations occurring at levels of international importance (under criterion 6): <i>Cygnus columbianus bewickii</i> : Bewick Swan <i>Anas crecca</i> : Eurasian Teal <i>Vanellus vanellus</i> : Northern Lapwing	See above
South Dartmoor Woods SAC	H4030 European dry heaths H91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles	The SAC consists of fine examples of old sessile oak woods, some of the best remaining in South Devon. The SAC forms a complex mosaic of woodland, grassland and heathland, with rare lichen species and nationally rare species of Pearl Border Fritillary and High Brown Fritillary.
South Hams SAC	H8310 Caves not open to the public H6210# Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) H4030 European dry heaths H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts H9180# <i>Tilio-Acerion</i> forests of slopes, screes and ravines S1304 <i>Rhinolophus ferrumequinum</i> : Greater Horseshoe Bat	The South Hams SAC is comprised of several but separate component SSSIs. The SAC is thought to hold the largest population of Greater horseshoe bat in the UK, and is the only one containing more than 1,000 adult bats. It contains the largest known maternity roost in the UK and possibly Europe. The site contains both maternity and hibernation sites. Many of the roosts are within caves not open to the public. The SAC is important for its extensive limestone grassland, some areas on the plateau support European dry heath characteristic of acid soil. The limestone headland cliffs of Torbay support calcareous grassland and scrubland facies. The site is

Site	Interest features	Description
		<p>exceptional in that it supports a number of rare and scarce vascular plants typical of the oceanic southern temperate and Mediterranean-Atlantic elements of the British flora. The SAC also supports areas of <i>Tilio-Acerion</i> ravine forest which is woodland containing ash, wych elm and small leaved lime and field maple.</p>
<p>West Dorset Alder Woods SAC</p>	<p>H6410 <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) H9190 Old acidophilous oak woods with <i>Quercus robur</i> on sandy plains H91E0# Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) S1065 <i>Euphydryas</i> (<i>Eurodryas</i>, <i>Hypodryas</i>) <i>aurinia</i>: Marsh Fritillary butterfly S1166 <i>Triturus cristatus</i>: Great Crested Newt</p>	<p>The SAC comprises mixed ash-alder woods found along the sinuous valleys in West Dorset. They have developed along the headwaters of alkaline streams and seepages having their origin in the chalk downland and issuing from the underlying Upper Greensand at its junction with the Gault Clay. The wetter woods or carr form transitions to drier oak-ash woodland as well as associated further transitions to base-rich fens, reedswamp, fen meadow and acid grassland.</p>

Appendix 3: Site pressures and threats for relevant European sites

The table lists the threats and pressures identified for each European site in the relevant site improvement plan. The links are for the relevant plan and the threats/pressures are listed in prioritised order.

Site	Site pressures and threats
Beer Quarry & Caves SAC	<ol style="list-style-type: none"> 1 Direct impact from third party 2 Planning permission: general 3 Habitat vulnerability 4 Inappropriate scrub control 5 Habitat connectivity
Bracket's Coppice SAC	<ol style="list-style-type: none"> 1 Undergrazing 2 Deer 3 Air pollution: impact of atmospheric nitrogen deposition
Culm Grasslands SAC	<ol style="list-style-type: none"> 1 Air pollution: impact of atmospheric nitrogen deposition 2 Agricultural management practices 3 Hydrological changes 4 Change in land management 5 Changes in species distributions 6 Invasive species 7 Inappropriate scrub control 8 Agricultural management practices 9 Direct impact from 3rd party
Dartmoor SAC	<ol style="list-style-type: none"> 1 Hydrological changes 2 Wildfire/arson 3 Air pollution: impact of atmospheric nitrogen deposition 4 Water pollution 5 Overgrazing 6 Undergrazing 7 & 8 Invasive species 9 Change in land management

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Site	Site pressures and threats
	10 Disease
East Devon Pebblebed Heaths SAC/SPA	<ul style="list-style-type: none"> 1 Inappropriate scrub control 2 Undergrazing 3 Change in land management 4 Public access/disturbance 5 Air pollution: impact of atmospheric nitrogen deposition 6 Water pollution 7 Hydrological changes
Exe Estuary SPA and Dawlish Warren SAC	<ul style="list-style-type: none"> 1 Public access/disturbance (affecting birds) 2 Changes in species distributions 3 Coastal squeeze 4 Change in land management 5 Public access/disturbance (visitor pressure at Dawlish Warren) 6 Fisheries: Commercial marine and estuarine
Exmoor & Quantock Oakwoods SAC	<ul style="list-style-type: none"> 1 Invasive species 2 Forestry and woodland management 3 Disease 4 Air pollution: impact of atmospheric nitrogen deposition 5 Change in land management 6 Deer
Exmoor Heaths SAC	<ul style="list-style-type: none"> 1 Air pollution: impact of atmospheric nitrogen deposition 2 Drainage 3 Inappropriate pest control 4 Agricultural management practices 5 Invasive species 6 Managed rotational burning 7 Change in land management 8 Direct impact from 3rd party
Hestercombe House SAC	<ul style="list-style-type: none"> 1 Changes in species distributions 2 Inappropriate scrub control 3 Public access/disturbance

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Site	Site pressures and threats
	<ul style="list-style-type: none"> 4 Physical modification 5 Planning permission: general
Holme Moor & Clean Moor SAC	<ul style="list-style-type: none"> 1 Change in land management 2 Water pollution 3 Air pollution: impact of atmospheric nitrogen deposition
Lyme Bay & Torbay SAC	<ul style="list-style-type: none"> 1 & 2 Fisheries: commercial marine and estuarine 3 Public access/disturbance
Quants SAC	<ul style="list-style-type: none"> 1 Changes in species distributions 2 Air pollution: impact of atmospheric nitrogen deposition
River Axe SAC	<ul style="list-style-type: none"> 1 Water pollution 2 Siltation 3 Invasive species 4 Inappropriate weirs, dams and other structures
Sidmouth to West Bay SAC	<ul style="list-style-type: none"> 1 Invasive species 2 Disease 3 Direct impact from third party 4 Planning permission: general 5 Water pollution 6 Vehicles 7 Habitat fragmentation 8 Inappropriate coastal management 9 Air pollution: risk of atmospheric nitrogen deposition
Somerset Levels & Moors SPA	<ul style="list-style-type: none"> 1 Drainage 2 Inappropriate water levels 3 Maintain and upgrade water management structures 4 Change in land management 5 Agricultural management practices 6 Peat extraction 7 Public access/disturbance 8 Offsite habitat availability/management
South Dartmoor Woods SAC	<ul style="list-style-type: none"> 1 Air pollution: impact of atmospheric nitrogen deposition

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

Site	Site pressures and threats
South Hams SAC	<ul style="list-style-type: none"> 1 Change in land management 2 Planning permission: general 3 Physical modification 4 Inappropriate vegetation management 5 & 7 Public access/disturbance 6 Forestry and woodland management 8 Inappropriate scrub control 9 Air pollution: impact of atmospheric nitrogen deposition
West Dorset Alder Woods SAC	<ul style="list-style-type: none"> 1 Deer 2 Water Pollution 3 Forestry and woodland management 4 Undergrazing 5 Invasive species 6 Disease 7 Water abstraction 8 Air pollution: impact of atmospheric nitrogen deposition 9 Habitat fragmentation

Appendix 4: Individual site options and distance to European sites

This appendix gives the distance (km) from each site option to each European site. Distances are the distance from the nearest part of each respective boundary. Shading (red to green) reflects the distances (closer distances shaded red).

SA Ref	Site Name	Potential number of dwellings	Site area (ha)	Culm Grasslands SAC	Dawlish Warren SAC	East Devon P' bed Heaths SAC/SPA	Lyme Bay and Torbay SAC	River Axe SAC	Sidmouth to West Bay SAC	South Dartmoor Woods SAC	South Hams SAC	Beer Quarry & Caves SAC	Quants SAC	Dartmoor SAC	Exmoor Heaths SAC	Exmoor & Q' tock Oakwoods SAC	Exe Estuary SPA/Ramsar
SA-ED-1	Venns Farm, Sowton	0	31	29.1	12.5	7.1	22.4	27.7	15.9	16.2	17.2	23.4	31.7	27.9	35.1	35.4	4.3
SA-ED-12	Whimble	2500	242	28.2	17.3	3.9	17.6	20.2	11.9	24.4	24.8	17.0	23.0	36.2	30.4	32.3	11.0
SA-ED-15	Feniton	2800	364	30.0	20.4	6.3	14.9	15.4	10.9	28.9	29.2	13.6	18.9	40.7	30.1	32.9	15.3
SA-ED-18	Honiton East	1100	75	36.3	27.0	13.3	12.5	9.8	11.8	37.6	36.7	11.3	15.9	49.2	33.1	36.6	23.0
SA-ED-19	Axminster South	540	54	48.5	34.4	22.8	6.2	0.4	5.6	48.5	45.6	10.7	22.5	59.5	43.6	42.6	32.2
SA-ED-2	Oil Mill Lane	4000	381	31.7	7.6	3.0	19.1	25.7	12.6	16.5	14.9	20.8	33.0	27.4	37.5	37.9	1.2
SA-ED-25	Westclyst & Mosshayne Farms	1600	117	26.9	13.8	7.1	22.6	27.4	16.2	16.4	17.8	23.3	30.1	28.2	32.7	33.0	5.0
SA-ED-26	Cowley	500	27	24.3	17.1	14.4	26.0	35.3	23.6	11.0	16.4	31.1	35.3	23.1	32.4	32.0	6.6
SA-ED-27	Between Jarvishayes and the M5	0	77	24.8	16.0	8.6	24.2	28.2	17.8	17.6	20.0	24.5	28.9	29.5	30.6	30.8	7.2
SA-ED-3	Hill Barton	10000	660	29.7	10.3	2.6	17.8	23.5	11.2	17.3	16.5	19.0	29.9	28.6	35.3	35.7	2.9

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SA Ref	Site Name	Potential number of dwellings	Site area (ha)	Culm Grasslands SAC	Dawlish Warren SAC	East Devon P' bed Heaths SAC/SPA	Lyme Bay and Torbay SAC	River Axe SAC	Sidmouth to West Bay SAC	South Dartmoor Woods SAC	South Hams SAC	Beer Quarry & Caves SAC	Quants SAC	Dartmoor SAC	Exmoor Heaths SAC	Exmoor & Q' tock Oakwoods SAC	Exe Estuary SPA/Ramsar
SA-ED-5	North of Exeter Airport	0	22	29.5	13.5	4.9	20.4	25.3	14.0	18.8	19.1	21.1	29.5	30.4	34.3	35.1	5.8
SA-ED-7	Higher Greendale	1300	107	32.6	9.7	2.1	17.6	23.9	11.1	18.8	17.0	19.1	31.9	29.7	37.8	38.5	3.1
SA-ED-8	Airport Business Park	0	27	30.4	13.0	3.5	19.0	24.0	12.5	20.0	19.7	19.7	29.4	31.5	35.0	35.9	5.9
SA-EX-1	Attwells, North of Exwick	400	48	26.3	15.7	14.0	24.1	35.6	23.4	9.3	14.3	31.2	37.0	21.3	34.4	34.0	5.4
SA-EX-10	Marsh Barton	5544	86	29.2	11.7	10.5	21.0	33.0	20.2	10.4	12.2	28.3	37.2	22.0	37.1	36.6	1.4
SA-EX-18	Pinhoe Trading Estate	278	10	27.6	14.0	9.4	24.8	29.9	18.3	15.0	17.1	25.7	32.6	26.8	34.2	34.3	4.4
SA-EX-19	East Gate	1160	17	27.7	13.7	10.9	23.5	32.4	20.2	11.8	14.7	28.0	35.2	23.6	35.3	35.0	3.2
SA-EX-22	West Gate	620	9	28.4	13.7	12.0	22.7	33.9	21.5	10.6	13.5	29.4	36.7	22.4	36.3	35.9	3.4
SA-EX-23	Land between South, Market and Fore Street	175	1	28.2	14.0	11.9	23.2	33.8	21.4	11.1	14.2	29.2	36.5	23.0	36.0	35.6	3.5
SA-EX-26	Sandy Gate	1050	37	30.0	10.8	7.3	21.7	29.0	16.6	14.8	14.6	24.4	33.5	26.1	36.4	36.5	1.8
SA-EX-3	Land between M5 and Topsham	1500	97	30.8	8.8	6.4	19.7	28.9	16.2	14.4	13.2	24.3	34.0	25.2	37.1	37.3	0.2
SA-EX-4	North of Stoke Hill	768	58	25.8	15.0	10.5	25.4	30.8	19.3	13.5	16.8	26.7	32.6	25.5	32.9	32.6	5.0
SA-EX-5	Land adjacent Exeter St David's Station	660	9	26.6	15.1	13.0	24.0	34.5	22.4	10.7	14.7	30.1	36.1	22.7	34.6	34.1	4.7
SA-EX-6	Water Lane	1570	26	29.0	11.8	10.4	21.1	32.9	20.1	10.9	12.6	28.2	36.8	22.6	36.8	36.4	1.4
SA-EX-7	North Gate	310	4	27.9	14.2	12.1	23.4	33.8	21.6	11.1	14.3	29.4	36.3	22.9	35.7	35.3	3.8

GESP HRA: Draft Policies and Site Options Consultation

SA Ref	Site Name	Potential number of dwellings	Site area (ha)	SAC/SPA													
				Culm Grasslands SAC	Dawlish Warren SAC	East Devon P' bed Heaths SAC/SPA	Lyme Bay and Torbay SAC	River Axe SAC	Sidmouth to West Bay SAC	South Dartmoor Woods SAC	South Hams SAC	Beer Quarry & Caves SAC	Quants SAC	Dartmoor SAC	Exmoor Heaths SAC	Exmoor & Q' tock Oakwoods SAC	Exe Estuary SPA/Ramsar
SA-EX-8	South Gate	300	4	28.4	13.7	11.4	23.0	33.2	20.9	11.1	14.0	28.7	36.0	22.9	36.0	35.6	3.2
SA-EX-9	Howell Road Car Park	106	1	27.6	14.5	12.0	24.0	33.5	21.4	11.7	15.0	29.1	35.8	23.6	35.3	34.9	4.0
SA-MD-10	Land at Hartnoll Farm	950	101	14.6	31.7	20.2	32.5	31.3	28.1	29.2	35.1	31.1	19.1	38.8	15.4	16.9	22.9
SA-MD-12	Area south of Sampford Peverell	2200	167	17.4	33.0	20.3	30.6	28.4	27.2	32.5	37.6	29.1	14.4	42.6	15.1	18.2	25.1
SA-MD-3	South of Crediton	750	91	20.3	24.4	22.4	31.5	42.3	31.4	10.3	20.5	38.5	38.8	18.4	28.4	29.2	14.2
SA-MD-4	Newton St Cyres Area	1200	303	20.2	20.2	16.6	28.9	36.3	25.7	11.6	18.8	32.6	33.9	22.7	28.4	28.2	9.7
SA-MD-9	East of Cullompton	5000	802	20.4	25.1	12.6	24.5	23.5	20.1	26.8	30.3	23.1	15.8	38.8	19.8	22.5	17.6
SA-T-16	West of Exminster	200	17	32.7	8.9	8.6	18.5	32.2	18.9	11.9	10.8	27.2	38.4	22.6	40.1	39.9	0.8
SA-T-17	Markham Lane, Ide	1100	66	30.4	11.8	11.7	19.9	34.6	21.6	8.8	10.7	29.8	38.8	20.1	38.5	38.1	2.5
SA-T-18	Peamore	1500	146	32.0	9.8	9.8	18.1	33.3	20.0	9.5	9.3	28.3	39.1	20.2	39.9	39.4	1.6
SA-T-22	Ilford Park	0	46	42.4	15.1	21.3	11.1	46.1	32.1	5.2	3.3	40.4	55.3	10.8	53.3	53.6	14.9
SA-T-3	Land West of Houghton Barton	1750	126	42.9	16.3	22.7	10.5	47.5	33.4	5.8	5.1	41.7	57.1	10.9	54.9	55.3	16.1
SA-T-5	Priory Road	500	63	48.9	14.4	21.5	5.5	45.2	31.4	11.9	8.3	39.3	57.7	16.6	59.1	59.1	13.9
SA-T-8	Land North of Forches Cross	0	24	43.8	14.7	21.1	9.8	45.8	31.8	6.6	3.9	40.1	55.8	12.1	54.5	54.7	14.4

Appendix 5: Features of relevant sites where there are potential risks from air pollution derived from traffic

This appendix lists those features of relevant sites where there are potential risks from air pollution derived from traffic. The majority of the SAC habitats are naturally low in nutrients and are therefore susceptible to eutrophication. Nitrogen deposition already exceeds the site-relevant critical load for ecosystem protection and hence there already is a risk of harmful effects, and these are listed in the table. Actions listed in the Site Improvement Plans for each site are to control, reduce and ameliorate atmospheric nitrogen impacts and develop site Nitrogen plans.

The table only includes sites or component SSSIs for which a section of the site is within 200m of a road. For individual species, the impact on the habitat on which they are dependent is listed. Note that critical loads are, where known, exceeded at all sites, therefore features are likely to be impacted already. 'Action' indicates where measures are planned to ameliorate existing impacts (e.g. from Site Improvement Plans). Features that are not likely to be vulnerable have been excluded.

European site	Sensitive interest feature	Exceedance impact
Culm Grassland SAC – Hare’s Down Knowstone & Rackenford Moors	Northern Atlantic wet heaths with <i>Erica tetralix</i> (H4010)	Transition heather to grass. Ericaceous species susceptible to frost and drought, possible direct impact on lower plants
	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caerulea</i>) (H6410)	Increase in tall graminoids, decreased diversity, decrease of bryophytes
	Marsh fritillary butterfly (S1065) – broad habitat Acid grassland	Increase in graminoids, decline of typical species, decrease in total species richness. Insufficient knowledge to make a judgment of the impacts on this species. Decision should be made at a site specific level
Dartmoor SAC	Blanket bogs (* if active bog) (H7130)	Increase in vascular plants, altered growth and species composition of bryophytes, increased N in peat and peat water.

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

European site	Sensitive interest feature	Exceedance impact
Action: Control, reduce and ameliorate atmospheric nitrogen impacts	Old sessile oak woods with Ilex and Blechnum in the British Isles (H91A0)	Decrease in mycorrhiza, loss of epiphytic lichens and bryophytes, changes in ground vegetation, decline in tree vitality
	Northern wet heath: <i>Erica tetralix</i> dominated wet heath	Transition heather to grass. Ericaceous species susceptible to frost and drought, possible direct impact on lower plants
	European dry heaths (H4030)	Transition from heather to grass dominance, decline in lichens, changes in plant biochemistry, increased sensitivity to abiotic stress
	Southern damselfly (S1044): Northern wet heath: <i>Erica tetralix</i> dominated wet heath	Transition heather to grass. Ericaceous species susceptible to frost and drought
	Southern damselfly (S1044): Rivers and streams	No Critical Load has been assigned habitat. decisions should be taken at a site specific level and consideration should also be given to other sources of N
	Atlantic Salmon (S1106): Rivers and Streams	No Critical Load has been assigned habitat. decisions should be taken at a site specific level and consideration should also be given to other sources of N
	Otter (S1355): Rivers and Streams	No Critical Load has been assigned habitat. decisions should be taken at a site specific level and consideration should also be given to other sources of N.
Exe Estuary SPA/Ramsar	Pied Avocet (A132): Upper, pioneer, low-mid, mid-upper saltmarshes	Potential negative impact through increase in late successional species, positive impact through an increase in productivity
	Black-tailed godwit (A616): Upper, pioneer, low-mid, mid-upper saltmarshes	As above
	Dark-bellied brent goose (A675): Upper, pioneer, low-mid, mid-upper saltmarshes	As above
East Devon Pebblebed Heaths SAC/SPA	Northern wet heath: <i>Erica tetralix</i> dominated wet heath	Transition heather to grass. Ericaceous species susceptible to frost and drought, possible direct impact on lower plants

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

European site	Sensitive interest feature	Exceedance impact
Action: Control, reduce and ameliorate atmospheric nitrogen impacts; Site Nitrogen Action Plan; Restore as necessary the concentrations and deposition of air pollutants to below the site-relevant Critical Load or Level	European dry heaths	Transition from heather to grass dominance, decline in lichens, changes in plant biochemistry, increased sensitivity to abiotic stress
	Southern damselfly (S1044): Dwarf shrub heath	Transition heather to grass. Ericaceous species susceptible to frost and drought
	Southern damselfly (S1044): Rivers and streams	No Critical Load has been assigned habitat. decisions should be taken at a site-specific level and consideration should also be given to other sources of N. Possible impact on invertebrates of freshwater acidification
	A224(B) European nightjar – Dwarf Shrub Heath, Coniferous woodland	See above for heathland. No expected impacts through effects on coniferous woodland
	A302(B) Dartford Warbler- – Dwarf Shrub Heath,	See above for heathland
Exmoor and Quantock Oakwoods SAC	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles (H91A0)	Decrease in mycorrhiza, loss of epiphytic lichens and bryophytes, changes in ground vegetation, decline in tree vitality; may cause increased susceptibility to pathogens and pests.
	Barbastelle (S1308): Broadleaved mixed deciduous woodland	Changes in soil processes, nutrient imbalance, altered composition mycorrhiza and ground vegetation. Decision should be at site level.
	Bechstein's bat (S1323): Broadleaved mixed deciduous woodland	Changes in soil processes, nutrient imbalance, altered composition mycorrhiza and ground vegetation. Decision should be at site level.
Exmoor Heaths SAC	European dry heaths (H4030)	Transition from heather to grass dominance, decline in lichens, changes in plant biochemistry, increased sensitivity to abiotic stress
	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles (H91A0)	Decrease in mycorrhiza, loss of epiphytic lichens and bryophytes, changes in ground vegetation
	Alkaline fens (H7230)	Increase in tall graminoids, decrease in bryophytes

G E S P H R A : D r a f t P o l i c i e s a n d S i t e O p t i o n s C o n s u l t a t i o n

European site	Sensitive interest feature	Exceedance impact
	Blanket bogs (* if active bog) (H7130)	Increase in vascular plants, altered growth and species composition of bryophytes, increased N in peat and peat water.
River Axe SAC	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation (H3260)	These systems are often P limited (or N/P co-limiting), therefore decisions should be taken at a site specific level. Furthermore, consideration should also be given to other sources of N
	Sea lamprey (S1095), Brook lamprey (S1096), Bullhead (S1163): Rivers and streams	These systems are often P limited (or N/P co-limiting), therefore decisions should be taken at a site specific level. Furthermore, consideration should also be given to other sources of N
South Dartmoor Woods SAC	Old sessile oak woods with Ilex and Blechnum in the British Isles (H91A0)	Decrease in mycorrhiza, loss of epiphytic lichens and bryophytes, changes in ground vegetation, decline in tree vitality; may cause increased susceptibility to pathogens and pests.
	European dry heaths (H4030)	Transition from heather to grass dominance, decline in lichens, changes in plant biochemistry, increased sensitivity to abiotic stress
South Hams SAC Action: Further investigate potential atmospheric nitrogen impacts on the site based on application of guidance from Chief Scientist Group Nitrogen Task and Finish Group	Tilio-Acerion forests of slopes, screes and ravines (H9180)	Changes in ground vegetation (sensitive features are currently considered to be in favourable condition on the site)
	Greater horseshoe bat (S1304): Broadleaved deciduous woodland	Changes in soil processes, nutrient imbalance, altered composition mycorrhiza and ground vegetation – decision needed at site level.

Appendix 6: Potential impacts on interest features or relevant sites

The potential effects of an increase in N and acid deposition on the specific interest features of relevant sites are outlined below, and are based on the references listed within APIS. Critical loads have been established for pollutants and these are summarised for each habitat type. Critical loads are generally not available for species, as APIS focusses on habitats. The implications for habitats give an indication of likely changes for species that are not directly affected (i.e. for which increased deposition is not in itself toxic). It is important to note that roadsides which will attract the greatest deposition and may be part of the European site frequently support highly modified communities as a result of salt, fire, litter, road works and so on that make achievement of the conservation objectives very difficult in any event, such that deposition above 1% of the critical load very close to the road may not matter so much.

Impacts on heathland

Heathlands are naturally low-nutrient systems and therefore particularly susceptible to nutrient enrichment via N deposition. Lowland heaths in the vicinity of major roads have been identified as being at particular risk. Typical heathland species are generally acid tolerant, but their roots may be sensitive to soil chemistry changes. The potential impacts of N and acid deposition may be:

- A shift in dominance from heath species, mosses (including bog-mosses) and lichens to grasses such as Wavy Hair-grass *Deschampsia flexuosa* and Purple Moor-grass *Molinia caerulea* through shading or an inability to compete for limiting resources
- Increased incidence of Heather Beetle *Lochmaea suturalis* damage
- Increased litter fall, inhibiting ground-dwelling species
- Direct damage to lichens, mosses and liverworts
- Increased susceptibility of Heather *Calluna vulgaris* to winter and summer drought

Summary of critical loads for heathland habitats at the relevant sites.

Pollutant	Objective (UK)
Nutrient N deposition	10-20 Kg N/ha/yr
Acidity deposition	(keq/ha/yr): Maximum: CLminN:1.035 CLmaxN: 1.822 CLmaxS: .93 Minimum: CLminN: .499 CLmaxN: .842 CLmaxS: .2

In accordance with recommendations on APIS, the high end of the range for N should be used in locations with high precipitation, a high water table and when sod cutting has been practiced and the low end of the range with low precipitation, a low water table and low intensity management.

Heathland species

Interest features on heathland include Nightjar and Dartford Warbler. Impacts on these species are indirect, associated with habitat changes. Both species require heather and would be negatively impacted by a change to grass-dominated vegetation over time.

Southern Damselfly is also associated with heathlands, however, it is more likely to be affected by the quality and vegetation of the streams and valley mire runnels vital to aquatic stages of its life cycle than by pollution-induced changes to the surrounding vegetation, although gross changes (such as an increase in scrub around the water course leading to shading and to changes to emergent vegetation) would in time lead to a reduction in population size or the loss of populations.

Acid grassland

Acid grasslands are also naturally low-nutrient systems and therefore susceptible to nutrient deposition. In Purple Moor-grass rush pasture, tall grasses are likely to increase with an overall loss of diversity. Specifically:

- N deposition is likely to have the effect of fertilising acid grasslands, as these are usually N limited
- This will favour grasses which are likely to shade out forbs and lower plants, and grassland will become more grass-dominated and lose diversity (with implications of pollinators)
- Lower plants, especially mosses, at risk both from N accumulation and acid
- Vulnerability is increased by proximity to agricultural areas that provide a seed source for N loving species, particularly grasses.

Acidity may result in an increase in ions that may cause toxicity to plants and mycorrhiza and may have direct effects on lower plants. A study reported in APIS has shown that increasing acidity is limiting the pool of species able to survive, resulting in a decline in species richness with the loss of fine-leaved species and forbs (eutrophication and other soil chemical changes are likely to be involved too).

Summary of critical loads for moist and wet oligotrophic grasslands: *Molinia caerulea* meadow.

Pollutant	Objective (UK)
Nutrient N deposition	15-25 kg N ha ⁻¹ year
Acidity deposition	<p style="text-align: center;">(keq/ha/yr):</p> MinCLminN: 0.223 MaxCLminN: 0.581 MinCLMaxS: 0.43 MaxCLMaxS: 1.62 MinCLMaxN: 0.796 MaxCLMaxN: 2.058

Relevant Acid Grassland species – Marsh Fritillary

There is insufficient knowledge to make a judgement of the impacts on this species overall and decisions are needed at a site-specific level. Marsh Fritillary has been identified as a feature affected by the impacts of atmospheric nitrogen deposition on the Culm Grasslands. Further consideration is required as to the potential change in deposition levels at the relevant site (Rackenford Moors, part of the Culm Grassland SAC), taking into account the distribution of suitable vegetation types at the site.

Blanket Bog

Bogs that rely on atmospheric inputs for nutrients are highly sensitive to increases in N deposition. Negative Impacts are likely to include:

- Reductions in the cover of keystone species (bog mosses) resulting in changes in microtopography and water-holding capacity
- Loss of characteristic species
- Changes in species composition, proportions and abundance
- Expansion of nitrogen-loving species e.g. grasses and Cottongrass *Eriophorum vaginatum* at the expense of lower plants

Bogs surrounded by farmland or major roads are more vulnerable to invasion by N-tolerating species as they provide a reservoir of seed bearing grasses and ruderal plants.

Summary of critical loads for blanket bog.

Pollutant	Objective (UK)
Nutrient N deposition	5-10 kg N/ha/yr
Acidity deposition	<p style="text-align: center;">(keq/ha/yr):</p> MinCLminN: 0.321 MaxCLminN: 0.321 MinCLMaxS: 0.509 MaxCLMaxS: 0.985 MinCLMaxN: 0.83 MaxCLMaxN: 1.306

Alkaline Fen

Atmospheric N deposition may not be the only source of N eutrophication in alkaline fens and will not necessarily provide the most N, making it difficult to predict likely effects of N deposition. Effects may include:

- Decline in characteristic brown moss species
- Reduced numbers of bryophyte species and biomass, thinning of the moss carpet.
- Increase in vascular plant biomass, particularly grasses, sedges and rushes, with a corresponding decrease in other species.

Alkaline fens are not considered sensitive to acid deposition.

Summary of critical loads for blanket bog.

Pollutant	Objective (UK)
Nutrient N deposition	15-30 kg N/ha/yr

Mixed deciduous woodlands

Woodlands have a rough surface and tend to intercept larger amounts of dry depositions than, for example, grasslands, with edges adjacent to farmland or roads being most vulnerable. N deposition is not thought to have a major impact on growth directly but can have indirect effects on woodland:

- Destabilization and reduced investments in roots leading to increased risk of drought stress and increased risk of uprooting of trees
- Change in mycorrhizal flora and reduction in the numbers of fruiting bodies.
- Increased litter production
- increased sensitivity to abiotic and biotic stress
- Winter desiccation; increased defoliation by leaf feeders; increased pathogen infection
- Loss of species diversity in the ground flora and understory, with N loving grasses replacing forbs and lower plants
- Loss of sensitive lichen species and increase in epiphytic algae

With the decline in Sulphur deposition since the 1970-80s, effects of acid deposition are more difficult to attribute. However, the moss and liverwort flora of Atlantic Oakwoods (such as the South Dartmoor and Exmoor woods) are particularly vulnerable.

There is insufficient knowledge to make a general judgement about impacts on woodland species such as Bechstein's and Barbastelles bats, which should therefore be considered on a site basis.

Summary of critical loads for acid, oak-dominated woods

Pollutant	Objective (UK)
Nutrient N deposition	10-15 kg N/ha/yr
Acidity deposition	No estimate available

Rivers and streams

Critical loads for both N and acid deposition have not been assigned to rivers and streams. These systems are often P limited (or N/P co-limiting), therefore decisions should be taken at a site-specific level. Similarly, values vary according to species of interest and mineralogy of the waterbody in terms of acid deposition. Consideration should also be given to other sources of N, i.e. discharges to water, diffuse agricultural pollution etc.

Depending on the sites progressed into the draft GESP further consideration is needed as to the status of relevant valley mire streams within the East Devon Heaths SAC and the potential impacts of nitrogen and acid deposition on these with regard to Southern Damselfly populations, Dartmoor rivers and streams and impacts on Otter and Salmon, and the River Axe and Sea Lamprey, Brook Lamprey and Bull Head.