

A358 Taunton to Southfields Dualling Scheme

Habitats Regulation Assessment:
Screening Report

HE551508-ARP-EBD-ZZ-RP-LE-000004

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1 Introduction

1.1 Purpose of this document

- 1.1.1 This report provides the outcomes of the screening stage Habitats Regulations Assessment (HRA) of the implications of the A358 Taunton to Southfields Dualling scheme (the ‘proposed scheme’) upon European sites protected by the Conservation of Habitats and Species Regulations 2017 [1] (referred to as the ‘Habitats Regulations 2017’). The Habitats Regulations were amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (*SI 2019/579*) which came into force on 31 December 2020 (referred to as the Habitats Regulations 2019). These ensure that the habitat and species protection and standards derived from EU law continue to apply [2].
- 1.1.2 This report follows the methodology within Design Manual for Roads and Bridges (DMRB) *Sustainability and Environmental Appraisal, LA 115 Habitats Regulations Assessment* [3], the Planning Inspectorate (PINS) *Advice Note 10 Habitats Regulations Assessment* [4], and guidance *Habitats regulations assessments: protecting a European site* [5].
- 1.1.3 The purpose of this report is to identify any aspects of the proposed scheme that would lead to a likely significant effect (LSE) upon any European site, either alone or in combination with any other plans/projects. Under the Habitats Regulations 2017 [1] an effect is likely if: it cannot be excluded, in that it is capable of having an effect, on the basis of objective information; and it is likely to undermine the site’s conservation objectives.

1.2 Proposed scheme overview

- 1.2.1 The A358 Taunton to Southfields is part of a programme of improvements planned along the A303/A358 corridor aimed at improving connectivity between London, the south-east and the south-west. The A303, alongside the A30, forms part of the strategic road network (SRN) and together with the A358, provides the link between London, the south-east and the south-west.
- 1.2.2 The programme of improvements, as set out in the Government’s Road Investment Strategy [6] made a commitment to, “...*upgrade all remaining sections of the A303 between the M3 and the A358 to dual carriageway standard, together with creating a dual carriageway link from M5 at Taunton to the A303*”.
- 1.2.3 Funding for delivery of the proposed scheme has been confirmed within the second Road Investment Strategy (RIS2) [7], which covers the period between 2020 and 2025 which was published on the 11 March 2020.
- 1.2.4 The A303/A358 corridor is heavily used by long-distance, local business and leisure traffic. It is critical to the economy of the south-west of England and connects several local towns including Andover, Amesbury, Salisbury, Shaftesbury, Warminster, Yeovil, Honiton and Taunton.
- 1.2.5 The existing A358 between M5 Junction 25 at Taunton and the Southfields Roundabout on the A303 is predominantly single carriageway with a short dual carriageway section (about 1.2 miles long) in the vicinity of Thornfalcon and a three-lane section (about 0.4 miles long) on the westbound approach to the junction at Mattock’s Tree Hill. The existing road has many local roads and private accesses joining directly with it and it is regularly congested and is frustrating for

people travelling to school and work. As a result, many drivers/road users try to avoid the traffic by diverting onto smaller local roads which increases the level of traffic in surrounding villages.

- 1.2.6 This scheme is a proposal to upgrade the A358 to a high-quality dual carriageway between Southfields Roundabout on the A303 and the M5 at Taunton to address the traffic issues and long delays currently experienced along the route.
- 1.2.7 The existing A358 is currently maintained by the local highway authority, Somerset County Council. The aim is for the sections of the existing A358 required for this proposed scheme to be adopted into the SRN. It will then be trunked, with the Secretary of State for Transport becoming the highway authority.

1.3 Proposed scheme vision and objectives

- 1.3.1 The overall project objective is to create a dual carriageway link the M5 at Taunton to the A303 at Southfields roundabout. The new dual carriageway will comprise new and upgraded stretches of the existing A358 road and will be integrated into the strategic road network (SRN). The design will aim to address the existing traffic issues and long delays currently experienced along the route.
- 1.3.2 The UK government’s *Road Investment Strategy (RIS)* [7] outlines an overall ambition to improve connectivity between the South-West and London and the South-East of the UK. Further information on the need for the proposed scheme is provided in section 1.2 of Chapter 1 Introduction, of the Preliminary Environmental Assessment (PEI) Report.
- 1.3.3 The scheme vision, design principles, scheme-specific objectives and associated sub-objectives are identified in Table 1-1.

Table 1-1 Proposed scheme vision, design principles and objectives

Proposed scheme vision	
<p>The A358 Taunton to Southfields Dualling Scheme (the ‘proposed scheme’) announced within the UK government’s RIS will provide a high quality dual carriageway between the M5 motorway and the A303 at Southfields roundabout, Ilminster. The proposed scheme is part of a programme of improvements planned along the A303/A358 corridor aimed at improving connectivity between London, the South-East and the South-West. The A303, alongside the A30, forms part of the SRN and together with the A358, provides the link between London, the South-East and the South-West. The environmental strategy is to invest for the long-term and capture the vision for the environment which is “...a <i>strategic road network working more harmoniously with its surroundings to deliver an improved environment</i>”. This includes conserve energy, water and other resources, reduce waste and phase out the use of ozone depleting substances and minimise the release of greenhouse gases, volatile organic compounds and other substances damaging to health and the environment.</p>	
Proposed scheme design principles	
<p>“Designing an inclusive, resilient and sustainable road network” in accordance with “The road to good design”. [8]</p>	
A358 proposed scheme objectives	
<p>Employment: facilitate growth in employment at key locations and centres along the A303/A358/A30 corridor and to the South-West region</p>	<p>Housing: facilitate growth in housing at key development hotspots along the corridor</p>

Capacity: reduce delays and queues that occur during peak hours and at seasonal times of the year	Resilience: improve the resilience of the A303/A358/A30 route corridor
Safety: improve safety along the A303/A358/A30 route corridor	Safety: improve safety at along the A358 Taunton to Southfields route for non-motorised users (NMU)
Connectivity: improve the connectivity of the South-West to the rest of the UK, to reduce peripherality and improve business and growth prospects	Environment: avoid unacceptable impacts on the surrounding natural environment and landscape and optimise the environmental opportunities and mitigation that the intervention could bring
Severance: reduce severance on local communities	Quality of life: promote opportunities to improve the quality of life for locals

1.4 Proposed scheme description

1.4.1 The proposed scheme would connect M5 junction 25 at Taunton with the existing A303 at Southfields roundabout near Ilminster, providing 8.5 miles of new, all-purpose dual carriageway. It can be divided into two main sections:

- New section of dual carriageway created from the existing A358 between the M5 roundabout junction 25 and West Hatch Lane.
- Widening of the rest of the existing A358 to Southfields roundabout.

1.4.2 The main elements of the proposed scheme comprise (from north to south):

- M5 junction 25 – upgrade of the northbound on and southbound off slip roads of the M5 at junction 25.
- Nexus 25 roundabout – modification of lanes on roundabout and widening of entries and exits.
- Stoke Road – a new bridge over the A358.
- Mattock’s Tree Green junction – provision of a new separated junction.
- Scout camp link – a new 650 metre long link road.
- Village Road link (north) – a new single carriageway road approximately 600 metres long to connect the A358 at Mattock’s Tree Hill to Village Road.
- Griffin Lane – a new bridge over Griffin Lane, adjacent to the current bridge.
- Bickenhall Lane – a new 750 metre long single carriageway and a bridge over the A358.
- Village Road link (south) – a new single carriageway approximately 1,350 metres long, and bridge over the A358 to connect Village Road (south) across the route.
- Stewley link – a new 2,200 metre long single carriageway link from Stewley Lane to Ashill Road.
- Ashill junction – provision of a new separated junction.
- Broadway Street link – a new single carriageway link approximately 1,500 metres long, running adjacent to the route, to connect Broadway Street to Ashill Road.
- Capland Lane link – the existing Capland Lane junction would be closed and alternative options will be considered before the final design is reached.
- Southfields roundabout – a new dedicated left slip lane from the A358 to the A303 eastbound and widening of entries and exits.

Physical land-take of the proposed scheme

- 1.4.3 The extent of land use required during construction and operation are defined by the permanent and temporary land take requirements. These will be shown in the Development Consent order (DCO) boundary on the General Arrangement drawings and section plans. These will be set out and described in the Statement of Reasons which will accompany the DCO application.
- 1.4.3 Permanent land take is required to construct, operate and maintain the proposed scheme. It includes all of the proposed highway infrastructure for the new trunk road, side roads, earthworks and drainage works. It also includes areas of environmental mitigation, such as landscape planting and areas of ecological habitat replacement for areas lost to construction, and to meet the proposed schemes targets under Biodiversity Net Gain. The Environment Bill is currently progressing through parliament; it is anticipated this will require developments, including nationally significant infrastructure projects, to achieve a 10% net gain in biodiversity. Should the Environment Bill be enacted during the assessment period of the proposed scheme, the scheme would be reviewed in light of any new requirements and the design revisited to make any necessary amendments. At present, it is understood that due to timing the proposed scheme will not fall under the requirements of the Environment Bill if it becomes law. Further details on the environmental mitigation to be provided are described in the PEI Report.
- 1.4.4 Temporary land-take is required to assist the contractor for the construction of the proposed scheme. These areas will accommodate temporary works such as working areas, the main and satellite compounds, haul roads and material/topsoil and soil storage areas. The temporary areas can also include areas required for the construction of part of the works with a permanent easement right acquired for operation and maintenance.

Programme and construction activities

- 1.4.5 Following examination, PINS will make a recommendation to the Secretary of State who will then decide whether to grant a DCO or not.
- 1.4.6 If the DCO is granted, construction is expected to start in 2024 and the proposed scheme is expected to open to traffic in 2028. The early preparatory works delivered under the DCO would include archaeological investigation works, planting of early landscape works, ground investigation works and ecological mitigation works. In addition, site set up will occur. This will comprise activities such as construction of the main and satellite site compounds, provision of access routes, site clearance, soil stripping and stockpiling and installation of temporary fencing.
- 1.4.7 The preparatory works will be in accordance with the controls and procedures set out in the Environmental Management Plan (EMP) to be submitted with the DCO application. Implementation of the procedures which will be described and set out in the EMP will ensure that there are no significant environmental effects resulting from the preparatory works taking place.
- 1.4.8 The construction activities for the proposed scheme would be typical of a major highway scheme, and would comprise:
- Preparatory works as described above.
 - Establishment of the main and satellite compounds, laydown areas, stockpile areas.

- Site stripping including vegetation clearance.
- Statutory utility diversions.
- Bulk earthworks.
- Drainage works, including flood compensation and balancing pond construction.
- Construction of bridges and other structures, including piling.
- Construction of the main highway and side roads.
- Installation of street furniture, such as lighting and road restraint barriers.
- Installation of initial screening landscaping.

1.5 Legislative context

- 1.5.1 The Habitats Regulations 2017 [1] set out the stages of assessment which must be undertaken to determine if a development project could significantly harm the designated features of a European site.
- 1.5.2 As part of the Habitats Regulations 2019 amendment [9], a National Site Network has been created (as UK sites no longer form part of the EU's Natura 2000 ecological network) on land and sea and including inshore and offshore marine areas in the UK. The National Site Network includes:
- Existing European sites: Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).
 - New SACs and SPAs designated following the creation of the National Site Network.
- 1.5.3 UK Government policy states that proposed SACs, potential SPAs, areas secured as sites compensating for damage to a European site and Wetlands of International Importance designated under the Ramsar Convention (known as Ramsar sites) are afforded the same protection as European sites in terms of the HRA required of any proposals that may affect them [9].
- 1.5.4 Regulation 63 of the Habitats Regulations 2017 [1] states that any plan or project not directly connected with, or necessary to, the management of a European site, but which would be likely to have a significant effect on such a site, either individually or in combination with other plans or projects, must be subject to appropriate assessment of its implications for the European site in view of its conservation objectives.
- 1.5.5 If a likely significant effect (LSE) to a European site is identified, the applicant (Highways England for the proposed scheme) must provide such information as the competent authority may reasonably require for the purposes of the assessment, or to enable it to determine whether an appropriate assessment is required. *PINS Advice Note 10 Habitats Regulations Assessment* [4] states that 'the relevant secretary of state is the competent authority for the purposes of the Habitats Directive and the Habitats Regulations in relation to applications for Nationally Significant Infrastructure Projects (NSIPs).'
- 1.5.6 Regulation 63 of the Habitats Regulations 2017 [1] states that consent should only be granted for a plan or project once the relevant competent authority has ascertained that it will not adversely affect the integrity of European sites.
- 1.5.7 Where an appropriate assessment has been carried out and it concludes that a plan or project would adversely affect the integrity of a European site, consent will

only be granted if there are no alternative solutions and there are imperative reasons of overriding public interest (IROPI) for the development and compensatory measures have been secured.

1.5.8 The staged process of undertaking the above requirements of the legislation is referred to as a Habitats Regulations Assessment (HRA), set out within DMRB *Sustainability and Environmental Appraisal, LA 115 Habitats Regulations Assessment* [3] and PINS *Advice Note 10* [4] (with three stages: screening, appropriate assessment and derogation also set out in UK Government guidance). The applicant's role at each stage is summarised as follows:

- **Screening (Stage 1)** – determination of whether there is potential for elements of a project to give rise to significant adverse impacts on the conservation objectives of the qualifying features (interest features) of the European site, alone or in combination with other plans/projects, i.e. will the project have a 'likely significant effect' (LSE) on the European site.
- **Informing the Appropriate Assessment (Stage 2)** – where there are LSE's or there is uncertainty as to whether LSE would occur, report on and provide evidence of examination of adverse effects on the integrity of a European site to inform the competent authority to undertaking the appropriate assessment.
- **Assessment of Alternatives (Stage 3)** – formal assessment and reporting of alternative solutions shall be undertaken where the applicant's Statement to Inform Appropriate Assessment ('SIAA') concludes that there are adverse impacts of greater than negligible magnitude or contains insufficient information on any impact.
- **Assessment of IROPI (Stage 4)** – where the alternative solutions assessment reports that there are no alternative solutions to the project, and this has been agreed with the relevant statutory environmental body (SEB) an assessment of IROPI shall be undertaken.
- **Assessment of compensatory measures** - where IROPI are established and reported an assessment of compensatory measures shall be compiled on measures to compensate for the adverse impact of the project. This should be used as basis for consultation with SEB to seek their representation on the sufficiency of the compensatory measures.

1.6 Scope of this report

1.6.1 This scope of this report is to identify relevant European sites that could potentially be impacted by the proposed scheme and to consider whether there are LSE upon these sites or not, or whether there is sufficient uncertainty as to whether LSE would occur. This is intended to provide the information required by the competent authority for the HRA screening (Stage 1).

1.6.2 In accordance with PINS *Advice Note 10* [4], this report includes:

- A detailed description of the development, processes, timings, and method of work proposed as part of the NSIP.
- Details of the methodology used to determine which European sites should be included within the assessment, including definition of and justification for the scope of the assessment.
- A plan and description of the European site(s) potentially affected, including a description of all qualifying features.

- An appraisal of the potential effects resulting from the construction and operation of the project (e.g., noise) and the likely significant effect on the European site(s) and qualifying features (e.g., disturbance to bird species).
- An outline and interpretation of the baseline data collected to inform the findings.
- An appraisal of the effects of any other plans or projects which, in combination with the proposed scheme, might be likely to have a significant effect on the European site(s).
- A statement which specifies whether the DCO boundary of the project overlaps into devolved administrations or other European Economic Area (EEA) States and map(s).
- A statement which identifies (with reasons) whether significant effects are considered to be likely in respect of European sites in devolved administrations or within other EEA States.
- Evidence of agreement between Highways England and all relevant statutory nature conservation bodies ('SNCBs' on the scope, methodologies, interpretation, and conclusions of the screening assessment).

1.7 Competent expert

- 1.7.1 All ecologists working on this project are members of (at the appropriate level) the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct [10] when undertaking ecological work.
- 1.7.2 The technical reviewer is a Chartered Ecologist (CEcol) and Chartered Environmentalist (CEnv) and is a Full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) and an Associate member of the Institute of Environmental Management and Assessment (AIEMA). They have a BSc (Hons) degree in geography and an MSc in Environmental Management from the University of Nottingham (2006 and 2007 respectively). They have worked as a professional ecologist since 2007, with particular focus on the assessment and mitigation of the ecological impacts of development across a wide range of sectors.

2 Screening assessment methodology

2.1 Standards and guidance

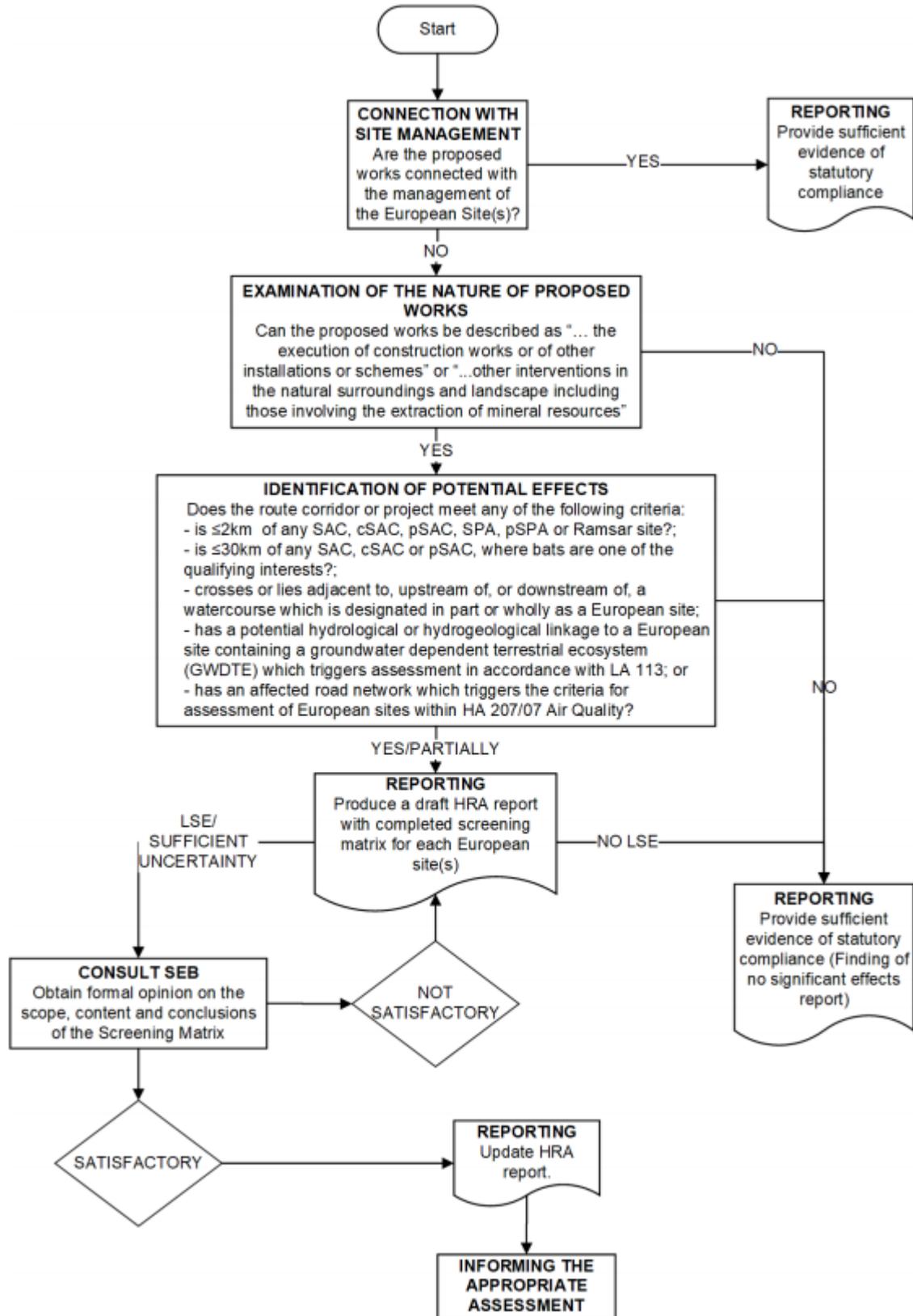
2.1.1 The HRA screening has been carried out using the following:

- Design Manual for Roads and Bridges (DMRB), *Sustainability and Environmental Appraisal, LA 115 Habitats Regulations Assessment* [3].
- Design Manual for Roads and Bridges (DMRB) *Air Quality, LA 105* [11].
- PINS *Advice Note 10: Habitats Regulations Assessment* relevant to nationally significant infrastructure projects (version 8, November 2017) [4].
- UK Government guidance on HRA [5].

2.1.2 The HRA process follows the process within DMRB *LA 115* [3] and is outlined in Extract 2-1 HRA screening process. This corresponds with that in PINS *Advice Note 10* [4]. The PINS Screening Matrices required by this note are included at Appendix C.

2.1.3 In accordance with DMRB *LA 115* [3], this screening report includes completed screening matrices for all European sites which meet the screening criteria. The screening matrices support a conclusion that either there is an absence of LSE, that there are LSE, or that sufficient uncertainty remains as to whether LSE would occur. The screening matrices form the bulk of this report (Tables 3-1 to 3-9) and follow the format from Appendix A of DMRB *LA 115* [3].

2.1.4 Appendix B of *LA 115* [3] sets out a template for a finding of no significant effects report matrix (screening). This matrix has been completed for each European site for which the screening assessment has concluded that there is an absence of LSE. The finding of no significant effects report matrices are provided within Appendix D of this report.



Extract 2-1 HRA Screening Process

Source DMRB LA 115 Habitats Regulations assessment

2.2 Determination of connection with site management

2.2.1 The first step in the HRA screening process is to consider whether the works are connected with or necessary to the management of a European site. Plans and projects which are directly connected with or necessary to the management of a European site may be exempt from the HRA process. The plan or project must be entirely connected with or necessary to the achievement of the site's conservation objectives. Such works should include those that are:

- For conservation purposes.
- Management which is 'directly connected with or necessary' to the site.
- Solely conceived for the conservation management of a site and not direct or indirect consequences.

2.3 Examination of the nature of proposed works

2.3.1 Where the works proposed are not in connection with site management, the next step is to consider whether the proposed works are defined as a 'project' under EU Directive 2014/52/EU [12], namely whether the proposed scheme can be described as 'the execution of construction works or of other installations or schemes', or 'other interventions in the natural surroundings and landscape including those involving the extraction of mineral resources'.

2.4 Scoping of European sites

2.4.1 The European sites included within the scope of this HRA screening have been identified in accordance with DMRB LA 115 screening criteria [3]. These criteria state that European sites shall be included within the screening where the proposed scheme meets any of the following:

1. Is within 2km of a European site or functionally linked land.
2. Is within 30km of a SAC, where bats are noted as one of the qualifying interests.
3. Crosses or lies adjacent to, upstream of, or downstream of, a watercourse which is designated in part or wholly as a European site.
4. Has a potential hydrological or hydrogeological linkage to a European site containing a groundwater dependent terrestrial ecosystem (GWDTE) which triggers the criteria for assessment of European sites in accordance with DMRB LA 113 (Road Drainage and the Water Environment) [13].
5. Has an affected road network (ARN) which triggers the criteria for assessment of European sites in DMRB LA 105 (Air Quality) [11].

2.5 Identification of likely significant effects (LSE)

2.5.1 An assessment has been made as to whether the proposed scheme could have LSE upon European sites that are included within the scope of the screening. LSE are assessed with reference to the conservation objectives of the interest features of the European site.

2.5.2 Baseline information regarding the location, designation, status, sensitivity and interest features of the European sites has been obtained and reviewed to identify designated habitats and species that may be impacted by the proposed scheme during its construction or operation phase. This has included a review of Impact Risk Zones (IRZs), which are a GIS tool developed by Natural England to make a rapid initial assessment of the potential risks posed by the development proposals

to: Sites of Scientific Interest (SSSIs), SACs, SPAs and Ramsar sites. They define zones around each site which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

2.5.3 The identification of potential effects has considered impacts on designated habitats and species of the European sites through aspects of the proposed scheme including:

- **Size and scale** – road type, location and probable traffic volume.
- **Land take** – the total area of land that would be temporarily or permanently lost in order to implement the proposed scheme.
- **Air quality** – changes to air quality as a result of the proposed scheme and the ARN.
- **Water quality** – impacts of pollutants on water quality.
- **Hydrology and hydrogeology** – arising from excavation requirements or other works.
- **Noise and vibration** – activities associated with the proposed scheme that could generate noise and vibration to the extent that it could cause disturbance to designated species.
- **Recreational pressure** – changes in recreational use of European sites enabled by the proposed scheme.

2.5.4 An effect to a European site could be significant if there is:

- A reduction in the amount or quality of designated habitats or the habitats that support designated species.
- A limit to the potential for restoring designated habitats in the future.
- A significant disturbance to the designated species.
- Disruption to the natural processes that support the site's designated features.

2.5.5 Impacts to European sites are 'screened in' for appropriate assessment where there are considered to be LSE arising from the proposed scheme, or there is sufficient uncertainty on the basis of existing data and analysis. In these scenarios, a subsequent SIAA will be produced to provide the information required by the competent authority to undertake an appropriate assessment to determine whether there may be an adverse effect on the integrity of the European site.

2.5.6 The HRA covers the construction and operation phases of the proposed scheme. The proposed scheme is not considered to have a decommissioning stage as it is expected to be in place in perpetuity. Therefore, no decommissioning impacts are discussed in this report.

Mitigation and integral measures

2.5.7 In 2018 a Court of Justice of the European Union ("CJEU") ruling (referred to as the 'People over Wind' ruling) [14] determined that 'mitigation' (i.e., measures intended to avoid or reduce the harmful effects of projects on European sites) should not be taken into account when forming a view on LSE during HRA screening. This screening report reflects the implications of that judgment and does not include mitigation measures that are introduced to avoid harm to the European site or to avoid LSE.

- 2.5.8 Features that are integral to the design or physical characteristics of the project that is being assessed, for example, the layout, timing and location of the proposed scheme, may be considered at the screening stage.
- 2.5.9 In accordance with DMRB *LA 115* [3], construction management measures to ensure wider legislative compliance are reported as part of the project description and are taken into account in the screening assessment.

Consideration of in-combination LSE

- 2.5.10 This report will be updated and will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the screening process.
- 2.5.11 In accordance with PINS *Advice Note 10* [4], where there is potential for in-combination LSE, information will be gathered from publicly available sources and appraised for the following types of development:
- Projects that are under construction.
 - Permitted application(s) not yet implemented.
 - Submitted application(s) not yet determined.
 - All refusals subject to appeal procedures not yet determined.
 - Projects on the National Infrastructure's programme of projects.
 - Projects identified in the relevant development plans such as - *Taunton Deane Local Plan 2004* [15] (Adopted 2004, currently under review), *South Somerset Local Plan 2006-2028* [16], *West Somerset Local Plan to 2032* [17], *Taunton Deane Borough Council Adopted Core Strategy 2011-2028* [18], and *Taunton Deane Adopted Site Allocations and Development Management Plan 2016* [19].

3 Screening assessment results

3.1 Determination of connection with site management

3.1.1 The proposed scheme does not comprise works that are connected with or necessary to the management of a European site.

3.2 Examination of the nature of the proposed works

3.2.1 The proposed scheme is required to be subject to HRA in accordance with UK Government guidance on HRA [5] and Part 6 of the The Habitats Regulations 2017 [1]. The proposals are considered to comprise a 'project' on the basis that they can be described as 'building or installing transport schemes' [5]. A project can be any activity or a number of activities that either needs a new or renewed permission from a competent authority before it goes ahead, or that a competent authority plans to carry out itself.

3.3 Scoping of European sites

3.3.1 The following European sites meet the screening criteria identified in section 2.4 and are therefore included in this assessment:

- Hestercombe House SAC (meets criteria 1 and 2).
- Exmoor and Quantocks SAC (meets criteria 1 and 2).
- Bracket's Coppice SAC (meets criteria 1 and 2).
- Beers Quarry and Caves SAC (meets criteria 1 and 2).
- Somerset Levels and Moors SPA (meets criteria 1, 3 and 4).
- Somerset Levels and Moors Ramsar site (meets criteria 1, 3 and 4).
- Severn Estuary SAC (meets criteria 1 and 3).
- Severn Estuary SPA (meets criterion 3).
- Severn Estuary Ramsar site (meets criteria 1 and 3).

3.3.2 Citations and Standard Data Forms for the European sites discussed in this report are provided within Appendix A: European designated sites citations. A plan indicating the locations of the above listed European sites, the proposed scheme boundary and the ARN are provided within Appendix B of this report.

3.3.3 The proposed scheme, Hestercombe House SAC, Exmoor and Quantocks SAC, Bracket's Coppice SAC, Beers Quarry and Caves SAC, the Somerset Levels and Moors SPA and Ramsar site, the Severn Estuary SPA and Ramsar site are located entirely within England and their boundaries do not overlap with areas of devolved administrations or with those of other European Economic Area (EEA) States. However, the Severn Estuary SAC is partly located within England and the devolved administration of Wales. The screening matrices identify whether LSE will occur in relation to this European site which falls partly within Wales (as required by PINS *Advice Note 10* [4]).

3.4 Identification of likely significant effects (LSE)

3.4.1 The assessment of LSE is set out in screening matrices for each European site below (Tables 3-1 to 3-9), in accordance with the reporting requirements of DMRB LA 115 [3].

Table 3-1 Screening Matrix: Hestercombe House SAC

Project Name:	A358 Taunton to Southfields Dualling	
European Site under consideration:	Hestercombe House SAC	
Date:	Author (Name/ Organisation):	Verified (Name/ Organisation):
13/09/2021	Alys Black (Arup) Sophie Amphlett (Arup)	Jenny Singh (Arup)
Description of Project <i>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the European Site by virtue of:</i>		
Size and scale (road type and probable traffic volume)	<p>1) The proposed scheme will include:</p> <ul style="list-style-type: none"> • Provision of 8.5 miles (13.6km) of new, rural all-purpose dual carriageway for the A358. • Provision of a new two-lane single carriageway overbridge at Stoke Road. • Provision of a new grade-separated junction at Mattock's Tree Green. • Provision of a new bridge to carry the proposed eastbound carriage way at Griffin Lane. • Provision of a new two-lane single carriageway and bridge over the A358 at Village Road. • Provision of a new grade-separated junction at Ashill. <p>2) A more detailed description of the proposed scheme is provided in Section 1.4 of this report.</p> <p>3) In terms of traffic volumes, Annual Average Daily Traffic (AADT) for the proposed scheme is outlined below:</p> <ul style="list-style-type: none"> • A358 at Henlade AQMA (offline portion) existing: 2,983. • A358 at Woodstock (online portion): 35,912. • M5 between J24 and J25: 94,394. • M5 between J24 and J25: 78,701. • A303 at Horton Cross: 35,973. • A372 at Podimore: 26,844. • A358 at Ruishton (offline portion) new A358 alignment: 38,468. 	
Land-take	<p>4) None within the SAC.</p> <p>5) Land-take during construction could result in the loss of functionally linked land for the qualifying bat species.</p>	
Distance from European Site or key features of the site (from edge of the project assessment corridor)	6) The SAC is located 3.77km north-west of the proposed scheme boundary and 2.8km from the ARN.	
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	7) No resource requirements from the SAC.	
Emissions (e.g. polluted surface water runoff – both soluble and insoluble)	<p>8) Water quality</p> <p>Construction activities have the potential to generate water-borne pollution. However, there are no hydrological connections between the proposed scheme and the SAC</p>	

pollutants, atmospheric pollution)	therefore no impacts to surface or groundwater at the SAC during construction are anticipated.
	<p>Air quality</p> <p>9) While the broad habitat (broadleaved deciduous woodland) that the qualifying bat species rely on is sensitive to nitrogen deposition [20] and the proposed scheme has the potential to affect local air quality during operation through changes in annual mean nutrient nitrogen deposition, no impacts upon the SAC as a result of emissions are anticipated due to the distance between the proposed scheme/ARN and the SAC.</p>
Excavation requirements (e.g. impacts of local hydrogeology)	10) No impacts upon the SAC are anticipated, given the distance of the proposed scheme from the SAC.
Transportation requirements	11) No impacts upon the SAC are anticipated, given the distance of the proposed scheme from the SAC.
Duration of construction, operation, etc.	12) It is currently anticipated that the construction activities would commence in 2024 and the proposed scheme would open to traffic in late 2028.
Other	13) Operation of the proposed scheme could impact the populations of qualifying bat species through increased mortality arising from vehicle collisions.
<p>Description of Avoidance and/or Mitigation Measures <i>Describe any assumed (plainly established and uncontroversial) mitigation measures, including information on:</i></p>	
Nature of proposals	14) No specific mitigation measures to mitigate impacts to the SAC are included in this assessment, in line with case law.
Location	15) N/A
Evidence for effectiveness	16) N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	17) N/A
<p>Characteristics of European Site(s) <i>A brief description of the European Site should be produced, including information on:</i></p>	
Name of European Site and its EU code	18) Hestercombe House SAC [UK0030168]
Location and distance of the European Site from the proposed works	19) The SAC is located 3.77km north-west of the proposed scheme boundary and 2.8km from the ARN.
European Site size	20) 0.08ha [21]
Key features of the European Site including the primary reasons for selection and any other qualifying interests	<p>21) Annex II bat species that are a primary reason for selection of this site:</p> <ul style="list-style-type: none"> • 1303 Lesser horseshoe (<i>Rhinolophus hipposideros</i>). <p>22) This site supports a large summer maternity roost and small winter hibernation site of national importance within the Vale of Taunton Dean. The summer maternity roost, which holds a baseline count of 200 individual bats, forms the qualifying feature of the SAC. [22].</p>
Vulnerability of the European Site – any information	23) The Natura 2000 Standard Data Form [21] identifies the following threats, pressures and activities with high negative effect on the SAC:

<p>available from the standard data forms on potential effect pathways</p>	<ul style="list-style-type: none"> • Human induced changes in hydraulic conditions (inside and outside the site). • Biocenotic evolution, succession (inside the site). • Outdoor sports and leisure activities, recreational activities (inside the site). • Changes in biotic conditions (inside and outside the site). • Other urbanisation; industrial and similar activities (inside and outside the site). <p>24) The following threats are pressures identified within the Natural England Site Improvement Plan (SIP) [23] for the SAC:</p> <ul style="list-style-type: none"> • Changes in species distributions – investigate whether the decline in the overall lesser horseshoe population at Hestercombe is due wholly or in part to the relocation of bats to West Monkton. • Inappropriate scrub control – produce a management plan to inform appropriate planting of tree/scrub cover to connect the main house roost emergence point to foraging areas. • Public access and disturbance – produce a management plan as guidance for minimising disturbance by public access, lighting and use of buildings. • Physical modification – produce a management plan as guidance for modification and maintenance of the site (to maintain and enhance the bat population). • Planning permission (general) – inform the planning process under Habitat Regulations.
<p>European Site conservation objectives – where these are readily available</p>	<p>25) The European site conservation objectives [24] for the SAC aim to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:</p> <ul style="list-style-type: none"> • The extent and distribution of the habitats of qualifying species. • The structure and function of the habitats of qualifying species. • The supporting processes on which the habitats of qualifying species rely. • The populations of qualifying species. • The distribution of qualifying species within the site. <p>26) In addition, the European site conservation objectives supplementary advice [22] for the SAC identifies the following attributes and targets:</p> <ul style="list-style-type: none"> • Population abundance – restore the abundance of the breeding population to a level at, or higher, than the baseline of 200 individuals. • Extent of supporting habitat – maintain total extent of habitats which support the lesser horseshoe population during the breeding period. • Distribution of supporting habitat – maintain the distribution of the lesser horseshoe colony and its supporting habitat. • External condition of building - maintain the structural integrity of the buildings used by the lesser horseshoe colony.

	<ul style="list-style-type: none"> • Supporting off-site habitat (flight-lines) – restore the presence, quality and structure of linear landscape features (including unlit flight-lines and dark corridors). • Supporting off-site habitat (foraging areas) – maintain core areas of foraging habitat outside the SAC boundary that are critical to lesser horseshoe during the breeding period (6km zone around the SAC). • Internal condition of building – restore and maintain suitable conditions and light levels for the maternity colony. • Roost access – maintain access points and restore surrounding vegetation to provide sheltered flyways. • Adaptation and resilience maintain the lesser horseshoe’s ability to adapt/evolve to environmental change within or external to the SAC. • Air quality – restore air pollutants to at, or below, Critical Load Levels given for the SAC. • Conservation measures – maintain management measures necessary for the structure, function and processes associated with lesser horseshoe and/or supporting habitats. • Disturbance from human activity – control/minimise human access to the roost sites. • Water quantity/quality – maintain water quality and quantity to a standard which provides necessary conditions to support lesser horseshoe bats.
<p>Assessment Criteria <i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.</i></p>	
<p>27) Construction of the proposed scheme has the potential to impact the SAC through a reduction in the availability of functionally linked habitat and to the qualifying lesser horseshoe population.</p> <p>28) Operation of the proposed scheme has the potential to impact the SAC through increased mortality of bats from the qualifying lesser horseshoe population due to vehicle collision.</p> <p>29) No other elements of the project are likely to give rise to impacts on the European Site.</p> <p>30) The screening decision will be updated as part of the HRA that will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the screening process. This will include consideration of IRZs relevant to the proposed scheme.</p>	
<p>Initial Assessment in relation to Hestercombe House SAC The key characteristics and the details of the European Site should be considered in identifying potential impacts. <i>Describe any likely changes to the site arising as a result of:</i></p>	
<p>Reduction of habitat area</p>	<p>31) There will be no reduction of habitat area within the SAC.</p> <p>32) The potential for a reduction in functionally linked habitat for the lesser horseshoe bat population relevant to the SAC is considered below.</p> <p>33) In order to maintain the favourable conservation status of the SAC, targets have been set [22] relating to the maintenance of off-site habitats including flight lines and foraging habitat for the qualifying lesser horseshoe bat population.</p> <p>34) Lesser horseshoes commute and forage along linear features over wet grassland and woodland. Permanent pasture and</p>

	<p>ancient woodland linked with an abundance of tall, bushy hedgerows is ideal supporting habitat for this species. Flight lines will extend beyond the SAC boundary and into the wider local landscape. Data gathered for the Hestercombe SAC colony has identified a number of flight lines, linking distant regions of the colony's range and providing good foraging opportunities for commuting bats.</p> <p>35) The Bat Conservation Trust (BCT) identify a 3km core sustenance zone (CSZ) for lesser horseshoe bats with a moderate confidence in zone size based upon multiple colonies (noting that the figure is rounded down from weighted average of 3.34km) [25]. A CSZ refers to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost.</p> <p>36) With reference to development, the CSZ could be used to indicate the area which development may impact the commuting and foraging habitat or the area within which there should be no reduction in the quality and availability of foraging habitat.</p> <p>37) The current understanding of key roosts and supporting habitat associated with the SAC have been used to identify a 6km sustenance zone where lesser horseshoe bats are likely to be present centred on the maternity colony at Hestercombe House. Any development activity taking place within this zone has the potential to impact upon the qualifying features of the SAC [25].</p> <p>38) Whilst movements between summer and winter roosts can be up to 22km, winter roosts of lesser horseshoe bats are usually within 5km of the summer roosts [26].</p> <p>39) Desk study and survey data collected to date indicate that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by lesser horseshoe bats. Given the distance of the proposed scheme from the SAC (3.77km), the identified BCT CSZ, the sustenance zone identified for the SAC and the preliminary stage of design detail currently available for the proposed scheme, the potential for a reduction in functionally linked habitat is identified. Further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC.</p> <p>40) Further surveys are to be undertaken in the 2021 survey season including bat roost, activity and radio-tracking surveys. The results of these surveys will be included in a Statement to Inform Appropriate Assessment for the SAC.</p>
Disturbance to key species	<p>41) No disturbance of the qualifying lesser horseshoe population will occur within the SAC due to the distance of the proposed scheme from the SAC.</p> <p>42) Construction of the proposed scheme will include the removal of woodland vegetation adjacent to the existing A358 in addition to within the offline section to the north. The potential is identified for disturbance (including through direct mortality through vehicle collision) to the qualifying lesser horseshoe population while using potentially functionally linked habitats</p>

	<p>local to the proposed scheme. While a significant impact is considered unlikely, due to the identified CSZ, further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC</p> <p>43) Desk study and survey data collected to date indicate that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by lesser horseshoe bats.</p> <p>44) Further surveys are to be undertaken in the 2021 survey season including roost, activity and radio-tracking surveys. The results of these surveys will be included in a Statement to Inform Appropriate Assessment for the SAC.</p>
Habitat or species fragmentation	45) No habitat or species fragmentation is anticipated.
Reduction in species density	46) No reduction in species density is anticipated.
Changes in key indicators of conservation value (water quality, etc.)	47) None anticipated given the distance of the proposed scheme from the SAC.
Climate change	<p>48) PEI Report Chapter 14 Climate concludes no significant effects in relation to greenhouse gas emissions during construction or operation of the proposed scheme.</p> <p>49) No significant climate change related effects upon the European site are anticipated as a result of the proposed scheme.</p>
<i>Describe any likely impacts on the European Site as a whole in terms of:</i>	
Interference with the key relationships that define the structure of the site	50) The potential for a reduction in functionally linked habitat and disturbance (including direct mortality) could adversely affect the qualifying lesser horseshoe population of the SAC. Therefore, there is the potential for the project to interfere with the relationships that define the structure of the SAC.
Interference with the key relationships that define the function of the site	51) The potential for a reduction in functionally linked habitat and disturbance (including direct mortality) could adversely affect the qualifying lesser horseshoe population of the SAC. Therefore, there is the potential for the project to interfere with the relationships that define the function of the SAC.
<i>Indicate the significance as a result of the identification of impacts set out above in terms of:</i>	
Reduction of habitat area	52) A significant effect upon functionally linked habitat cannot be ruled out at this stage.
Disturbance to key species	53) A significant effect upon key species using functionally linked habitat cannot be ruled out at this stage.
Habitat or species fragmentation	54) No likely significant effect.
Disruption	55) No likely significant effect.
Disturbance	56) A significant effect upon key species using functionally linked habitat cannot be ruled out at this stage.
Change to key elements of the site (e.g. water quality, hydrological regime, etc.)	57) No likely significant effect.
<i>Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known:</i>	

<p>Reduction of functionally linked habitat</p> <p>58) While there will be no reduction of habitat within the SAC, the potential for a reduction of available functionally linked habitat for the qualifying lesser horseshoe population has been identified. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the SAC.</p> <p>Disturbance to key species (using functionally linked habitat)</p> <p>59) While there will be no disturbance to the qualifying lesser horseshoe population within the SAC, the potential for disturbance to key species using functionally linked habitat is identified. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the SAC.</p>	
<p>Outcome of screening stage</p>	<p>60) Likely significant effects cannot be ruled out on the basis that sufficient uncertainty remains as to the potential for a reduction in functionally linked habitat and disturbance (including direct mortality) to the qualifying lesser horseshoe population from the SAC.</p>
<p>Are the appropriate statutory environmental bodies in agreement with this conclusion?</p>	<p>61) We are currently engaging with Natural England through a Discretionary Advice Service (DAS) agreement. Their views will be sought over the conclusion of this assessment and will be reported within the HRA that will form part of the DCO application,</p>

Table 3-2 Screening Matrix: Exmoor and Quantocks SAC

Project Name:	A358 Taunton to Southfields Dualling	
European Site under consideration:	Exmoor & Quantock Oakwoods SAC	
Date:	Author (Name/ Organisation):	Verified (Name/ Organisation):
13/09/2021	Alys Black (Arup) Sophie Amphlett (Arup)	Jenny Singh (Arup)
Description of Project <i>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the European Site by virtue of:</i>		
Size and scale (road type and probable traffic volume)	<p>62) The proposed scheme will include:</p> <ul style="list-style-type: none"> • Provision of 8.5 miles (13.6km) of new, rural all-purpose dual carriageway for the A358. • Provision of a new two-lane single carriageway overbridge at Stoke Road. • Provision of a new grade-separated junction at Mattock's Tree Green. • Provision of a new bridge to carry the proposed eastbound carriage way at Griffin Lane. • Provision of a new two-lane single carriageway and bridge over the A358 at Village Road. • Provision of a new grade-separated junction at Ashill. <p>63) A more detailed description of the proposed scheme is provided in Section 1.4 of this report.</p> <p>64) In terms of traffic volumes, Annual Average Daily Traffic (AADT) for the proposed scheme is outlined below:</p> <ul style="list-style-type: none"> • A358 at Henlade AQMA (offline portion) existing: 2,983. • A358 at Woodstock (online portion): 35,912. • M5 between J24 and J25: 94,394. • M5 between J24 and J25: 78,701. • A303 at Horton Cross: 35,973. • A372 at Podimore: 26,844. • A358 at Ruishton (offline portion) new A358 alignment: 38,468. 	
Land-take	<p>65) None within the SAC.</p> <p>66) Land-take during construction of the proposed scheme could result in the loss of functionally linked land for the qualifying bat species.</p>	
Distance from European Site or key features of the site (from edge of the project assessment corridor)	67) The SAC is 15.97km from the proposed scheme boundary at its closest point, and 12.54km from the ARN.	
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	68) No resource requirements from SAC.	
Emissions (e.g. polluted surface water runoff – both	Water quality	

soluble and insoluble pollutants, atmospheric pollution)	<p>69) Construction activities have the potential to generate water-borne pollution. However, there are no hydrological connections between the proposed scheme and the SAC therefore no impacts to surface or groundwater at the SAC during construction are anticipated.</p> <p>Air quality</p> <p>70) While the broad habitat (broadleaved deciduous woodland) that the qualifying bat species rely on is sensitive to nitrogen deposition [20] and the proposed scheme has the potential to affect local air quality during operation through changes in annual mean nutrient nitrogen deposition, no impacts upon the SAC as a result of emissions are anticipated due to the distance between the proposed scheme/ARN and the SAC.</p>
Excavation requirements (e.g. impacts of local hydrogeology)	71) No impacts upon the SAC are anticipated, given the distance of the proposed scheme from the SAC.
Transportation requirements	72) No impacts upon the SAC are anticipated, given the distance of the proposed scheme from the SAC.
Duration of construction, operation, etc.	73) It is currently anticipated that the construction activities would commence in 2024 and the proposed scheme would open to traffic in late 2028.
Other	<p>74) Operation of the proposed scheme could impact the populations of qualifying bat species through increased mortality arising from vehicle collisions.</p> <p>75) There are no hydrological connections between the proposed scheme and the SAC therefore no impacts to the qualifying otter population during construction or operation of the proposed scheme are anticipated.</p>
Description of Avoidance and/or Mitigation Measures <i>Describe any assumed (plainly established and uncontroversial) mitigation measures, including information on:</i>	
Nature of proposals	76) No specific mitigation measures to mitigate impacts to the SAC are included in this assessment, in line with case law.
Location	77) N/A
Evidence for effectiveness	78) N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	79) N/A
Characteristics of European Site(s) <i>A brief description of the European Site should be produced, including information on:</i>	
Name of European Site and its EU code	80) Exmoor and Quantock Oakwoods SAC [UK0030148].
Location and distance of the European Site from the proposed works	81) The SAC is 15.97km from the proposed scheme boundary at its closest point, and 12.54km from the ARN.
European Site size	82) 1894.17ha [27].
Key features of the European Site including the primary	83) Annex I habitats that are the primary reason for selection of this site are:

<p>reasons for selection and any other qualifying interests</p>	<ul style="list-style-type: none"> • 91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles. <p>84) Annex I habitats that are present as a qualifying feature but not a primary reason for selection of this site are:</p> <ul style="list-style-type: none"> • 91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i>. <p>85) Annex II species that are the primary reason for selection of this site are:</p> <ul style="list-style-type: none"> • 1308 Barbastelle bat (<i>Barbastella barbastellus</i>). • 1323 Bechstein's bat (<i>Myotis bechsteinii</i>). • 1355 Otter (<i>Lutra lutra</i>). <p>86) This site supports summer maternity roosts of barbastelle, with a population estimated to be between 51 – 100 individuals, in addition to breeding Bechstein's bats (baseline counts unknown). Both species and the presence of confirmed breeding populations form a qualifying feature of the SAC.</p> <p>87) This site also supports a breeding otter population (baseline counts unknown), which is also a qualifying feature of the SAC.</p>
<p>Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways</p>	<p>88) The Natura 2000 Standard Data Form [27] identified the following threats, pressures and activities with high negative effects on the European site:</p> <ul style="list-style-type: none"> • Grazing (inside site). • Forest and plantation management and use (inside site). • Air pollution (air-borne pollutants) (inside and outside site). • Interspecific floral relations (inside site). • Invasive non-native species (inside and outside site). <p>89) The following threats and pressures are taken from the Natural England SIP [28] for the SAC:</p> <ul style="list-style-type: none"> • Invasive species - control invasive species such as rhododendron and strengthen the existing Exmoor Knotweed Central Partnership (habitats). • Forestry and woodland management - enhance woodland management through existing agreements and by bringing in new woodland owners into agri-environment schemes (habitats). • Disease - encourage adaptation to possible Chalara impacts and investigate the possible impacts of other pests and diseases by initiating research (habitats and barbastelle). • Air pollution (atmospheric nitrogen deposition) – investigate potential atmospheric nitrogen impacts on the site (habitats and barbastelle). • Change in land management – improve habitat quality in and adjacent to existing wood pasture habitat important for lichens by re-introducing grazing and associated canopy management (habitats). • Deer – promote deer control in targeted areas (habitats).
<p>European Site conservation objectives – where these are readily available</p>	<p>90) The conservation objectives [29] for the SAC aim to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its qualifying features, by maintaining or restoring:</p>

	<ul style="list-style-type: none"> • The extent and distribution of qualifying natural habitats of qualifying species. • The structure and function (including typical species) of qualifying natural habitats. • The structure and function of the habitat of qualifying species. • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely. • The population of qualifying species. • The distribution of qualifying species within the site. <p>91) In addition, the European site conservation objectives supplementary advice for the SAC identified the following attributes and targets relating to the qualifying Bechstein’s and barbastelle populations:</p> <ul style="list-style-type: none"> • Population abundance – restore the abundance of the breeding population at a level above the baseline of 51-100 barbastelle. Baseline count for Bechstein’s is unknown. • Supporting off-site habitat (flight-lines) - restore the presence, quality and structure of linear landscape features (including unlit flight-lines and dark corridors). • Supporting off-site habitat (foraging areas) - maintain core areas of foraging habitat within the SAC boundary that are critical to barbastelle and Bechstein’s. • Woodland site – maintain the extent and structural diversity of supporting woodland habitat for foraging and roosting barbastelle and Bechstein’s. • Disturbance from human activity – control and minimise human access to roost sites. • Conservation measures - maintain management measures necessary for the structure, function and processes associated with lesser horseshoe and/or supporting habitats. • Extent of supporting habitat – maintain the total extent of habitats which support barbastelle (1067ha of woodland situated within SSSI’s within the SAC) and Bechstein’s (broadleaved woodland within Quantock area of SAC). • Distribution of supporting habitat – maintain the distribution and continuity of the SAC habitats. • Adaptation and resilience – maintain the barbastelle and Bechstein’s ability to adapt/evolve to environmental change within or external to the SAC. • Soils, substrate and nutrient recycling – maintain the properties of underlying soil conditions within typical values for the supporting habitats. • Water quantity/quality – maintain water quality and quantity to a standard which provides necessary conditions to support barbastelle and Bechstein’s. • Air quality - restore air pollutants to at, or below, Critical Load Levels given for the SAC.
<p>Assessment Criteria</p> <p><i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.</i></p>	
92)	Construction of the proposed scheme has the potential to impact the SAC through a reduction in the availability of functionally linked land to the qualifying Bechstein’s and barbastelle populations.

<p>93) Operation of the proposed scheme has the potential to impact the SAC through increased mortality of bats from the qualifying Bechstein’s and barbastelle populations due to vehicle collision.</p> <p>94) No other elements of the proposed scheme are likely to give rise to impacts on the SAC.</p> <p>95) The screening decision will be updated as part of the HRA that will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the screening process. This will include consideration of IRZs relevant to the proposed scheme.</p>	
<p>Initial Assessment in relation to Exmoor & Quantock Oakwoods SAC The key characteristics and the details of the European Site should be considered in identifying potential impacts.</p> <p><i>Describe any likely changes to the site arising as a result of:</i></p>	
<p>Reduction of habitat area</p>	<p>96) There will be no reduction of habitat area within the SAC.</p> <p>97) The potential for a reduction in functionally linked habitat for each of the bat populations relevant to the SAC is considered below.</p> <p>98) A core sustenance zone (CSZ) refers to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost.</p> <p>99) With reference to development, the CSZ could be used to indicate the area which development may impact the commuting and foraging habitat or the area within which there should be no reduction in the quality and availability of foraging habitat.</p> <p>Bechstein’s</p> <p>100) In order to maintain the favourable conservation status of the SAC, targets have been set [29] relating to the maintenance of off-site habitats including flight lines and foraging habitat for the qualifying Bechstein’s population.</p> <p>101) Bechstein’s bats generally commute along linear landscape features such as woodland edge, hedgerows however they will cross open fields to reach roost sites and foraging areas. Flight lines will extend beyond the designated site boundary into the wider local landscape.</p> <p>102) The Bat Conservation Trust (BCT) identifies a 3km CSZ for Bechstein’s bats with a moderate confidence in zone size based upon multiple studies (noting that the figure is increased from the weighted average of 1km on the basis of its rarity and specialised habitat requirements) [25].</p> <p>103) Bechstein’s will typically hibernate in tree holes, with a low number also hibernating in caves and mines (usually males) [26]. Ringing studies in Europe have identified that the species is relatively sedentary in winter with most recorded movements within 10km, noting that exceptionally long flights (up to 39km) have been recorded.</p> <p>104) Desk study and survey data collected to date indicate that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by Bechstein’s bats.</p>

	<p>However, at a distance of 15.96km and what is known of the CSZ and distances travelled between winter and summer roosts it considered unlikely that the habitats to be impacted constitute functionally linked habitat for the species. Therefore, a reduction in area of functionally linked habitat for Bechstein's bats is not likely to occur.</p> <p>Barbastelle</p> <p>105) In order to maintain the favourable conservation status of the SAC, targets have been set [29] relating to the maintenance of off-site habitats including flight lines and foraging habitat for the qualifying barbastelle population.</p> <p>106) Barbastelle will commute along linear landscape features such as woodland edge and hedgerows though will cross extensive open areas to reach foraging grounds and flight lines will extend beyond the designated site boundary into the wider local landscape.</p> <p>107) The BCT identifies a CSZ of 6km barbastelle bats with a moderate confidence based upon multiple studies (noting that it is rounded down from the weighted average of 6.47km) [25].</p> <p>108) The current understanding of key roosts and supporting habitat associated with the SAC have been used to identify a 15.5km sustenance zone where barbastelle bats are likely to be present centred around the maternity roosts. Any development taking place within this zone has the potential to impact upon the SAC barbastelle population.</p> <p>109) Barbastelle are relatively tolerant of the cold, and found in caves, tunnels, cellars and trees. They often hibernate in relatively exposed situations such as cavities behind joints of timer-framed buildings, between close fitting roof timbers and in hollow tree trunks. Occasionally they can be found behind loose bark on dead trees. Whilst there is limited information on movements between summer and winter roosts movement between winter roosts is quite frequent and they have been known to fly and forage in mild spells all winter [30].</p> <p>110) Desk study and survey data collected to date indicates that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by barbastelle bats. Given the identified BCT CSZ, the sustenance zone identified for the SAC and the preliminary stage of design detail currently available for the proposed scheme, the potential for a reduction in functionally linked habitat is identified. Further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC.</p> <p>111) Further surveys are to be undertaken in the 2021 survey season including roost, activity and radio-tracking surveys. The results of these surveys will be included in a Statement to Inform Appropriate Assessment for the SAC.</p>
Disturbance to key species	<p>112) No disturbance of the qualifying Bechstein's or barbastelle populations will occur within the SAC due to the distance of the proposed scheme from the SAC.</p> <p>113) Construction of the proposed scheme will include the removal of woodland vegetation adjacent to the existing A358 in</p>

	<p>addition to within the offline section to the north. Desk study and survey data collected to date indicate that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by Bechstein's and barbastelle bats. The potential for disturbance (including direct mortality through vehicle collision) is identified for the qualifying barbastelle population whilst using habitats local to the proposed scheme. While a significant impact is considered unlikely, due to the identified CSZ, further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC in respect of the barbastelle population.</p> <p>114) While desk study and survey data collected to date indicates that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by Bechstein's bats; given that the habitats within the proposed scheme are not considered to constitute functionally linked habitat for Bechstein's bats from the SAC (see Reduction in habitat, above), disturbance of Bechstein's bats originating from the SAC is not likely to occur and no impact as a result of disturbance to this key species is identified.</p> <p>115) Further surveys are to be undertaken in the 2021 survey season including roost, activity and radio-tracking surveys. The results of these surveys will be included in a Statement to Inform Appropriate Assessment for the SAC, in relation to the qualifying barbastelle population.</p>
Habitat or species fragmentation	116) No habitat or species fragmentation is anticipated.
Reduction in species density	117) No reduction in species density is anticipated.
Changes in key indicators of conservation value (water quality, etc.)	118) None anticipated given the distance of the proposed scheme from the SAC.
Climate change	<p>119) PEI Report Chapter 14 Climate concludes no significant effects in relation to greenhouse gas emissions during construction or operation of the proposed scheme.</p> <p>120) No significant climate change related effects upon the SAC are anticipated as a result of the proposed scheme.</p>
<i>Describe any likely impacts on the European Site as a whole in terms of:</i>	
Interference with the key relationships that define the structure of the site	121) The potential for a reduction in functionally linked habitat and disturbance (including direct mortality) could adversely affect the qualifying barbastelle population of the SAC. Therefore, there is the potential for the project to interfere with the relationships that define the structure of the SAC.
Interference with the key relationships that define the function of the site	122) The potential for a reduction in functionally linked habitat and disturbance (including direct mortality) could adversely affect the qualifying barbastelle population of the SAC. Therefore, there is the potential for the project to interfere with the relationships that define the structure of the SAC.
<i>Indicate the significance as a result of the identification of impacts set out above in terms of:</i>	
Reduction of habitat area	123) A significant effect upon functionally linked habitat cannot be ruled out at this stage.

Disturbance to key species	124) A significant effect upon key species using functionally linked habitat cannot be ruled out at this stage.
Habitat or species fragmentation	125) No likely significant effect.
Disruption	126) No likely significant effect.
Disturbance	127) A significant effect upon key species using functionally linked habitat cannot be ruled out at this stage.
Change to key elements of the site (e.g. water quality, hydrological regime, etc.)	128) No likely significant effect.
<i>Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known:</i>	
<p>Reduction of functionally linked habitat</p> <p>129) While there will be no reduction of habitat within the SAC, the potential for a reduction of available functionally linked habitat for the qualifying barbastelle population has been identified. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the SAC.</p> <p>Disturbance to key species (using functionally linked habitat)</p> <p>130) While there will be no disturbance to key species within the SAC, the potential for disturbance to the qualifying barbastelle population using functionally linked habitat is identified. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the SAC.</p>	
Outcome of screening stage	131) Likely significant effects cannot be ruled out on the basis that sufficient uncertainty remains as to the potential for a reduction in functionally linked habitat and disturbance (including direct mortality) to the qualifying barbastelle population from the SAC.
Are the appropriate statutory environmental bodies in agreement with this conclusion?	132) We are currently engaging with Natural England through a Discretionary Advice Service (DAS) agreement. Their views will be sought over the conclusion of this assessment and will be reported within the HRA that will form part of the DCO application,

Table 3-3 Screening Matrix: Bracket's Coppice SAC

Project Name:	A358 Taunton to Southfields Dualling	
European Site under consideration:	Bracket's Coppice SAC	
Date:	Author (Name/ Organisation):	Verified (Name/ Organisation):
13/09/2021	Alys Black (Arup) Sophie Amphlett (Arup)	Jenny Singh (Arup)
Description of Project <i>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the European Site by virtue of:</i>		
Size and scale (road type and probable traffic volume)	<p>133) The proposed scheme will include:</p> <ul style="list-style-type: none"> • Provision of 8.5 miles (13.6km) of new, rural all-purpose dual carriageway for the A358. • Provision of a new two-lane single carriageway overbridge at Stoke Road. • Provision of a new grade-separated junction at Mattock's Tree Green. • Provision of a new bridge to carry the proposed eastbound carriage way at Griffin Lane. • Provision of a new two-lane single carriageway and bridge over the A358 at Village Road. • Provision of a new grade-separated junction at Ashill. <p>134) A more detailed description of the proposed scheme is provided in Section 1.4 of this report.</p> <p>135) In terms of traffic volumes, Annual Average Daily Traffic (AADT) for the proposed scheme is outlined below:</p> <ul style="list-style-type: none"> • A358 at Henlade AQMA (offline portion) existing: 2,983. • A358 at Woodstock (online portion): 35,912. • M5 between J24 and J25: 94,394. • M5 between J24 and J25: 78,701. • A303 at Horton Cross: 35,973. • A372 at Podimore: 26,844. • A358 at Ruishton (offline portion) new A358 alignment: 38,468. 	
Land-take	<p>136) None within the SAC.</p> <p>137) Land-take during construction of their proposed scheme could result in the loss of functionally linked land for the qualifying bat species.</p>	
Distance from European Site or key features of the site (from edge of the project assessment corridor)	138) The SAC is 18.21km from the proposed scheme boundary and 4.54km from the ARN.	
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	139) No resource requirements from the SAC.	
Emissions (e.g. polluted surface water runoff – both soluble and insoluble)	<p>Water quality</p> <p>140) Construction activities have the potential to generate water-borne pollution. However, there are no hydrological</p>	

pollutants, atmospheric pollution)	<p>connections between the proposed scheme and the SAC therefore no impacts to surface or groundwater at the SAC during construction are anticipated.</p> <p>Air quality</p> <p>141) While the broad habitat (broadleaved deciduous woodland) that the qualifying bat species rely on is sensitive to nitrogen deposition [20] and the proposed scheme has the potential to affect local air quality during operation through changes in annual mean nutrient nitrogen deposition, no impacts upon the SAC as a result of emissions are anticipated due to the distance between the proposed scheme and the SAC.</p> <p>142) Given that the ARN is 4.5km and the CSZ for Bechstein's is 3km no impacts upon the SAC as a result of emissions are anticipated.</p>
Excavation requirements (e.g. impacts of local hydrogeology)	143) No impacts upon the SAC are anticipated, given the distance of the proposed scheme from the SAC.
Transportation requirements	144) No impacts upon the SAC are anticipated, given the distance of the proposed scheme from the SAC.
Duration of construction, operation, etc.	145) It is currently anticipated that the construction activities would commence in 2024 and the proposed scheme would open to traffic in late 2028.
Other	146) Operation of the proposed scheme could impact the populations of qualifying bat species through increased mortality arising from vehicle collisions.
<p>Description of Avoidance and/or Mitigation Measures <i>Describe any assumed (plainly established and uncontroversial) mitigation measures, including information on:</i></p>	
Nature of proposals	147) No specific mitigation measures to mitigate impacts to the SAC are included in this assessment, in line with case law.
Location	148) N/A
Evidence for effectiveness	149) N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	150) N/A
<p>Characteristics of European Site(s) <i>A brief description of the European Site should be produced, including information on:</i></p>	
Name of European Site and its EU code	151) Bracket's Coppice SAC [0030095]
Location and distance of the European Site from the proposed works	152) The SAC is 18.21km from the proposed scheme boundary and 4.54km from the ARN.
European Site size	153) 53.7ha [31]
Key features of the European Site including the primary reasons for selection and any other qualifying interests	<p>154) Annex II species that are a primary reason for selection of this site:</p> <ul style="list-style-type: none"> • 1323 Bechstein's bat (<i>Myotis bechsteinii</i>). <p>155) One of the first maternity colonies of Bechstein's bat that was discovered using bat-boxes in this small woodland.</p>

	<p>156) Annex I habitats present as a qualifying feature of this site:</p> <ul style="list-style-type: none"> • 6410 Molina meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caeruleae</i>).
<p>Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways</p>	<p>157) The Natura 2000 Standard Data Form [31] identifies the following threats, pressures and activities with high negative effects on the SAC:</p> <ul style="list-style-type: none"> • Grazing (inside site). • Problematic native species (inside and outside site). • Air pollution, air-borne pollutants (inside and outside site). <p>158) The following threats and pressures are identified within the Natural England SIP [32] for the SAC:</p> <ul style="list-style-type: none"> • Undergrazing – promote deer control to allow sufficient grazing of the <i>Molinia</i> meadow qualifying habitat. • Deer – monitor and maintain deer populations and extend the existing control programme to prevent overgrazing affecting both the qualifying habitat and species. • Air pollution – impact of atmospheric nitrogen deposition - control and reduce nitrogen deposition to reduce the pressure on both the qualifying habitat and species.
<p>European Site conservation objectives – where these are readily available</p>	<p>159) The European site conservation objectives [33] for the SAC aim to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:</p> <ul style="list-style-type: none"> • The extent and distribution of qualifying natural habitats and habitats of qualifying species. • The structure and function (including typical species) of qualifying natural habitats. • The structure and function of the habitats of qualifying species. • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely. • The populations of qualifying species. • The distribution of qualifying species within the site. <p>160) In addition, the European site conservation objectives supplementary advice [34] for the SAC identifies the following attributes and targets in relation to qualifying bat species:</p> <ul style="list-style-type: none"> • Population abundance – maintain the abundance of the breeding population at above x10 juvenile bats produced each year. • Extent of supporting habitat – maintain the extent of habitat which supports the Bechstein’s population at approx. 34ha of broadleaved woodland. • Distribution of supporting habitat – maintain the distribution and continuity of the Bechstein’s population and its supporting habitat. • External condition of bat boxes – maintain the structural integrity and weathering of bat boxes. • Supporting off-site habitat (flight lines) – maintain the presence, structure and quality of linear landscape features which function as flightlines (including unlit flight-lines and dark corridors). • Supporting off-site habitat (foraging areas) – restore core areas of foraging habitat outside of the SAC

	<p>boundary that are critical to supporting breeding Bechstein's.</p> <ul style="list-style-type: none"> • Internal condition of bat boxes – maintain appropriate internal conditions. • Roost access – maintain access points to bat boxes and provide sheltered flyways without obstructing access. • Soils, substrate and nutrient cycling – maintain the properties of the underlying soils within typical values for the supporting habitats. • Woodland site – maintain the extent and structural diversity of the supporting woodland for foraging Bechstein's. • Adaptation and resilience - maintain the Bechstein's ability to adapt/evolve to environmental change within or external to the SAC. • Air quality - restore air pollutants to at, or below, Critical Load Levels given for the SAC. • Conservation measures - maintain management measures necessary for the structure, function and processes associated with Bechstein's and/or supporting habitats. • Disturbance from human activity - control/minimise human access to the roost sites. • Water quantity/quality - maintain water quality and quantity to a standard which provides necessary conditions to support Bechstein's bats.
<p>Assessment Criteria</p> <p><i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.</i></p>	
161)	Construction of the proposed scheme has the potential to impact the SAC through a reduction in the availability of functionally linked land to the qualifying Bechstein's population.
162)	Operation of the proposed scheme has the potential to impact the SAC through increased mortality of bats from the qualifying Bechstein's population due to vehicle collision.
163)	No other elements of the proposed scheme are likely to give rise to impacts on the SAC.
164)	The screening decision will be updated as part of the HRA that will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the screening process. This will include consideration of IRZs relevant to the proposed scheme.
<p>Initial Assessment in relation to Bracket's Coppice SAC</p> <p>The key characteristics and the details of the European Site should be considered in identifying potential impacts.</p> <p><i>Describe any likely changes to the site arising as a result of:</i></p>	
Reduction of habitat area	<p>165) There will be no reduction of habitat area within the SAC.</p> <p>166) The potential for a reduction in functionally linked habitat for the Bechstein's bat population relevant to the SAC is considered below.</p> <p>167) In order to maintain the favourable conservation status of the SAC, targets have been set [33] relating to the maintenance of off-site habitats including flight lines and foraging habitat for the qualifying Bechstein's population.</p>

	<p>168) Bechstein's bats generally commute along linear landscape features such as woodland edge, hedgerows however they will cross open fields to reach roost sites and foraging areas. Flight lines will extend beyond the designated site boundary into the wider local landscape.</p> <p>169) A core sustenance zone (CSZ) refers to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost.</p> <p>170) With reference to development, the CSZ could be used to indicate the area which development may impact the commuting and foraging habitat or the area within which there should be no reduction in the quality and availability of foraging habitat.</p> <p>171) The Bat Conservation Trust (BCT) identifies a 3km CSZ for Bechstein's bats with a moderate confidence in zone size based upon multiple studies (noting that the figure is increased from the weighted average of 1km on the basis of its rarity and specialised habitat requirements) [25].</p> <p>172) Bechstein's will typically hibernate in tree holes, with a low number also hibernating in caves and mines (usually males). Ringing studies in Europe have identified that the species is relatively sedentary in winter with most recorded movements within 10km, noting that exceptionally long flights (up to 39km) have been recorded [26].</p> <p>173) Desk study and survey data collected to date indicate that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by Bechstein's bats. However, at a distance of 18.21km and what is known of the CSZ and distances travelled between winter and summer roosts it considered unlikely that the habitats to be impacted constitute functionally linked habitat for the species. Therefore, a reduction in area of functionally linked habitat for Bechstein's bats is not likely to occur.</p>
Disturbance to key species	<p>174) No disturbance of the qualifying Bechstein's population will occur within the SAC due to the distance of the proposed scheme from the SAC.</p> <p>175) Given that the habitats within the proposed scheme are not considered to constitute functionally linked habitat for Bechstein's bats from the SAC (see Reduction in habitat, above), disturbance of Bechstein's bats originating from the SAC is not likely to occur and no impact as a result of disturbance to key species is identified.</p> <p>176) Given that the ARN is 4.54km from the SAC and the CSZ is identified as 3km for Bechstein's bats, no potential for disturbance through increased traffic volumes is identified.</p>
Habitat or species fragmentation	<p>177) No habitat or species fragmentation is anticipated.</p>
Reduction in species density	<p>178) No reduction in species density is anticipated.</p>

Changes in key indicators of conservation value (water quality, etc.)	179)	None anticipated given the distance of the proposed scheme from the SAC.
Climate change	180)	PEI Report Chapter 14 Climate concludes no significant effects in relation to greenhouse gas emissions during construction or operation of the proposed scheme.
	181)	No significant climate change related effects upon the SAC are anticipated as a result of the proposed scheme.
<i>Describe any likely impacts on the European Site as a whole in terms of:</i>		
Interference with the key relationships that define the structure of the site	182)	It is not anticipated that the proposed scheme will cause any impact that will result in a significant effect on the key relationships that define the structure of the SAC.
Interference with the key relationships that define the function of the site	183)	It is not anticipated that the proposed scheme will cause an impact that will result in a significant effect on the key relationships that define the function of the SAC.
<i>Indicate the significance as a result of the identification of impacts set out above in terms of:</i>		
Reduction of habitat area	184)	No likely significant effect.
Disturbance to key species	185)	No likely significant effect.
Habitat or species fragmentation	186)	No likely significant effect.
Disruption	187)	No likely significant effect.
Disturbance	188)	No likely significant effect.
Change to key elements of the site (e.g. water quality, hydrological regime, etc.)	189)	No likely significant effect.
<i>Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known:</i>		
190)	No elements of the proposed scheme have been identified which are likely to have any significant effects on the qualifying bat populations of the SAC.	
Outcome of screening stage	191)	No likely significant effect.
Are the appropriate statutory environmental bodies in agreement with this conclusion?	192)	We are currently engaging with Natural England through a Discretionary Advice Service (DAS) agreement. Their views will be sought over the conclusion of this assessment and will be reported within the HRA that will form part of the DCO application.

Table 3-4 Beer Quarry & Caves SAC

Project Name:	A358 Taunton to Southfields Dualling	
European Site under consideration:	Beer Quarry and Caves SAC	
Date:	Author (Name/ Organisation):	Verified (Name/ Organisation):
13/09/2021	Alys Black (Arup) Sophie Amphlett (Arup)	Jenny Singh (Arup)
Description of Project <i>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the European Site by virtue of:</i>		
Size and scale (road type and probable traffic volume)	<p>193) The proposed scheme will include:</p> <ul style="list-style-type: none"> • Provision of 8.5 miles (13.6km) of new, rural all-purpose dual carriageway for the A358. • Provision of a new two-lane single carriageway overbridge at Stoke Road. • Provision of a new grade-separated junction at Mattock's Tree Green. • Provision of a new bridge to carry the proposed eastbound carriage way at Griffin Lane. • Provision of a new two-lane single carriageway and bridge over the A358 at Village Road. • Provision of a new grade-separated junction at Ashill. <p>194) A more detailed description of the proposed scheme is provided in Section 1.4 of this report.</p> <p>195) In terms of traffic volumes, Annual Average Daily Traffic (AADT) for the proposed scheme is outlined below:</p> <ul style="list-style-type: none"> • A358 at Henlade AQMA (offline portion) existing: 2,983. • A358 at Woodstock (online portion): 35,912. • M5 between J24 and J25: 94,394. • M5 between J24 and J25: 78,701. • A303 at Horton Cross: 35,973. • A372 at Podimore: 26,844. • A358 at Ruishton (offline portion) new A358 alignment: 38,468. 	
Land-take	<p>196) None within the SAC.</p> <p>197) Land-take during construction of the proposed scheme could result in the loss of functionally linked land for the qualifying bat species.</p>	
Distance from European Site or key features of the site (from edge of the project assessment corridor)	198) The SAC is 28.42km from the proposed scheme boundary and 20.23km from the ARN.	
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	199) No resource requirements from the SAC.	
Emissions (e.g. polluted surface water runoff – both soluble and insoluble)	<p>Water quality</p> <p>200) Construction activities have the potential to generate water-borne pollution. However, there are no hydrological connections between the proposed scheme and the SAC</p>	

pollutants, atmospheric pollution)	<p>therefore no impacts to surface or groundwater at the SAC during construction are anticipated.</p> <p>Air quality</p> <p>201) While the broad habitat (broadleaved deciduous woodland) that the qualifying bat species rely on is sensitive to nitrogen deposition [20] and the proposed scheme has the potential to affect local air quality during operation through changes in annual mean nutrient nitrogen deposition, no impacts upon the SAC as a result of emissions are anticipated due to the distance between the proposed scheme/ARN and the SAC.</p>
Excavation requirements (e.g. impacts of local hydrogeology)	202) No impacts upon the SAC are anticipated, given the distance of the proposed scheme from the SAC.
Transportation requirements	203) No impacts upon the SAC are anticipated, given the distance of the proposed scheme from the SAC.
Duration of construction, operation, etc.	204) It is currently anticipated that the construction activities would commence in 2024 and the proposed scheme open to traffic in late 2028.
Other	205) Operation of the proposed scheme could impact the populations of qualifying bat species through increased mortality arising from vehicle collisions.
Description of Avoidance and/or Mitigation Measures <i>Describe any assumed (plainly established and uncontroversial) mitigation measures, including information on:</i>	
Nature of proposals	206) No specific mitigation measures to mitigate impacts to the SAC are included in this assessment, in line with case law.
Location	207) N/A
Evidence for effectiveness	208) N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	209) N/A
Characteristics of European Site(s) <i>A brief description of the European Site should be produced, including information on:</i>	
Name of European Site and its EU code	210) Beer Quarry and Caves SAC [UK0012585]
Location and distance of the European Site from the proposed works	211) The SAC is 28.42km from the proposed scheme boundary and 20.23km from the ARN.
European Site size	212) 31.ha [35].
Key features of the European Site including the primary reasons for selection and any other qualifying interests	<p>213) Annex II species that are a primary reason for selection of this site:</p> <ul style="list-style-type: none"> • 1323 Bechstein's Bat (<i>Myotis bechsteinii</i>). <p>214) This complex of abandoned mines in south-west England is regularly used as a hibernation site by small numbers of Bechstein's bat as well as an important assemblage of other bat species.</p> <p>215) Annex II species present but not a primary reason for selection:</p>

	<ul style="list-style-type: none"> • 1303 Lesser horseshoe (<i>Rhinolophus hipposideros</i>). • 1304 Greater horseshoe (<i>Rhinolophus ferrumequinum</i>).
<p>Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways</p>	<p>216) The Natura 2000 Standard Data Form [35] identifies the following threats, pressures and activities with high negative effect on the SAC:</p> <ul style="list-style-type: none"> • Other human intrusions and disturbances (inside site). • Other urbanisation, industrial and similar activities (inside and outside site). • Biocenotic evolution, succession (inside site). • Other ecosystem modifications (inside and outside site). <p>217) The following threats are pressures are identified within the Natural England SIP [36] for the SAC:</p> <ul style="list-style-type: none"> • Direct impact from third party – develop an access strategy to control site access, to include the installation of barriers and/or fencing. • Planning permission - work with the Local Authority, AONB and local bat group to develop planning guidance. • Habitat vulnerability – identify and implement measures to ensure different micro-climates within the caves are fully understood. • Inappropriate scrub control – produce a management plan identifying requirement for scrub management to maintain access for bats. • Habitat connectivity – identify opportunities for enhancement scheme (e.g., agri-environment) to maintain and/or enhance bat habitat.
<p>European Site conservation objectives – where these are readily available</p>	<p>218) The European site conservation objectives [37] for the SAC aim to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the favourable conservation status of its qualifying features, by maintaining or restoring:</p> <ul style="list-style-type: none"> • The extent and distribution of the habitats of qualifying species. • The structure and function of the habitats of qualifying species. • The supporting processes on which the habitats of qualifying species rely. • The populations of qualifying species. • The distribution of qualifying species within the site. <p>219) In addition, the European site conservation objectives supplementary advice [38] for the SAC identifies the following attributes and targets:</p> <ul style="list-style-type: none"> • Population abundance – maintain the abundance of the hibernating population at or above the following levels: <ol style="list-style-type: none"> a. 107 lesser horseshoe. b. 146 greater horseshoe. c. 3 Bechstein's. • Extent of supporting habitat – maintain the extent of the habitats which support greater and lesser horseshoe and Bechstein's bats. • Distribution of supporting habitat - maintain the distribution and continuity of the greater and lesser horseshoe and Bechstein's bats populations and the supporting habitats. • External condition of underground site – restore structural integrity of hibernation sites.

	<ul style="list-style-type: none"> • Internal condition of underground site – restore appropriate internal conditions for hibernation sites. • Roost access – restore the number of access points and restore surrounding vegetation to provide sheltered flyway. • Supporting off-site habitat (flight lines) – restore the presence, quality and structure of linear landscape features (including unlit flight-lines and dark corridors). • Supporting off-site habitat (foraging areas) – maintain core areas of foraging habitat outside the SAC boundary that are critical to greater and lesser horseshoe and Bechstein’s bats during the hibernation period. • Adaptation and resilience – maintain the greater and lesser horseshoe’s and Bechstein’s bats ability to adapt/evolve to environmental change within or external to the SAC. • Air quality – restore air pollutants to at, or below, Critical Load Levels given for the SAC. • Conservation measures – restore the management measures necessary to restore the structure, function and processes associated with greater and lesser horseshoes and Bechstein’s and/or their supporting habitats. • Disturbance from human activity – control/minimise human access to the roost sites. • Water quantity/quality – maintain water quality and quantity to a standard which provides necessary conditions to support greater and lesser horseshoe and Bechstein’s bats.
<p>Assessment Criteria</p> <p><i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.</i></p>	
<p>220) Construction of the proposed scheme has the potential to impact the SAC through a reduction in the availability of functionally linked land to the qualifying populations of bat species.</p> <p>221) Operation of the proposed scheme has the potential to impact the SAC through increased mortality of bats from the qualifying populations of bat species due to vehicle collision.</p> <p>222) No other elements of the proposed scheme are likely to give rise to impacts on the SAC.</p> <p>223) The screening decision will be updated as part of the HRA that will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the screening process. This will include consideration of IRZs relevant to the proposed scheme.</p>	
<p>Initial Assessment in relation to Beer Quarry and Caves SAC</p> <p>The key characteristics and the details of the European Site should be considered in identifying potential impacts.</p> <p><i>Describe any likely changes to the site arising as a result of:</i></p>	
<p>Reduction of habitat area</p>	<p>224) There will be no reduction of habitat area within the SAC.</p> <p>225) The designated area of the SAC is relatively discrete and comprises the areas immediately surrounding the quarry and caves; however, the bat populations are dependent upon a much wider area outside the SAC boundary, which provides foraging habitat and commuting routes and supports nearby summer maternity and night roosts.</p> <p>226) Feeding areas used by SAC bats extend beyond the SAC boundary but are critical to successful hibernation and habitat</p>

	<p>connectivity is identified as a key threat to the SAC [36]. Flight lines for all qualifying bat species will extend beyond the designated site boundary into the wider local landscape.</p> <p>227) A core sustenance zone (CSZ) refers to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost.</p> <p>228) With reference to development, the CSZ could be used to indicate the area which development may impact the commuting and foraging habitat or the area within which there should be no reduction in the quality and availability of foraging habitat.</p> <p>Bechstein's</p> <p>229) In order to maintain the favourable conservation status of the SAC, targets have been set [37] relating to the maintenance of off-site habitats including flight lines and foraging habitat for the qualifying Bechstein's population.</p> <p>230) The designated area of the SAC is relatively discrete and comprises the areas immediately surrounding the quarry and caves; however, the bat populations are dependent upon a much wider area outside the SAC boundary, which provides foraging habitat and commuting routes and supports nearby summer maternity and night roosts.</p> <p>231) Bechstein's bats generally commute along linear landscape features such as woodland edge, hedgerows however they will cross open fields to reach roost sites and foraging areas. Flight lines will extend beyond the designated site boundary into the wider local landscape.</p> <p>232) The Bat Conservation Trust (BCT) identifies a 3km CSZ for Bechstein's bats with a moderate confidence in zone size based upon multiple studies (noting that the figure is increased from the weighted average of 1km on the basis of its rarity and specialised habitat requirements) [25].</p> <p>233) Bechstein's will typically hibernate in tree holes, with a low number also hibernating in caves and mines (usually males). Ringing studies in Europe have identified that the species is relatively sedentary in winter with most recorded movements within 10km, noting that exceptionally long flights (up to 39km) have been recorded [26].</p> <p>234) Desk study and survey data collected to date indicates that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by Bechstein's bats. However, at a distance of 28.42km and what is known of the CSZ and distances travelled between winter and summer roosts it considered unlikely that the habitats to be impacted constitute functionally linked habitat for the species. Therefore, a reduction in area of functionally linked habitat for Bechstein's bats is not likely to occur.</p> <p>Lesser horseshoe bat</p> <p>235) Lesser horseshoes commute and forage along linear features over wet grassland and woodland. Permanent pasture and</p>
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	<p>ancient woodland linked with an abundance of tall, bushy hedgerows is ideal supporting habitat for this species. Bechstein's bats generally commute along linear landscape features such as woodland edge, hedgerows however they will cross open fields to reach roost sites and foraging areas.</p> <p>236) The Bat Conservation Trust (BCT) identify a 3km CSZ for lesser horseshoe bats with a moderate confidence in zone size based upon multiple colonies (noting that the figure is rounded down from weighted average of 3.34km) [25].</p> <p>237) Whilst movements between summer and winter roosts can be up to 22km, winter roosts of lesser horseshoe bats are usually within 5km of the summer roosts [26].</p> <p>238) Desk study and survey data collected to date indicates that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by lesser horseshoe bats. While the CSZ and the distances identified for movements between winter and summer roosts would indicate that the lesser horseshoe bats present on site are unlikely to originate from the SAC population, the potential for a reduction in functionally linked habitat is identified. Further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC. Further surveys are to be undertaken in the 2021 survey season including roost, activity and radio-tracking surveys. The results of these surveys will be included in a Statement to Inform Appropriate Assessment for the SAC.</p> <p>Greater horseshoe bats</p> <p>239) 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.</p> <p>240) Non-breeding greater horseshoe adults can forage up to 4km from roosts sites, with breeding females and juveniles roughly half of this (2km). The Bat Conservation Trust (BCT) identify a 2km CSZ for greater horseshoe bats with a good confidence in zone size based upon multiple colonies (noting that the zone is close to the weighted average of 2.02km) [25].</p> <p>241) Winter roosts are usually within 10km – 40km of the summer roosts depending on the type of roost. Type 1 roosts (mainly 1st year bats of both sexes) within 10km, type 2 roosts (some 1st year bats, mainly 2nd and 3rd year immatures with surplus adult males) within 20km and type 3 roosts (single breeding males in spring and summer with visiting breeding females) within 40km.</p> <p>242) Desk study and survey data collected to date indicates that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by greater horseshoe bats. While the CSZ would indicate that the greater horseshoe bats foraging within the proposed scheme are unlikely to originate from the SAC population, the distances identified for movements between winter and summer roosts indicate the potential for movements between the SAC and habitats local to the proposed scheme for roosting and the</p>
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	<p>potential for a reduction in functionally linked habitat is identified. Further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC. Further surveys are to be undertaken in the 2021 survey season including roost, activity and radio-tracking surveys. The results of these surveys will be included in a Statement to Inform Appropriate Assessment for the SAC.</p>
Disturbance to key species	<p>243) No disturbance of the qualifying Bechstein's population will occur within the SAC due to the distance of the proposed scheme from the SAC.</p> <p>244) Construction of the proposed scheme will include the removal of woodland vegetation adjacent to the A358 in addition to within the offline section to the north. Desk study and survey data collected to date indicates that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by greater and lesser horseshoe bats. The potential for disturbance (including direct mortality through vehicle collision) is identified for the lesser and greater horseshoe populations. While a significant impact is considered unlikely, due to the identified CSZ, further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC in respect of the horseshoe populations.</p> <p>245) While desk study and survey data collected to date indicate that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by Bechstein's bats, given that the habitats within the proposed scheme are not considered to constitute functionally linked habitat for the Bechstein's bats from the SAC (see Reduction in habitat, above), disturbance of Bechstein's bats originating from the SAC is not likely to occur and no impact as a result of disturbance to key species is identified.</p> <p>246) Further surveys are to be undertaken in the 2021 survey season including roost, activity and radio-tracking surveys. The results of these surveys will be included in a Statement to Inform Appropriate Assessment for the SAC, in relation to the qualifying horseshoe populations</p>
Habitat or species fragmentation	247) No habitat or species fragmentation is anticipated.
Reduction in species density	248) No reduction in species density is anticipated.
Changes in key indicators of conservation value (water quality, etc.)	249) None anticipated given the distance of the proposed scheme from the SAC.
Climate change	<p>250) PEI Report Chapter 14 Climate concludes no significant effects in relation to greenhouse gas emissions during construction or operation of the proposed scheme.</p> <p>251) No significant climate change related effects upon the SAC are anticipated as a result of the proposed scheme.</p>
<i>Describe any likely impacts on the European Site as a whole in terms of:</i>	

Interference with the key relationships that define the structure of the site	252) The potential for a reduction in functionally linked habitat and disturbance (including direct mortality) have the potential to adversely affect the qualifying horseshoe populations of the SAC. Therefore, there is the potential for the project to interfere with the relationships that define the structure of the SAC.
Interference with the key relationships that define the function of the site	253) The potential for a reduction in functionally linked habitat and disturbance (including direct mortality) have the potential to adversely affect the qualifying horseshoe populations of the SAC. Therefore, there is the potential for the project to interfere with the relationships that define the structure of the SAC.
<i>Indicate the significance as a result of the identification of impacts set out above in terms of:</i>	
Reduction of habitat area	254) A significant effect upon functionally linked habitat cannot be ruled out at this stage.
Disturbance to key species	255) A significant effect upon key species using functionally linked habitat cannot be ruled out at this stage.
Habitat or species fragmentation	256) No likely significant effect.
Disruption	257) No likely significant effect.
Disturbance	258) A significant effect upon key species using functionally linked habitat cannot be ruled out at this stage.
Change to key elements of the site (e.g. water quality, hydrological regime, etc.)	259) No likely significant effect.
<i>Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known:</i>	
260)	<p>Reduction of functionally linked habitat</p> <p>While there will be no reduction of habitat within the SAC, the potential for a reduction of available functionally linked habitat for the qualifying horseshoe populations has been identified. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the SAC.</p>
261)	<p>Disturbance to key species (using functionally linked habitat)</p> <p>While there will be no disturbance to key species within the SAC, the potential for disturbance to the qualifying horseshoe populations using functionally linked habitat is identified. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the SAC.</p>
Outcome of screening stage	262) Likely significant effects cannot be ruled out on the basis that sufficient uncertainty remains as to the potential for a reduction in functionally linked habitat and disturbance (including direct mortality) to the qualifying horseshoe populations from the SAC.
Are the appropriate statutory environmental bodies in agreement with this conclusion?	263) We are currently engaging with Natural England through a Discretionary Advice Service (DAS) agreement. Their views will be sought over the conclusion of this assessment and will be reported within the HRA that will form part of the DCO application,

Table 3-5 Screening Matrix: Somerset Levels and Moors SPA

Project Name:	A358 Taunton to Southfields Dualling	
European Site under consideration:	Somerset Levels & Moors SPA	
Date:	Author (Name/ Organisation):	Verified (Name/ Organisation):
13/09/2021	Alys Black (Arup) Sophie Amphlett (Arup)	Jenny Singh (Arup)
Description of Project <i>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the European Site by virtue of:</i>		
Size and scale (road type and probable traffic volume)	<p>264) The proposed scheme will include:</p> <ul style="list-style-type: none"> • Provision of 8.5 miles (13.6km) of new, rural all-purpose dual carriageway for the A358. • Provision of a new two-lane single carriageway overbridge at Stoke Road. • Provision of a new grade-separated junction at Mattock's Tree Green. • Provision of a new bridge to carry the proposed eastbound carriage way at Griffin Lane. • Provision of a new two-lane single carriageway and bridge over the A358 at Village Road. • Provision of a new grade-separated junction at Ashill. <p>265) A more detailed description of the proposed scheme is provided in Section 1.4 of this report.</p> <p>266) In terms of traffic volumes, Annual Average Daily Traffic (AADT) for the proposed scheme is outlined below:</p> <ul style="list-style-type: none"> • A358 at Henlade AQMA (offline portion) existing: 2,983. • A358 at Woodstock (online portion): 35,912. • M5 between J24 and J25: 94,394. • M5 between J24 and J25: 78,701. • A303 at Horton Cross: 35,973. • A372 at Podimore: 26,844. • A358 at Ruishton (offline portion) new A358 alignment: 38,468. 	
Land-take	<p>267) None within the SPA.</p> <p>268) Land-take during construction could result in a reduction of functionally linked land for the qualifying bird species.</p>	
Distance from European Site or key features of the site (from edge of the project assessment corridor)	269) The SPA is 3.44km north-east of the proposed scheme 63.03m from the ARN at its closest point.	
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	270) No resource requirement from the SPA.	
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	<p>Water quality</p> <p>271) The SPA and the proposed scheme are hydraulically connected via the River Tone, Broughton Brook and Black Brook. As such, the proposed scheme has the potential to</p>	

	<p>cause water quality effects to the SPA during construction and operation.</p> <p>Air quality</p> <p>272) While the broad habitats (neutral grassland habitats, standing open water and littoral sediment) that the qualifying bird species rely on are sensitive to nitrogen deposition [20] and the proposed scheme has the potential to affect air quality during operation through changes in annual mean nutrient nitrogen deposition, no impacts upon the SPA as a result of emissions are anticipated due to the distance between the proposed scheme and the SPA.</p> <p>273) While the proposed scheme is at a distance of 60.03m from the ARN it does not fulfil the DMRB LA 105 criteria [11] and as such is not included PEI Report Chapter 5 Air Quality.</p>
Excavation requirements (e.g. impacts of local hydrogeology)	274) Construction activities including the realignment of watercourses such as the River Ding and Black Brook will require excavations however dewatering will not be a requirement and as such, impacts to local hydrogeology are not anticipated.
Transportation requirements	275) No impact upon the SPA is anticipated, given the distance of the proposed scheme from the SPA.
Duration of construction, operation, etc.	276) It is currently anticipated that the construction activities would commence in 2024 and the proposed scheme open to traffic in late 2028.
Other	277) Construction and operation of the proposed scheme could disturb populations of qualifying bird species utilising functionally linked habitat.
Description of Avoidance and/or Mitigation Measures <i>Describe any assumed (plainly established and uncontroversial) mitigation measures, including information on:</i>	
Nature of proposals	278) No specific mitigation measures to mitigate impacts to the SPA are included in this assessment, in line with case law.
Location	279) N/A
Evidence for effectiveness	280) N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	281) N/A
Characteristics of European Site(s) <i>A brief description of the European Site should be produced, including information on:</i>	
Name of European Site and its EU code	282) Somerset Levels and Moors SPA [UK9010031]
Location and distance of the European Site from the proposed works	283) The SPA is 3.44km north-east of the proposed scheme boundary at its nearest point and 63.03m from the ARN.
European Site size	284) 6395.47ha [39].
Key features of the European Site including the primary reasons for selection and any other qualifying interests	285) Internationally important wintering populations of Annex II species: <ul style="list-style-type: none"> • A037 Bewick's Swan (<i>Cygnus columbianus bewickii</i>). • A052 Eurasian Teal (<i>Anas crecca</i>).

	<ul style="list-style-type: none"> • A140 European Golden Plover (<i>Pluvialis apicaria</i>). • A142 Northern Lapwing (<i>Vanellus vanellus</i>). <p>286) Internationally important assemblage of waterfowl is present.</p>
<p>Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways</p>	<p>287) The Natura 2000 Standard Data Form [39] (for the SPA) identifies the following threats, pressures and activities with a high negative effect on the European site:</p> <ul style="list-style-type: none"> • Cultivation (inside site). • Modification of cultivation practices (inside site). • Human induced changes in hydraulic conditions (inside and outside site). <p>288) The following threats and pressures are taken from the Natural England SIP [40] for the SPA:</p> <ul style="list-style-type: none"> • Drainage – review water level management plan (as per Somerset Levels 20 Year Plan) ensuring changes are compatible with SPA. • Inappropriate water levels – reduce impacts of deep and prolonged flooding. • Maintenance and upgrades to existing water management structures – restore hydrology by upgrading and maintaining water management infrastructure. • Changes in land management – secure appropriate land management for conservation with landowners. • Agricultural management practices – Maintain and improve the “drove” network to provide access for farming activities. • Peat extraction – cessation of all peat extraction. • Public access and disturbance – Minimise disturbance to wintering birds using the SPA. • Offsite habitat availability and management – improve the knowledge of off-site habitat function and use by the SPA bird assemblage.
<p>European Site conservation objectives – where these are readily available</p>	<p>289) The conservation objectives [41] for the SPA aim to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Conservation of Habitats and Species Regulations 2017 [1], by maintaining or restoring:</p> <ul style="list-style-type: none"> • 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 each qualifying features. • The distribution of the qualifying features within the site. <p>290) In addition, the European site conservation objectives supplementary advice [42] for the SPA identifies the following attributes and targets:</p> <ul style="list-style-type: none"> • Population abundance – restore non-breeding population of Bewick’s Swan to at or above 310 individuals, maintain the non-breeding population of golden plover at or above 3,110 individuals, maintain the non-breeding population of teal at or above 7,476 individuals, and restore the non-breeding population of lapwing at or above 36,565 individuals.

	<ul style="list-style-type: none"> • Assemblage abundance – maintain the overall abundance of non-breeding waterfowl assemblages (>20,000). • Diversity of species – maintain species diversity of the bird assemblage. • Extent and distribution of supporting non-breeding habitat – maintain the extent of suitable habitat within and outside the SPA which supports the qualifying species for necessary non-breeding/winter stages. • Water quantity – maintain the supply of water to a standard that provides the necessary conditions to support the qualifying species. Specific SPA targets apply for, splash conditions, shallow condition, and deep conditions. Field targets include early winter, mid-winter and late winter to early spring. • Water quality – maintain current water quality. • Conservation measures – maintain management measures necessary to maintain the structure, function and the processes associated with the qualifying species and supporting habitats. • Air quality – maintain air pollutants to at, or below, Critical Load Levels given for the SAC. • Minimising disturbance caused by human activity – reduce the frequency, duration and intensity of disturbance within close proximity to roosting, foraging and moulting qualifying species. • Landscape – maintain open and unobstructed terrain within and around roosting and feeding areas, with no overall decrease in field size. • Connectivity with supporting habitats – maintain safe passage for birds moving between roosting and foraging areas within and outside the component SSSIs and SPAs. • Food availability within supporting habitat – maintain the availability of cereal, grains, rape, potatoes and sugar beet for Bewick’s swan, invertebrates for golden plover and lapwing, and grasses, sedges and rushes for teal.
<p>Assessment Criteria</p> <p><i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.</i></p>	
291)	Construction of the proposed scheme could cause a reduction in the availability of functionally-linked habitat to qualifying wintering bird species and the waterfowl assemblage. Off-site habitat availability and management is listed as a key threat within the SIP [40] for the SPA.
292)	Construction and operation of the proposed scheme have the potential to disturb qualifying wintering bird species and the waterfowl assemblage while occupying functionally-linked habitat. Public access and disturbance are listed as a key threat within the SIP for the SPA.
293)	The proposed scheme has the potential to cause water quality effects to the SPA during construction and operation. Construction activities will include the realignment of watercourses such as the River Ding and Black Brook and extensions to existing structures near watercourses, which could cause impacts to the habitats upon which the qualifying bird species rely.
294)	The screening decision will be updated as part of the HRA that will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the screening process. This will include consideration of IRZs relevant to the proposed scheme.

Initial Assessment in relation to Somerset Levels and Moors SPA The key characteristics and the details of the European Site should be considered in identifying potential impacts. <i>Describe any likely changes to the site arising as a result of:</i>	
Reduction of habitat area	295) There will be no reduction of habitat area within the SPA. 296) The potential for a reduction in functionally linked habitat for the qualifying wintering bird species and assemblage relevant to the SPA is considered below. 297) In order to maintain the favourable conservation status of the SPA, targets have been set [42] relating to the maintenance of supporting habitats within and outside the SPA boundary which supports the qualifying features for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding). 298) Land of functional importance on the floodplain outside of the SPA boundary includes arable land, species-poor grassland, species-rich grassland and a variety of wetland habitats. Generally, the specific attributes of each supporting habitat may include vegetation characteristics and structure, water depth, food availability, connectivity between nesting, roosting and feeding areas both within and external to the SPA. 299) Construction activities have the potential to cause a reduction of available functionally-linked habitat to qualifying wintering bird species and the waterfowl assemblage. Given the preliminary stage of design detail currently available for the proposed scheme, further assessment is needed on usage of habitats local to the proposed scheme by bird species and nature of project effects is required to enable an assessment of impacts upon the SPA and will be detailed within the Statement to Inform Appropriate Assessment for the SPA.
Disturbance to key species	300) Given the distance of the proposed scheme from the SPA, no disturbance of qualifying species of birds present within the SPA will occur. 301) Construction of the proposed scheme will include the removal of habitats adjacent to the existing A358 in addition to the offline section to the north and the potential for disturbance to the qualifying bird species from the SPA utilising potentially functionally linked habitats is identified. Further assessment is needed on usage of habitats local to the proposed scheme by bird species and nature of project effects is required to enable an assessment of impacts upon the SPA and will be detailed within the Statement to Inform Appropriate Assessment for the SPA.
Habitat or species fragmentation	302) No habitat or species fragmentation is anticipated.
Reduction in species density	303) No reduction in species density is anticipated.
Changes in key indicators of conservation value (water quality, etc.)	Water quality 304) The supplementary conservation objectives for the SPA [42] state that ' <i>poor water quality can adversely affect the availability and suitability of feeding and roosting habitats</i> ' while noting that the ' <i>SPA qualifying features are relatively</i>

	<p><i>insensitive to organic and nutrient pollution</i>.</p> <p>305) Construction activities have the potential to generate water-borne pollution and the proposed scheme and the SPA are hydraulically connected. Construction activities will include the realignment of watercourses such as the River Ding and Black Brook and extensions to existing structures in proximity to watercourses.</p> <p>306) Operation of the proposed scheme has the potential to adversely affect the SPA through impacts to watercourses such as pollution events and surface water and road drainage.</p> <p>307) Impacts to water quality at the SPA have the potential to adversely affect the habitats upon which the qualifying bird species and assemblage rely.</p> <p>308) Given the preliminary stage of design detail currently available measures to avoid pollution to ensure wider legislative compliance will be described within the Statement to Inform Appropriate Assessment for the SPA.</p>
Climate change	<p>309) PEI Report Chapter 14 Climate concludes no significant effects in relation to greenhouse gas emissions during construction or operation of the proposed scheme.</p> <p>310) No significant climate change related effects upon the SAC are anticipated as a result of the proposed scheme.</p>
<i>Describe any likely impacts on the European Site as a whole in terms of:</i>	
Interference with the key relationships that define the structure of the site	311) The potential for a reduction in functionally linked habitat and disturbance to key species while utilising habitats local to the proposed scheme is identified and could adversely affect the key species. The water quality within the SPA has the potential to be adversely affected by the proposed scheme. Therefore, there is the potential for the proposed scheme to interfere with the key relationships that define the structure of the site.
Interference with the key relationships that define the function of the site	312) The potential for a reduction in functionally linked habitat and disturbance to key species while utilising habitats local to the proposed scheme is identified and could adversely affect the key species. The water quality within the SPA has the potential to be adversely affected by the proposed scheme. Therefore, there is the potential for the proposed scheme to interfere with the key relationships that define the function of the site.
<i>Describe the significance as a result of the identification of impacts set out above in terms of:</i>	
Reduction of habitat area	313) A significant effect upon functionally linked habitat cannot be ruled out at this stage.
Disturbance to key species	314) A significant effect upon key species using functionally linked habitat cannot be ruled out at this stage.
Habitat or species fragmentation	315) No likely significant effects.
Disruption	316) No likely significant effects.
Disturbance	317) A significant effect upon key species using functionally linked habitat cannot be ruled out at this stage.

Change to key elements of the site (e.g. water quality, hydrological regime, etc.)	318) A significant effect cannot be ruled out at this stage.
<i>Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known:</i>	
<p>Reduction of functionally linked habitat</p> <p>319) While there will be no reduction of habitat area within the SPA, construction activities have the potential to cause a reduction of available functionally-linked habitat to qualifying wintering bird species and the waterfowl assemblage. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the SPA.</p> <p>Disturbance to key species (using functionally linked habitat)</p> <p>320) While there will be no disturbance to key species within the SPA, the potential for disturbance to the qualifying species from the SPA utilising habitats local to the proposed scheme is identified. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the SPA.</p> <p>Water quality</p> <p>321) The potential for water quality impacts during construction and operation are identified for the qualifying species and habitats upon which the qualifying species rely. Given the preliminary stage of design detail currently available measures to avoid pollution to ensure wider legislative compliance will be described within the Statement to Inform Appropriate Assessment for the SPA.</p>	
Outcome of screening stage	322) Likely significant effects cannot be ruled out on the basis that sufficient uncertainty remains as to the potential for a reduction in functionally-linked habitat for key species, disturbance to key species using functionally linked habitat and impacts to water quality.
Are the appropriate statutory environmental bodies in agreement with this conclusion?	323) We are currently engaging with Natural England through a Discretionary Advice Service (DAS) agreement. Their views will be sought over the conclusion of this assessment and will be reported within the HRA that will form part of the DCO application,

Table 3-6 Screening Matrix: Somerset Levels and Moors Ramsar site

Project Name:	A358 Taunton to Southfields Dualling	
European Site under consideration:	Somerset Levels & Moors Ramsar	
Date:	Author (Name/ Organisation):	Verified (Name/ Organisation):
13/09/2021	Alys Black (Arup) Sophie Amphlett (Arup)	Jenny Singh (Arup)
Description of Project		
<i>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the European Site by virtue of:</i>		
Size and scale (road type and probable traffic volume)	324) The proposed scheme will include: <ul style="list-style-type: none"> Provision of 8.5 miles (13.6km) of new, rural all-purpose dual carriageway for the A358. 	

	<ul style="list-style-type: none"> • Provision of a new two-lane single carriageway overbridge at Stoke Road. • Provision of a new grade-separated junction at Mattock’s Tree Green. • Provision of a new bridge to carry the proposed eastbound carriage way at Griffin Lane. • Provision of a new two-lane single carriageway and bridge over the A358 at Village Road. • Provision of a new grade-separated junction at Ashill. <p>325) A more detailed description of the proposed scheme is provided in Section 1.4 of this report.</p> <p>326) In terms of traffic volumes, Annual Average Daily Traffic (AADT) for the proposed scheme is outlined below:</p> <ul style="list-style-type: none"> • A358 at Henlade AQMA (offline portion) existing: 2,983. • A358 at Woodstock (online portion): 35,912. • M5 between J24 and J25: 94,394. • M5 between J24 and J25: 78,701. • A303 at Horton Cross: 35,973. • A372 at Podimore: 26,844. • A358 at Ruishton (offline portion) new A358 alignment: 38,468.
Land-take	<p>327) None within the Ramsar site.</p> <p>328) Land-take during construction could result in a reduction of functionally linked land for the qualifying bird species.</p>
Distance from European Site or key features of the site (from edge of the project assessment corridor)	<p>329) The Ramsar site is 3.44km north-east of the proposed scheme boundary at its nearest point and 63.03m from the ARN at its nearest point.</p>
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	<p>330) No resource requirement from Ramsar site.</p>
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	<p>Water quality</p> <p>331) The Ramsar site and the proposed scheme are hydraulically connected via the River Tone, Broughton Brook and Black Brook. As such, the proposed scheme has the potential to cause water quality effects to the site during construction and operation.</p> <p>Air quality</p> <p>332) While the broad habitats (neutral grassland habitats, standing open water and littoral sediment) that the qualifying bird species rely upon (identified for the SPA but with overlapping qualifying features with the Ramsar site and thus of relevance) are sensitive to nitrogen deposition [20] and the proposed scheme has the potential to affect air quality during operation through changes in annual mean nutrient nitrogen deposition, no impacts upon the Ramsar site as a result of emissions are anticipated due to the distance between the proposed scheme and the Ramsar site.</p> <p>333) While the proposed scheme is at a distance of 60.03m from the ARN it does not fulfil the DMRB LA 105 criteria [11] and as such is not included PEI Report Chapter 5 Air Quality.</p>

Excavation requirements (e.g. impacts of local hydrogeology)	334) Construction activities including the realignment of watercourses such as the River Ding and Black Brook will require excavations however dewatering will not be a requirement and as such, impacts to local hydrogeology are not anticipated.
Transportation requirements	335) No impact upon the Ramsar site is anticipated, given the distance of the proposed scheme from the Ramsar site.
Duration of construction, operation, etc.	336) It is currently anticipated that the construction activities would commence in 2024 and the proposed scheme open to traffic in late 2028.
Other	337) Construction and operation of the proposed scheme could disturb populations of qualifying species utilising functionally linked habitat.
Description of Avoidance and/or Mitigation Measures <i>Describe any assumed (plainly established and uncontroversial) mitigation measures, including information on:</i>	
Nature of proposals	338) No specific mitigation measures to mitigate impacts to the Ramsar site are included in this assessment, in line with case law.
Location	339) N/A
Evidence for effectiveness	340) N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	341) N/A
Characteristics of European Site(s) <i>A brief description of the European Site should be produced, including information on:</i>	
Name of European Site and its EU code	342) Somerset Levels and Moors Ramsar [UK11064]
Location and distance of the European Site from the proposed works	343) The Ramsar site is 3.44km north-east of the proposed scheme boundary at its nearest point and 63.03m from the ARN.
European Site size	344) 6388ha [43]
Key features of the European Site including the primary reasons for selection and any other qualifying interests	<p>345) The qualifying interest features of the Somerset Levels and Moors Ramsar site overlap with those of the Somerset Levels and Moors SPA.</p> <p>346) Ramsar criterion 2 – Supports 17 species of British Red Data Book invertebrates.</p> <p>347) Ramsar criterion 5 – Assemblages of international importance of waterfowl with peak counts in winter.</p> <p>348) Ramsar criterion 6 – Species/populations occurring at levels of international importance:</p> <ul style="list-style-type: none"> • Tundra Swan (<i>Cygnus columbianus berwickii</i>). • Eurasian Teal (<i>Anas crecca</i>). • Northern Lapwing (<i>Vanellus vanellus</i>). <p>349) Species identified subsequent to designation, for possible future consideration under criterion 6:</p> <ul style="list-style-type: none"> • Mute Swan (<i>Cygnus olor</i>). • Eurasian Wigeon (<i>Anas Penelope</i>).

	<ul style="list-style-type: none"> Northern Pintail (<i>Anas acuta</i>). Northern Shoveler (<i>Anas clypeata</i>).
<p>Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways</p>	<p>350) The Ramsar Information Sheet (RIS) [43] for the site identifies no factors adversely affecting the site’s ecological character including changes in land (including water) use and development projects. The Natura 2000 Standard Data Form ([39] for the SPA but also of relevance for the Ramsar site) identifies the following threats, pressures and activities with a high negative effect on the European site:</p> <ul style="list-style-type: none"> Cultivation. Modification of cultivation practices. Human induced changes in hydraulic conditions. <p>351) The following threats and pressures are taken from the Natural England SIP [40] for the European Site (SPA, also of relevance for the Ramsar site):</p> <ul style="list-style-type: none"> Drainage – review water level management plan (as per Somerset Levels 20 Yea Plan) ensuring changes are compatible with SPA. Inappropriate water levels – reduce impacts of deep and prolonged flooding. Maintenance and upgrades to existing water management structures – restore hydrology by upgrading and maintaining water management infrastructure. Changes in land management – secure appropriate land management for conservation with landowners. Agricultural management practices – Maintain and improve the “drove” network to provide access for farming activities. Peat extraction – cessation of all peat extraction. Public access and disturbance – Minimise disturbance to wintering birds using the SPA. Offsite habitat availability and management – improve the knowledge of off-site habitat function and use by the SPA bird assemblage
<p>European Site conservation objectives – where these are readily available</p>	<p>352) There are no conservation objectives specific to the Ramsar site therefore it is appropriate to take the conservation objectives for the SPA [44] into consideration. These aim to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Conservation of Habitats and Species Regulations 2017 [1], by maintaining or restoring:</p> <ul style="list-style-type: none"> 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 each qualifying features. The distribution of the qualifying features within the site.
<p>Assessment Criteria <i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.</i></p>	
<p>353) Construction of the proposed scheme could cause a reduction in the availability of functionally-linked habitat to qualifying wintering bird species and the waterfowl assemblage and off-site habitat availability and management is listed as a key threat within the SIP (for the SPA and</p>	

<p>thus considered relevant to the Ramsar site).</p> <p>354) Construction and operation of the proposed scheme have the potential to disturb qualifying wintering bird species and the waterfowl assemblage while occupying functionally-linked habitat and public access and disturbance are listed as a key threat within the SIP (for the SPA and thus considered relevant to the Ramsar site).</p> <p>355) The proposed scheme has the potential to cause water quality effects to the SPA during construction and operation. Construction activities will include the realignment of watercourses such as the River Ding and Black Brook and extensions to existing structures near watercourses which could cause impacts to the habitats upon which the qualifying bird species and invertebrate assemblage rely.</p> <p>356) The screening decision will be updated as part of the HRA that will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the screening process. This will include consideration of IRZs relevant to the proposed scheme.</p>	
<p>Initial Assessment in relation to Somerset Levels and Moors Ramsar site The key characteristics and the details of the European Site should be considered in identifying potential impacts.</p> <p><i>Describe any likely changes to the site arising as a result of:</i></p>	
<p>Reduction of habitat area</p>	<p>357) There will be no reduction of habitat area within the Ramsar site.</p> <p>358) The potential for a reduction in functionally linked habitat for the qualifying wintering bird species and assemblage relevant to the Ramsar site is considered below.</p> <p>359) In order to maintain the favourable conservation status of the SPA (also of relevance for the Ramsar site), targets have been set [41] relating to the maintenance of supporting habitats within and outside the site boundary which supports the qualifying features for all necessary stages of the non-breeding/wintering period (moulting, roosting, loafing, feeding).</p> <p>360) Land of functional importance on the floodplain outside of the site boundary includes arable land, species-poor grassland, species-rich grassland and a variety of wetland habitats. Generally speaking, the specific attributes of each supporting habitat may include vegetation characteristics and structure, water depth, food availability, connectivity between nesting, roosting and feeding areas both within and external to the site.</p> <p>361) Construction activities have the potential to cause a reduction of available functionally-linked habitat to qualifying wintering bird species and the waterfowl assemblage. Given the preliminary stage of design detail currently available for the proposed scheme, further assessment is needed on usage of habitats local to the proposed scheme by bird species and nature of project effects is required to enable an assessment of impacts upon the SPA and will be detailed within the Statement to Inform Appropriate Assessment for the SPA.</p>
<p>Disturbance to key species</p>	<p>362) Construction of the proposed scheme will include the removal of habitats adjacent to the existing A358 in addition to the offline section to the north and the potential for disturbance to the qualifying bird species from the Ramsar site utilising potentially functionally linked habitats is identified. Further assessment is needed on usage of habitats local to the</p>

	proposed scheme by bird species and nature of project effects is required to enable an assessment of impacts upon the Ramsar site and will be detailed within the Statement to Inform Appropriate Assessment for the site.
Habitat or species fragmentation	363) No habitat or species fragmentation is anticipated.
Reduction in species density	364) No reduction in species density is anticipated.
Changes in key indicators of conservation value (water quality, etc.)	<p>Water quality</p> <p>365) The supplementary conservation objectives [42] (for the SPA not available for the Ramsar site but considered relevant) state that '<i>poor water quality can adversely affect the availability and suitability of feeding and roosting habitats</i>' while noting that the '<i>SPA qualifying features are relatively insensitive to organic and nutrient pollution</i>'.</p> <p>366) Construction activities have the potential to generate water-borne pollution and the proposed scheme and the Ramsar site are hydraulically connected. Construction activities will include the realignment of watercourses such as the River Ding and Black Brook and extensions to existing structures in proximity to watercourses.</p> <p>367) Operation of the proposed scheme has the potential to adversely affect the site through impacts to watercourses such as pollution events and surface water and road drainage.</p> <p>368) Impacts to water quality at the Ramsar site have the potential to adversely affect the habitats upon which the qualifying bird species and assemblage rely.</p> <p>369) Given the preliminary stage of design detail currently available measures to avoid pollution to ensure wider legislative compliance will be described within the Statement to Inform Appropriate Assessment for the Ramsar site.</p>
Climate change	<p>370) PEI Report Chapter 14 Climate concludes no significant effects in relation to greenhouse gas emissions during construction or operation of the proposed scheme.</p> <p>371) No significant climate change related effects upon the European site are anticipated as a result of the proposed scheme.</p>
<i>be any likely impacts on the European Site as a whole in terms of:</i>	
Interference with the key relationships that define the structure of the site	372) The water quality within the Ramsar site has the potential to be adversely affected by the proposed scheme. Therefore, there is the potential for the proposed scheme to interfere with the key relationships that define the structure of the site.
Interference with the key relationships that define the function of the site	373) The water quality within the Ramsar site has the potential to be adversely affected by the proposed scheme. Therefore, there is the potential for the proposed scheme to interfere with the key relationships that define the function of the site.
<i>e the significance as a result of the identification of impacts set out above in terms of:</i>	
Reduction of habitat area	374) A significant effect upon functionally linked habitat cannot be ruled out at this stage.

Disturbance to key species	375) A significant effect upon key species using functionally linked habitat cannot be ruled out at this stage.
Habitat or species fragmentation	376) No likely significant effects.
Disruption	377) No likely significant effects.
Disturbance	378) A significant effect upon key species using functionally linked habitat cannot be ruled out at this stage.
Change to key elements of the site (e.g. water quality, hydrological regime, etc.)	379) A significant effect cannot be ruled out at this stage.
<i>Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known:</i>	
<p>Reduction of functionally linked habitat</p> <p>380) While there will be no reduction of habitat area within the site, construction activities have the potential to cause a reduction of available functionally-linked habitat to qualifying wintering bird species and the waterfowl assemblage. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the Ramsar site.</p> <p>Disturbance to key species (using functionally linked habitat)</p> <p>381) While there will be no disturbance to key species within the site, the potential for disturbance to the qualifying species from the site utilising habitats local to the proposed scheme is identified. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the Ramsar.</p> <p>Water quality</p> <p>382) The potential for water quality impacts during construction and operation are identified for the qualifying species and habitats upon which the qualifying species rely. Given the preliminary stage of design detail currently available measures to avoid pollution to ensure wider legislative compliance will be described within the Statement to Inform Appropriate Assessment for the Ramsar site.</p>	
Outcome of screening stage	383) Likely significant effects cannot be ruled out on the basis that sufficient uncertainty remains as to the potential for a reduction in functionally-linked habitat for key species, disturbance to key species using functionally linked habitat and impacts to water quality.
Are the appropriate statutory environmental bodies in agreement with this conclusion?	384) We are currently engaging with Natural England through a Discretionary Advice Service (DAS) agreement. Their views will be sought over the conclusion of this assessment and will be reported within the HRA that will form part of the DCO application.

Table 3-7 Screening Matrix: Severn Estuary SAC

Project Name:	A358 Taunton to Southfields Dualling	
European Site under consideration:	Severn Estuary SAC	
Date:	Author (Name/ Organisation):	Verified (Name/ Organisation):
13/09/2021	Alys Black (Arup) Sophie Amphlett (Arup)	Jenny Singh (Arup)
Description of Project		
<i>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the European Site by virtue of:</i>		
Size and scale (road type and probable traffic volume)	<p>385) The proposed scheme will include:</p> <ul style="list-style-type: none"> • Provision of 8.5 miles (13.6km) of new, rural all-purpose dual carriageway for the A358. • Provision of a new two-lane single carriageway overbridge at Stoke Road. • Provision of a new grade-separated junction at Mattock's Tree Green. • Provision of a new bridge to carry the proposed eastbound carriage way at Griffin Lane. • Provision of a new two-lane single carriageway and bridge over the A358 at Village Road. • Provision of a new grade-separated junction at Ashill. <p>386) A more detailed description of the proposed scheme is provided in Section 1.4 of this report.</p> <p>387) In terms of traffic volumes, Annual Average Daily Traffic (AADT) for the proposed scheme is outlined below:</p> <ul style="list-style-type: none"> • A358 at Henlade AQMA (offline portion) existing: 2,983. • A358 at Woodstock (online portion): 35,912. • M5 between J24 and J25: 94,394. • M5 between J24 and J25: 78,701. • A303 at Horton Cross: 35,973. • A372 at Podimore: 26,844. • A358 at Ruishton (offline portion) new A358 alignment: 38,468. 	
Land-take	388) None within the SAC.	
Distance from European Site or key features of the site (from edge of the project assessment corridor)	<p>389) The SAC is 15.86km north of the proposed scheme boundary and 561.22m north of the ARN.</p> <p>390) The shortest distance between the watercourses potentially affected by the proposed scheme and the Severn Estuary is approximately 25km.</p>	
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	391) No resource requirements from the SAC.	

<p>Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)</p>	<p>Water quality</p> <p>392) All the watercourses that have been identified to cross or are in close proximity to the proposed scheme are linked to the River Parret. This is either directly, as with the Meare Stream (and its tributaries), via the River Tone (Broughton Brook, Black Brook and its tributaries and Thornwater Stream) or via the River Isle (Fivehead River its tributaries including Venner's Water, Cad Brook, River Ding and Back Stream and so all the watercourses are hydraulically linked to the Severn Estuary.</p> <p>393) The shortest distance between the watercourses potentially affected by the proposed scheme and the Severn Estuary is approximately 25km. Given this distance, no impacts to water quality at the SAC during construction or operation as a result of the proposed scheme are anticipated.</p> <p>394) The potential for water quality impacts during construction and operation are identified for Annex II and migratory fish species utilising habitats local to the proposed scheme.</p> <p>Air quality</p> <p>395) No impacts to the SAC via air pollution are anticipated, given the distance of the proposed scheme and ARN from the SAC.</p>
<p>Excavation requirements (e.g. impacts of local hydrogeology)</p>	<p>396) Construction activities including the realignment of watercourses such as the River Ding and Black Brook will require excavations however dewatering will not be a requirement and as such, impacts to local hydrogeology are not anticipated.</p>
<p>Transportation requirements</p>	<p>397) No impacts upon the SAC are anticipated, given the distance of the proposed scheme from the SAC.</p>
<p>Duration of construction, operation, etc.</p>	<p>398) It is currently anticipated that the construction activities would commence in 2024 and the proposed scheme open to traffic in 2028.</p>
<p>Other</p>	<p>399) Construction and operation of the proposed scheme could decrease the availability of supporting habitat to Annex II species which migrate between the freshwater catchment of the River Parrett and the Severn estuary during their life cycle, and changes in species distributions is listed as a threat within the SIP [45].</p>
<p>Description of Avoidance and/or Mitigation Measures <i>Describe any assumed (plainly established and uncontroversial) mitigation measures, including information on:</i></p>	
<p>Nature of proposals</p>	<p>400) No specific mitigation measures to mitigate impacts to the SAC are included in this assessment, in line with case law.</p>
<p>Location</p>	<p>401) N/A</p>

Evidence for effectiveness	402) N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	403) N/A
Characteristics of European Site(s) <i>A brief description of the European Site should be produced, including information on:</i>	
Name of European Site and its EU code	404) Severn Estuary SAC [UK0013030]
Location and distance of the European Site from the proposed works	405) The SAC is 15.86km north of the proposed scheme boundary and 561.22m north of the ARN. The shortest distance between the watercourses potentially affected by the proposed scheme and the Severn Estuary is approximately 25km.
European Site size	406) 73715.40ha [46].
Key features of the European Site including the primary reasons for selection and any other qualifying interests	<p>407) Annex I habitats that are a primary reason for selection of this site:</p> <ul style="list-style-type: none"> • H1130 Estuaries. • H1140 Mudflats and sandflats not covered by seawater at low tide. • H1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>). <p>408) Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:</p> <ul style="list-style-type: none"> • H1110 Sandbanks which are slightly covered by sea water all the time. • H1170 Reefs. <p>409) Annex II species that are a primary reason for selection of this site:</p> <ul style="list-style-type: none"> • S1095 Sea lamprey (<i>Petromyzon marinus</i>). • S1099 River lamprey (<i>Lampetra fluviatilis</i>). • S1103 Twait shad (<i>Alosa fallax</i>). <p>410) There are no Annex II species present as a qualifying feature, which are not a primary reason for site selection.</p> <p>411) Migratory fish including salmon (<i>Salmo salar</i>), eel (<i>Anguilla Anguilla</i>), sea trout (<i>Salmo trutta</i>) and allis shad (<i>Alosa alosa</i>) are listed as a notable species sub feature of the 'estuaries' feature.</p>
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	<p>412) The Natura 2000 Standard Data Form [46] identified the following threats, pressures and activities with high negative effects on the European site:</p> <ul style="list-style-type: none"> • Other urbanisation, industrial and similar activities • Changes in abiotic conditions • Human induced changes in hydraulic conditions • Outdoor sports and leisure activities, recreational activities

	<ul style="list-style-type: none"> • Modification of cultivation practices <p>413) The following threats and pressures are taken from the Natural England SIP [45] for the European Site (SAC and SPA):</p> <ul style="list-style-type: none"> • Public access/disturbance – identify/reduce impacts of disturbance to birds, and damage to habitats. • Physical modification – reduce, remove and prevent barriers to migratory species. • Impacts of development – inform strategic planning decisions to minimise impacts of development. • Coastal squeeze – limit coastal squeeze, provide sustainable coastal defences, improve existing structures, and deliver compensatory habitat. • Change in land management - maintain appropriate levels and timing of grazing, and management of intertidal saltmarsh habitat. • Changes in species distributions - understand/prepare for changes in species distribution (caused by climate change/other events). • Water pollution - identify any existing issues and prevent/reduce decline in water and sediment quality (applying relevant measures to all relevant tributaries in England and Wales). • Air pollution – impact of atmospheric nitrogen deposition - develop a Site Nitrogen Action Plan. • Marine consents and permits (minerals and waste) - ensure in combination/cumulative impacts from aggregate extraction, maintenance dredging and disposal are fully considered. • Fisheries: Recreational marine and estuary - establish levels and location of activity (recreational bait digging and recreational fishing/angling) and potential for impacts. • Fisheries: Commercial marine and estuary - identify any threats to site features and habitats from commercial fisheries activity and establish and ensure compliance with any necessary management measures. • Invasive species - assess the risks from/and control the spread of invasive non-native species. • Marine litter - investigate sources of marine litter and implement actions for removal/shoreline clean up. • Marine pollution incidents - minimise impact from marine pollution incidents and clean up response.
<p>European Site conservation objectives – where these are readily available</p>	<p>414) The conservation objectives [47] for the SAC aim to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the favourable conservation status of its qualifying features, by maintaining or restoring:</p> <ul style="list-style-type: none"> • The extent and distribution of qualifying natural habitats and habitats of qualifying species. • The structure and function (including typical species) of qualifying natural habitats. • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely. • The populations of qualifying species, and • The distribution of qualifying species within the site.

	<p>415) Further conservation objectives relating to the maintenance of the favourable conservation status of interest features are set out within the Natural England and Natural Resources Wales (Countryside Council for Wales at the time of publishing) advice on the European Marine Site (EMS) [48], which is a term used to collectively describe the SAC, SPA and Ramsar site. Conservation objectives specific to the SAC cover the following qualifying features (habitats and species):</p> <ul style="list-style-type: none"> • Estuaries – maintain the extent and morphology of the habitat, maintain the tidal regime and flow of the estuary, including the budget and distribution of sediments, and maintain the extent and spatial distribution of sub-features including sandbanks, mudflats, Atlantic salt meadow and reefs. • Subtidal sandbanks – maintain the extent, community composition, topography, distribution and sediment character of the habitat. • Mudflats – maintain the extent, community composition, topography, distribution and sediment character of the habitat. • Atlantic salt meadow – maintain the extent, distribution and community composition of the habitat, monitor successional vegetation (<i>Spartina anglica</i>), Maintain vegetation zonation and composition within low-mid, mid-upper, high and pioneer zones, maintain low grazing levels required by scarce and notable plant species and prevent anthropogenic changes to habitat morphology. • Reefs - maintain the total extent, distribution and community composition of reef habitat, promote age structure across the reef, maintain the availability of suitable substrate, <i>Sabellaria</i> larvae and abundance of food within the water column. • River lamprey (<i>Lamptetra fluviatilis</i>) and sea lamprey (<i>Petromyzon marinus</i>) – promote migratory passage, maintain water quality and flow at levels sufficient for migration, maintain or increase population size (baseline unknown) and maintain the abundance of <i>Ammocoete</i> and other prey species abundances. • Twaite shad (<i>Alosa fallax</i>) – promote migratory passage for spawning, maintain water quality and flow at levels sufficient for migration, maintain or increase population size (baseline unknown) and maintain prey abundance at levels previously measured by the Environment Agency.
<p>Assessment Criteria</p> <p><i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.</i></p>	
<p>416)</p> <p>417)</p> <p>418)</p>	<p>Construction and operation of the proposed scheme could decrease the availability of supporting habitat to Annex II species and the migratory fish assemblage which migrate between the freshwater catchment of the River Parrett and the Severn estuary during their life cycle, and changes in species distributions is listed as a threat within the SIP [45].</p> <p>The potential for water quality impacts during construction and operation are identified for Annex II and migratory fish species utilising habitats local to the proposed scheme.</p> <p>The screening decision will be updated as part of the HRA that will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the</p>

screening process. This will include consideration of IRZs relevant to the proposed scheme.	
<p>Initial Assessment in relation to Severn Estuary SAC</p> <p>The key characteristics and the details of the European Site should be considered in identifying potential impacts.</p> <p><i>Describe any likely changes to the site arising as a result of:</i></p>	
Reduction of habitat area	<p>419) There will be no reduction of habitat area within the SAC.</p> <p>420) The realignment of watercourses including Back Stream (which forms part of the River Ding), and the realignment of tributaries of the Black Brook may lead to a reduction in the habitats utilised for life stages of fish species. Physical modification and impacts of development are identified as threats to the migratory fish assemblage within the SIP [45] for the SAC in addition to human induced changes in hydraulic conditions within the Natura 2000 Standard Data Form [46].</p> <p>421) Twaite shad spawn in large slow flowing rivers >10m in width, typically at depths between 15-300cm. In Britain, spawning populations of twaite shad are still found in the rivers Severn, Teme, Wye, Usk and Tywi [49]. Based on this, watercourses within the proposed scheme do not provide habitat for Twaite shad.</p> <p>422) Survey data collected to date at the River Ding did not identify any of the migratory fish species (salmon, eel, sea trout and allis shad) listed as a notable species that are sub features of the 'estuaries' feature. However, the riverine ecotype of brown trout (<i>Salmo trutta morpha fario</i>) were recorded during the River Ding surveys; young brown trout could migrate to sea and become sea trout (<i>Salmo trutta morpha trutta</i>). European eel are considered ubiquitous within their range and are likely to be present within the proposed scheme area if their migratory route is not compromised by physical obstructions.</p> <p>423) The habitats present within the proposed scheme are considered to potentially constitute functionally linked habitat for Annex II migratory species and given the preliminary stage of design detail currently available, the potential for a reduction in available functionally linked habitat is identified. Further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC.</p> <p>424) Further surveys of all watercourses subject to realignment and those that cross the proposed scheme are to be undertaken in the 2021 survey season and the results of these surveys will be included in a Statement to Inform Appropriate Assessment for the SAC.</p>
Disturbance to key species	<p>425) No disturbance of the Annex II migratory fish species will occur within the SAC due to the distance of the proposed scheme from the SAC.</p> <p>426) Annex II species and the migratory fish assemblage have the potential to be disturbed by the project during</p>

	<p>construction while using habitats local to the proposed scheme and given the preliminary stage of design detail currently available further assessment is required to enable an assessment of the significance of potential impacts upon the SAC.</p> <p>427) Further surveys of all watercourses subject to realignment and those that cross the proposed scheme are to be undertaken in the 2021 survey season and the results of these surveys will be included in a Statement to Inform Appropriate Assessment for the SAC.</p>
<p>Habitat or species fragmentation</p>	<p>428) Annex II species and the migratory fish assemblage have the potential to be subject to fragmentation by the project as a result of realignment during construction and poorly designed watercourse crossings/culverts; changes in species distributions are identified as a threat within the SIP [45] and given the preliminary stage of design detail currently available further assessment is required to enable an assessment of the significance of potential impacts upon the SAC.</p> <p>429) Further surveys of all watercourses subject to realignment and those that cross the proposed scheme are to be undertaken in the 2021 survey season and the results of these surveys will be included in a Statement to Inform Appropriate Assessment for the SAC.</p>
<p>Reduction in species density</p>	<p>430) Annex II fish species and the migratory fish assemblage have the potential to be subject to a change in recruitment and a reduction in species density by the project as a result of construction works. and given the preliminary stage of design detail currently available further assessment is required to enable an assessment of the significance of potential impacts upon the SAC.</p> <p>431) Further surveys of all watercourses subject to realignment and those that cross the proposed scheme are to be undertaken in the 2021 survey season and the results of these surveys will be included in a Statement to Inform Appropriate Assessment for the SAC.</p>
<p>Changes in key indicators of conservation value (water quality, etc.)</p>	<p>Water quality</p> <p>432) Water pollution is identified as a key threat within the SIP [45] and in order to maintain the favourable conservation status, toxic contaminants in the water column to be kept below levels which would pose a risk to the ecological objectives for the qualifying features, within the conservation objectives [47]. Adverse effects to water quality at the SAC have the potential to have significant impacts upon the quality of the habitats for which the SAC is designated and upon which the key species rely. However, given the distance of the SAC from the proposed scheme no impacts to water quality at the SAC as a result of the proposed scheme during construction or operation are identified.</p> <p>433) The potential for water quality impacts during construction and operation are identified for Annex II and migratory fish species utilising habitats local to the proposed scheme. Given the preliminary stage of design detail currently</p>

	available measures to avoid pollution to ensure wider legislative compliance will be described within the Statement to Inform Appropriate Assessment for the SAC.
Climate change	434) PEI Report Chapter 14 Climate concludes no significant effects in relation to greenhouse gas emissions during construction or operation of the proposed scheme. 435) No significant climate change related effects upon the SAC are anticipated as a result of the proposed scheme.
<i>Describe any likely impacts on the European Site as a whole in terms of:</i>	
Interference with the key relationships that define the structure of the site	436) The potential for a reduction of functionally-linked habitat, disturbance, fragmentation, a reduction in species density and impacts to water quality have the potential to adversely affect the Annex II species and the migratory fish assemblage and the qualifying habitats upon which they rely. Therefore, there is the potential for the project to interfere with the relationships that define the structure of the SAC.
Interference with the key relationships that define the function of the site	437) The potential for a reduction of functionally linked habitat, disturbance, fragmentation, a reduction in species density and impacts to water quality have the potential to adversely affect the Annex II species and the migratory fish assemblage and the qualifying habitats upon which they rely. Therefore, there is the potential for the project to interfere with the relationships that define the function of the SAC.
<i>Indicate the significance as a result of the identification of impacts set out above in terms of:</i>	
Reduction of habitat area	438) A significant effect upon functionally linked habitat cannot be ruled out at this stage.
Disturbance to key species	439) A significant effect upon key species using functionally linked habitat cannot be ruled out at this stage.
Habitat or species fragmentation	440) A significant effect cannot be ruled out at this stage.
Disruption	441) A significant effect cannot be ruled out at this stage.
Disturbance	442) A significant effect upon key species using functionally linked habitat cannot be ruled out at this stage.
Change to key elements of the site (e.g. water quality, hydrological regime, etc.)	443) A significant effect cannot be ruled out at this stage.
<i>Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known:</i>	
	Reduction of functionally linked habitat 444) While there will be no reduction of habitat area within the SAC, construction activities have the potential to cause a reduction of available functionally-linked habitat to for Annex II migratory species. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the SAC.

	<p>Disturbance to key species (using functionally linked habitat)</p> <p>445) While there will be no disturbance to key species within the SAC, the potential for disturbance to the qualifying Annex II migratory species from the SAC utilising habitats local to the proposed scheme is identified. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the SAC.</p> <p>Habitat or species fragmentation</p> <p>446) Annex II species and the migratory fish assemblage have the potential to be subject to fragmentation by the proposed scheme. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the SAC.</p> <p>Reduction in species density</p> <p>Annex II fish species and the migratory fish assemblage have the potential to be subject to a change in recruitment and a reduction in species density by the project as a result of construction works. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the SAC.</p> <p>Water quality</p> <p>447) The potential for water quality impacts during construction and operation are identified for Annex II and migratory fish species utilising habitats local to the proposed scheme. Given the preliminary stage of design detail currently available measures to avoid pollution to ensure wider legislative compliance will be described within the Statement to Inform Appropriate Assessment for the SAC</p>
Outcome of screening stage	448) A significant effect cannot be ruled out at this stage.
Are the appropriate statutory environmental bodies in agreement with this conclusion?	449) We are currently engaging with Natural England through a Discretionary Advice Service (DAS) agreement. Their views in addition to those of Natural Resources Wales will be sought over the conclusion of this assessment and will be reported within the HRA that will form part of the DCO application.

Table 3-8 Screening Matrix: Severn Estuary SPA

Project Name:	A358 Taunton to Southfields Dualling	
European Site under consideration:	Severn Estuary SPA	
Date:	Author (Name/ Organisation):	Verified (Name/ Organisation):
13/09/2021	Alys Black (Arup) Sophie Amphlett (Arup)	Jenny Singh (Arup)
Description of Project <i>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the European Site by virtue of:</i>		
Size and scale (road type and probable traffic volume)	<p>450) The proposed scheme will include:</p> <ul style="list-style-type: none"> • Provision of 8.5 miles (13.6km) of new, rural all-purpose dual carriageway for the A358. • Provision of a new two-lane single carriageway overbridge at Stoke Road. • Provision of a new grade-separated junction at Mattock's Tree Green. • Provision of a new bridge to carry the proposed eastbound carriage way at Griffin Lane. • Provision of a new two-lane single carriageway and bridge over the A358 at Village Road. • Provision of a new grade-separated junction at Ashill. <p>451) A more detailed description of the proposed scheme is provided in Section 1.4 of this report.</p> <p>452) In terms of traffic volumes, Annual Average Daily Traffic (AADT) for the proposed scheme is outlined below:</p> <ul style="list-style-type: none"> • A358 at Henlade AQMA (offline portion) existing: 2,983 • A358 at Woodstock (online portion): 35,912 • M5 between J24 and J25: 94,394 • M5 between J24 and J25: 78,701 • A303 at Horton Cross: 35,973 • A372 at Podimore: 26,844 • A358 at Ruishton (offline portion) new A358 alignment: 38,468 	
Land-take	453) None within the SPA.	
Distance from European Site or key features of the site (from edge of the project assessment corridor)	<p>454) The SPA is 15.86km north of the proposed scheme boundary and 561.22m north of the ARN.</p> <p>455) All the watercourses that have been identified to cross or in close proximity to the proposed scheme are linked to the River Parret. This is either directly, as with the Meare Stream (and its tributaries), via the River Tone (Broughton Brook, Black Brook and its tributaries and Thornwater Stream) or via the River Isle (Fivehead River its tributaries including Venner's Water, Cad Brook, River Ding and Back Stream and so all the watercourses are hydraulically linked to the Severn Estuary although the shortest distance between the watercourses potentially affected by the A358 dualling and the Severn Estuary is approximately 25km.</p>	

Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	456) No resource requirement from the SPA.
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	<p>457) Water quality All the watercourses that have been identified to cross or in close proximity to the proposed scheme are linked to the River Parret. This is either directly, as with the Meare Stream (and its tributaries), via the River Tone (Broughton Brook, Black Brook and its tributaries and Thornwater Stream) or via the River Isle (Fivehead River its tributaries including Venner's Water, Cad Brook, River Ding and Back Stream and so all the watercourses are hydraulically linked to the Severn Estuary.</p> <p>458) The shortest distance between the watercourses potentially affected by the proposed scheme and the Severn Estuary is approximately 25km. Given this distance, no impacts to water quality at the SAC during construction or operation as a result of the proposed scheme are anticipated.</p> <p>459) Air quality No impacts to the SPA via air pollution are anticipated, given the distance of the proposed scheme and ARN from the SPA.</p>
Excavation requirements (e.g. impacts of local hydrogeology)	460) Construction activities including the realignment of watercourses such as the River Ding and Black Brook will require excavations however dewatering will not be a requirement and as such, impacts to local hydrogeology are not anticipated.
Transportation requirements	461) No impact upon the SPA is anticipated, given the distance of the proposed scheme from the SPA.
Duration of construction, operation, etc.	462) It is currently anticipated that the construction activities would commence in 2024 and the proposed scheme open to traffic in late 2028.
Other	463) Other impacts on the SPA are not anticipated, due to the distance from the proposed scheme.
Description of Avoidance and/or Mitigation Measures <i>Describe any assumed (plainly established and uncontroversial) mitigation measures, including information on:</i>	
Nature of proposals	464) No specific mitigation measures to mitigate impacts to the SPA are included in this assessment, in line with case law.
Location	465) N/A
Evidence for effectiveness	466) N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	467) N/A
Characteristics of European Site(s) <i>A brief description of the European Site should be produced, including information on:</i>	
Name of European Site and its EU code	468) Severn Estuary SPA [UK9015022]

Location and distance of the European Site from the proposed works	469) The SPA is 15.86km north of the proposed scheme boundary and 561.22m north of the ARN. The shortest distance between the watercourses potentially affected by the proposed scheme and the Severn Estuary is approximately 25km.
European Site size	470) 24662.98ha [50]
Key features of the European Site including the primary reasons for selection and any other qualifying interests	<p>471) Internationally important wintering populations of Annex II species:</p> <ul style="list-style-type: none"> • A037 Bewick's Swan <i>Cygnus (Columbianus bewickii)</i>. <p>472) Internationally important populations of regularly occurring wintering migratory bird species:</p> <ul style="list-style-type: none"> • A048 Common shelduck (<i>Tadorna tadorna</i>). • A051 Gadwall (<i>Anas strepera</i>). • A149 Dunlin <i>Calidris (Alpina alpina)</i>. • A162 Common redshank (<i>Tringa tetanus</i>). • A394 Greater white-fronted goose (<i>Anser albifrons albifrons</i>). <p>473) Internationally important assemblage of waterfowl.</p>
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	<p>474) The Natura 2000 Standard Data Form [50] (for the SPA) identifies the following threats, pressures and activities with a high negative effect on the European site:</p> <ul style="list-style-type: none"> • Other urbanisation, industrial and similar activities. • Changes in abiotic conditions. • Human induced changes in hydraulic conditions. • Outdoor sports and leisure activities, recreational activities. • Modification of cultivation practices. <p>475) The following threats and pressures are taken from the Natural England SIP [45] for the European Site (SPA and SAC):</p> <ul style="list-style-type: none"> • Public access/disturbance – identify/reduce impacts of disturbance to birds, and damage to habitats. • Physical modification – reduce, remove and prevent barriers to migratory species. • Impacts of development – inform strategic planning decisions to minimise impacts of development. • Coastal squeeze – limit coastal squeeze, provide sustainable coastal defences, improve existing structures, and deliver compensatory habitat. • Change in land management - maintain appropriate levels and timing of grazing, and management of intertidal saltmarsh habitat. • Changes in species distributions - understand/prepare for changes in species distribution (caused by climate change/other events). • Water pollution - identify any existing issues and prevent/reduce decline in water and sediment quality (applying relevant measures to all relevant tributaries in England and Wales). • Air pollution: impact of atmospheric nitrogen deposition - develop a Site Nitrogen Action Plan. • Marine consents and permits (minerals and waste) - ensure in combination/cumulative impacts from aggregate

	<p>extraction, maintenance dredging and disposal are fully considered.</p> <ul style="list-style-type: none"> • Fisheries: Recreational marine and estuary - establish levels and location of activity (recreational bait digging and recreational fishing/angling) and potential for impacts. • Fisheries: Commercial marine and estuary - identify any threats to site features and habitats from commercial fisheries activity and establish and ensure compliance with any necessary management measures. • Invasive species - assess the risks from/and control the spread of invasive non-native species. • Marine litter - investigate sources of marine litter and implement actions for removal/shoreline clean up. • Marine pollution incidents - minimise impact from marine pollution incidents and clean up response.
<p>European Site conservation objectives – where these are readily available</p>	<p>476) The conservation objectives [44] for the SPA aim to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the favourable conservation status of its qualifying features, by maintaining or restoring:</p> <ul style="list-style-type: none"> • The extent and distribution of the habitats of qualifying features. • The structure and function of the habitats of qualifying features. • The supporting processes on which the habitats of qualifying features rely. • The population of each of the qualifying features. • The distribution of qualifying features within the site. <p>477) Further conservation objectives as relate to the maintenance of the bird populations and supporting habitat in favourable condition are set out within the Natural England and Natural Resources Wales (Countryside Council for Wales at the time of publishing) advice on the European Marine Site (EMS) [48], which is a term used to collectively describe the SAC, SPA and Ramsar site. Those specific to the SPA cover the following qualifying features:</p> <ul style="list-style-type: none"> • Bewick’s swan – maintain population size at 289 individuals, maintain the extent of saltmarsh and intertidal mud and sandflats, maintain vegetation characteristics in winter (unrestricted sightlines), reduce any disturbance to aggregations using feeding, roosting and refuge sites. • White-fronted goose - maintain population size at 3,002 individuals, maintain the extent of saltmarsh and intertidal mud and sandflats, maintain vegetation characteristics in winter (unrestricted sightlines), reduce any disturbance to aggregations using feeding or roosting sites. • Dunlin - maintain population size at 41,683 individuals, maintain the extent of hard substrate, saltmarsh and intertidal mud and sandflat habitats, maintain the abundance and distribution of invertebrate prey, maintain vegetation characteristics in winter (unrestricted sightlines), reduce any disturbance to aggregations using feeding or roosting sites. • Redshank - maintain population size at 2,013 individuals, maintain the extent of hard substrate, saltmarsh and intertidal mud and sandflat habitats, maintain the abundance and distribution of invertebrate prey, maintain

	<p>vegetation characteristics in winter (unrestricted sightlines), reduce any disturbance to aggregations using feeding or roosting sites.</p> <ul style="list-style-type: none"> • Shelduck - maintain population size at 2,892 individuals, maintain the extent of hard substrate, saltmarsh and intertidal mud and sandflat habitats, maintain the abundance and distribution of invertebrate prey, maintain vegetation characteristics in winter (unrestricted sightlines), reduce any disturbance to aggregations using feeding or roosting sites. • Gadwall - maintain population size at 330 individuals, maintain the extent of mud and sandflat habitat, maintain vegetation characteristics in winter (unrestricted sightlines) and reduce any disturbance to aggregations using feeding or roosting sites.
<p>Assessment Criteria</p> <p><i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.</i></p>	
478)	Construction of the proposed scheme could cause a reduction in the availability of functionally-linked habitat to qualifying wintering bird species and the waterfowl assemblage. Construction and operation of the proposed scheme have the potential to disturb qualifying wintering bird species and the waterfowl assemblage while occupying functionally-linked habitat.
479)	The proposed scheme has the potential to cause water quality effects to the SPA during construction and operation. Construction activities will include the realignment of watercourses such as the River Ding and Black Brook and extensions to existing structures near watercourses, which could cause impacts to the habitats upon which the qualifying bird species rely.
480)	The screening decision will be updated as part of the HRA that will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the screening process. This will include consideration of IRZs relevant to the proposed scheme.
<p>Initial Assessment in relation to Severn Estuary SPA</p> <p>The key characteristics and the details of the European Site should be considered in identifying potential impacts.</p> <p><i>Describe any likely changes to the site arising as a result of:</i></p>	
Reduction of habitat area	481) There will be no reduction of habitat area within the Severn Estuary SPA. Due to the distance of the SPA from the proposed scheme, a reduction in functionally-linked habitat to bird species and assemblages for which the site is designated is not anticipated.
Disturbance to key species	482) There will be no disturbance to the qualifying species of the SPA due to the distance from the proposed scheme.
Habitat or species fragmentation	483) No fragmentation of qualifying bird species or assemblages or the habitats upon which they depend are anticipated, due to the distance of the SPA from the proposed scheme.
Reduction in species density	484) No reduction in species density of qualifying bird species or assemblages for which the SPA is designated are anticipated, due to the distance of the SPA from the proposed scheme.
Changes in key indicators of conservation value (water quality, etc.)	485) Water pollution is identified as a key threat within the SIP [45] and in order to maintain the favourable conservation status, toxic contaminants in the water column are to be kept below levels which would pose a risk to the ecological objectives for the qualifying features, within the conservation objectives [44]. Adverse effects to water quality at the SPA have the potential to have significant impacts upon the quality

	of the habitats upon which the qualifying bird species and assemblages rely. However, given the distance of the SPA from the proposed scheme no impacts to water quality at the SPA as a result of the proposed scheme during construction or operation are identified.
Climate change	486) PEI Report Chapter 14 Climate concludes no significant effects in relation to greenhouse gas emissions during construction or operation of the proposed scheme. 487) No significant climate change related effects upon the SPA are anticipated as a result of the proposed scheme.
<i>Describe any likely impacts on the European Site as a whole in terms of:</i>	
Interference with the key relationships that define the structure of the site	488) As outlined above, due to a lack of potential impacts, the proposals are not anticipated to interfere with key relationships that define the structure of the site.
Interference with the key relationships that define the function of the site	489) As outlined above, due to a lack of potential impacts, the proposals are not anticipated to interfere with key relationships that define the function of the site.
<i>Indicate the significance as a result of the identification of impacts set out above in terms of:</i>	
Reduction of habitat area	490) No likely significant effects.
Disturbance to key species	491) No likely significant effects
Habitat or species fragmentation	492) No likely significant effects
Disruption	493) No likely significant effects
Disturbance	494) No likely significant effects
Change to key elements of the site (e.g. water quality, hydrological regime, etc.)	495) No likely significant effects
<i>Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known:</i>	
496) No elements of the proposals have been identified which are likely to have any significant effects upon the qualifying bird populations of the SPA.	
Outcome of screening stage	497) No likely significant effects
Are the appropriate statutory environmental bodies in agreement with this conclusion?	498) We are currently engaging with Natural England through a Discretionary Advice Service (DAS) agreement. Their views in addition to those of Natural Resources Wales will be sought over the conclusion of this assessment and will be reported within the HRA that will form part of the DCO application.

Table 3-9 Screening Matrix: Severn Estuary Ramsar site

Project Name:	A358 Taunton to Southfields Dualling	
European Site under consideration:	Severn Estuary Ramsar	
Date:	Author (Name/ Organisation):	Verified (Name/ Organisation):
13/09/2021	Alys Black (Arup) Sophie Amphlett (Arup)	Jenny Singh (Arup)
Description of Project <i>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the European Site by virtue of:</i>		
Size and scale (road type and probable traffic volume)	<p>499) The proposed scheme will include:</p> <ul style="list-style-type: none"> • Provision of 8.5 miles (13.6km) of new, rural all-purpose dual carriageway for the A358 • Provision of a new two-lane single carriageway overbridge at Stoke Road • Provision of a new grade-separated junction at Mattock's Tree Green • Provision of a new bridge to carry the proposed eastbound carriage way at Griffin Lane • Provision of a new two-lane single carriageway and bridge over the A358 at Village Road • Provision of a new grade-separated junction at Ashill <p>500) A more detailed description of the proposed scheme is provided in Section 1.4 of this report.</p> <p>501) In terms of traffic volumes, Annual Average Daily Traffic (AADT) for the proposed scheme is outlined below:</p> <ul style="list-style-type: none"> • A358 at Henlade AQMA (offline portion) existing: 2,983 • A358 at Woodstock (online portion): 35,912 • M5 between J24 and J25: 94,394 • M5 between J24 and J25: 78,701 • A303 at Horton Cross: 35,973 • A372 at Podimore: 26,844 • A358 at Ruishton (offline portion) new A358 alignment: 38,468 	
Land-take	502) None within the Ramsar site.	
Distance from European Site or key features of the site (from edge of the project assessment corridor)	<p>503) The Ramsar site is 15.86km north of the proposed scheme boundary and 561.22m north of the ARN.</p> <p>504) The shortest distance between the watercourses potentially affected by the proposed scheme and the Severn Estuary is approximately 25km.</p>	
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	505) No resource requirements from the Ramsar site.	
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	<p>Water Quality</p> <p>506) All the watercourses that have been identified to cross or are in close proximity to the proposed scheme are linked to the River Parret. This is either directly, as with the Meare Stream (and its</p>	

	<p>tributaries), via the River Tone (Broughton Brook, Black Brook and its tributaries and Thornwater Stream) or via the River Isle (Fivehead River its tributaries including Venner's Water, Cad Brook, River Ding and Back Stream and so all the watercourses are hydraulically linked to the Severn Estuary.</p> <p>507) The shortest distance between the watercourses potentially affected by the proposed scheme and the Severn Estuary is approximately 25km. Given this distance, no impacts to water quality at the SAC during construction or operation as a result of the proposed scheme are anticipated.</p> <p>508) The potential for water quality impacts during construction and operation are identified for Annex II and migratory fish species utilising habitats local to the proposed scheme.</p> <p>Air quality</p> <p>509) No impacts to the Ramsar site via air pollution are anticipated, given the distance of the proposed scheme and ARN from the Ramsar site.</p>
Excavation requirements (e.g. impacts of local hydrogeology)	510) Construction activities including the realignment of watercourses such as the River Ding and Black Brook will require excavations however dewatering will not be a requirement and as such, impacts to local hydrogeology are not anticipated.
Transportation requirements	511) No impacts upon the Ramsar site are anticipated, given the distance of the proposed scheme from the Ramsar site.
Duration of construction, operation, etc.	512) It is currently anticipated that the construction activities would commence in 2024 and the proposed scheme open to traffic in late 2028.
Other	513) Construction and operation of the proposed scheme could decrease the availability of supporting habitat to Annex II species which migrate between the freshwater catchment of the River Parrett and the Severn estuary during their life cycle.
Description of Avoidance and/or Mitigation Measures	
<i>Describe any assumed (plainly established and uncontroversial) mitigation measures, including information on:</i>	
Nature of proposals	514) No specific mitigation measures to mitigate impacts to the Ramsar site are included in this assessment, in line with case law.
Location	515) N/A
Evidence for effectiveness	516) N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	517) N/A
Characteristics of European Site(s)	
<i>A brief description of the European Site should be produced, including information on:</i>	
Name of European Site and its EU code	518) Severn Estuary Ramsar [UK11081]
Location and distance of the European Site from the proposed works	519) The Ramsar site is 15.86km north of the proposed scheme boundary and 561.22m north of the ARN. The shortest distance between the watercourses potentially affected by

	the proposed scheme and the Severn Estuary is approximately 25km.
European Site size	520) 24,662.98ha [51]
Key features of the European Site including the primary reasons for selection and any other qualifying interests	<p>521) The qualifying interest features of the Severn Estuary Ramsar site overlap with those of the Severn Estuary SAC and SPA. Changes have been made to the criteria since the original designation of the Severn Estuary Ramsar Site. The latest criteria (from 2008) are presented within the Ramsar Information Sheet [51] for the site:</p> <p>522) Ramsar criterion 1: Annex I features present include:</p> <ul style="list-style-type: none"> • Sandbanks which are slightly covered by sea water all the time. • Estuaries. • Mudflats and sandflats not covered by seawater at low tide. • Atlantic salt meadows. <p>523) Ramsar criterion 3 – due to unusual estuarine communities, reduced diversity and high productivity:</p> <p>524) Ramsar criterion 4 – This site is important for the run of migratory fish between sea and river via estuary. Species include:</p> <ul style="list-style-type: none"> • Salmon (<i>Salmo salar</i>). • Sea trout (<i>Salmo trutta</i>). • Sea lamprey (<i>Petromyzon marinus</i>). • River lamprey (<i>Lampetra fluviatilis</i>). • Allis shad (<i>Alosa alosa</i>). • Twaite shad (<i>Alosa fallax</i>). • Eel (<i>Anguilla anguilla</i>). <p>525) It is also of particular importance for migratory birds during spring and autumn.</p> <p>526) Ramsar criterion 5 – Assemblages of international importance of waterfowl with peak counts in winter:</p> <p>527) Ramsar criterion 6 – Species/populations occurring at levels of international importance:</p> <ul style="list-style-type: none"> • Tundra swan (<i>Cygnus columbianus bewickii</i>). • Greater white-fronted goose (<i>Anser albifrons albifrons</i>). • Common shelduck (<i>Tadorna tadorna</i>). • Gadwall (<i>Marceca strepera</i>). • Dunlin (<i>Calidris alpina</i>). • Common redshank (<i>Tringa tetanus</i>). <p>528) Species/populations identified subsequent to designation for possible future consideration under Ramsar criterion 6:</p> <ul style="list-style-type: none"> • Lesser black-backed gull (<i>Larus fuscus</i>). • Ringed plover (<i>Charadrius hiaticula</i>). • Eurasian teal (<i>Anas crecca</i>). • Northern pintail (<i>Anas acuta</i>). <p>529) Ramsar criterion 8 – The fish of the estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. The following species use the Severn</p>

	<p>Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary:</p> <ul style="list-style-type: none"> • Salmon • Sea trout • Sea lamprey • River lamprey • Allis shad • Twaite shad • Eel <p>530) The site is important as a feeding and nursery ground for many fish species particularly:</p> <ul style="list-style-type: none"> • Allis shad • Twaite shad
<p>Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways</p>	<p>531) The qualifying interest features of the Severn Estuary Ramsar site overlap with those of the Severn Estuary SAC and SPA. The Natura 2000 Standard Data Form [46] (for the SAC) identifies that the following threats, pressures and activities with activities have a high negative effect on the European site:</p> <ul style="list-style-type: none"> • Other urbanisation, industrial and similar activities • Changes in abiotic conditions • Human induced changes in hydraulic conditions • Outdoor sports and leisure activities, recreational activities • Modification of cultivation practices <p>532) The Ramsar Information Sheet (RIS) [51] for the site sets out factors affecting the site's ecological character and cites the following adverse factors:</p> <ul style="list-style-type: none"> • Dredging – on and off-site (major impact) • Erosion – on site (major impact) • Recreational/ tourism disturbance – on and off-site <p>533) There is no Natural England SIP specific to the Ramsar site. It is therefore appropriate to consider the following threats and pressures included in the SIP for the SAC and SPA [45]:</p> <ul style="list-style-type: none"> • Public access/disturbance – identify/reduce impacts of disturbance to birds, and damage to habitats. • Physical modification – reduce, remove and prevent barriers to migratory species. • Impacts of development – inform strategic planning decisions to minimise impacts of development. • Coastal squeeze – limit coastal squeeze, provide sustainable coastal defences, improve existing structures, and deliver compensatory habitat. • Change in land management - maintain appropriate levels and timing of grazing, and management of intertidal saltmarsh habitat. • Changes in species distributions - understand/prepare for changes in species distribution (caused by climate change/other events). • Water pollution - identify any existing issues and prevent/reduce decline in water and sediment quality (applying relevant measures to all relevant tributaries in England and Wales).

	<ul style="list-style-type: none"> • Air pollution: impact of atmospheric nitrogen deposition - develop a Site Nitrogen Action Plan. • Marine consents and permits (minerals and waste) - ensure in combination/cumulative impacts from aggregate extraction, maintenance dredging and disposal are fully considered. • Fisheries: Recreational marine and estuary - establish levels and location of activity (recreational bait digging and recreational fishing/angling) and potential for impacts. • Fisheries: Commercial marine and estuary - identify any threats to site features and habitats from commercial fisheries activity and establish and ensure compliance with any necessary management measures. • Invasive species - assess the risks from/and control the spread of invasive non-native species. • Marine litter - investigate sources of marine litter and implement actions for removal/ shoreline clean up. • Marine pollution incidents - minimise impact from marine pollution incidents and clean up response.
<p>European Site conservation objectives – where these are readily available</p>	<p>534) The conservation objectives [52] (for the SAC and also of relevance for the Ramsar site) aim to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the favourable conservation status of its qualifying features, by maintaining or restoring:</p> <ul style="list-style-type: none"> • The extent and distribution of the habitats of qualifying species. • The structure and function of the habitats of qualifying species. • The supporting processes on which the habitats of qualifying species rely. • The populations of qualifying species. • The distribution of qualifying species within the site. <p>535) Further conservation objectives as relate to the maintenance of the favourable conservation status of interest features are set out within the Natural England and Natural Resources Wales (Countryside Council for Wales at the time of publishing) advice on the European Marine Site (EMS) [48], which is a term used to collectively describe the SAC, SPA and Ramsar site. Those specific to the Ramsar site include those relating to the extent and distribution of the qualifying habitats in addition to factors such as toxic contaminants in the water column and abundance of the notable estuarine species assemblages. In addition, the passage of migratory species should not be impeded.</p>
<p>Assessment Criteria</p> <p><i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Site.</i></p>	
<p>536) Construction and operation of the proposed scheme could decrease the availability of supporting habitat to Annex II species and the migratory fish assemblage which migrate between the freshwater catchment of the River Parrett and the Severn estuary during their life cycle, and changes in species distributions is listed as a threat within the SIP [45].</p> <p>537) The potential for water quality impacts during construction and operation are identified for Annex II and migratory fish species utilising habitats local to the proposed scheme.</p>	

<p>538) The screening decision will be updated as part of the HRA that will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the screening process. This will include consideration of IRZs relevant to the proposed scheme.</p>	
<p>Initial Assessment in relation to Severn Estuary Ramsar The key characteristics and the details of the European Site should be considered in identifying potential impacts.</p> <p><i>Describe any likely changes to the site arising as a result of:</i></p>	
<p>Reduction of habitat area</p>	<p>539) There will be no reduction of habitat area within the Severn Estuary Ramsar site.</p> <p>540) The realignment of watercourses including Back Stream (which forms part of the River Ding), and the realignment of tributaries of the Black Brook may lead to a reduction in the habitats utilised for life stages of fish species.</p> <p>541) Twaite shad spawn in large slow flowing rivers >10m in width, typically at depths between 15-300cm. In Britain, spawning populations of twaite shad are still found in the rivers Severn, Teme, Wye, Usk and Tywi [49]. Based on this, watercourses within the proposed scheme do not provide habitat for Twaite shad.</p> <p>542) Survey data collected to date of the location of the River Ding did not identify any of the migratory fish species (salmon, eel, sea trout and allis shad) listed as a notable species sub feature of the 'estuaries' feature. However, the riverine ecotype of brown trout (<i>Salmo trutta morpha fario</i>) were recorded during the River Ding surveys; young brown trout could migrate to sea and become sea trout (<i>Salmo trutta morpha trutta</i>). European eel are considered ubiquitous within their range and are likely to be present within the proposed scheme area if their migratory route is not compromised by physical obstructions.</p> <p>543) The habitats present within the proposed scheme are considered to potentially constitute functionally linked habitat for Annex II migratory species and given the preliminary stage of design detail currently available, the potential for a reduction in available functionally linked habitat is identified. Further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC.</p> <p>544) Further surveys of all watercourses subject to realignment and those that cross the proposed scheme are to be undertaken in the 2021 survey season and the results of these surveys will be included in a Statement to Inform Appropriate Assessment for the Ramsar site.</p>
<p>Disturbance to key species</p>	<p>545) No disturbance of the Annex II migratory fish species will occur within the SAC due to the distance of the proposed scheme from the Ramsar site.</p> <p>546) Annex II species and the migratory fish assemblage have the potential to be disturbed by the project during construction and given the preliminary stage of design detail currently available further assessment is required to enable an assessment of the significance of potential impacts upon the site.</p>

	547) Further surveys of all watercourses subject to realignment and those that cross the proposed scheme are to be undertaken in the 2021 survey season and the results of these surveys will be included in a Statement to Inform Appropriate Assessment for the Ramsar site.
Habitat or species fragmentation	548) Annex II species and the migratory fish assemblage have the potential to be subject to fragmentation by the project as a result of realignment during construction and poorly designed watercourse crossings/culverts; changes in species distributions are identified as a threat within the SIP [45] and given the preliminary stage of design detail currently available further assessment is required to enable an assessment of the significance of potential impacts upon the site. 549) Further surveys of all watercourses subject to realignment and those that cross the proposed scheme are to be undertaken in the 2021/22 survey season and the results of these surveys will be included in a Statement to Inform Appropriate Assessment for the Ramsar site.
Reduction in species density	550) Annex II fish species and the migratory fish assemblage have the potential to be subject to a change in recruitment and a reduction in species density by the project as a result of construction works. and given the preliminary stage of design detail currently available further assessment is required to enable an assessment of the significance of potential impacts upon the site. 551) Further surveys of all watercourses subject to realignment and those that cross the proposed scheme are to be undertaken in the 2021 survey season and the results of these surveys will be included in a Statement to Inform Appropriate Assessment for the Ramsar site.
Changes in key indicators of conservation value (water quality, etc.)	Water quality 552) Adverse effects to water quality at the Ramsar site have the potential to have significant impacts upon the quality of the habitats for which the site is designated and upon which the key species rely. However, given the distance of the site from the proposed scheme no impacts to water quality at the site as a result of the proposed scheme during construction or operation are identified. 553) The potential for water quality impacts during construction and operation are identified for Annex II and migratory fish species utilising habitats local to the proposed scheme. Given the preliminary stage of design detail currently available measures to avoid pollution to ensure wider legislative compliance will be described within the Statement to Inform Appropriate Assessment for the site.
Climate change	554) PEI Report Chapter 14 Climate concludes no significant effects in relation to greenhouse gas emissions during construction or operation of the proposed scheme. 555) No significant climate change related effects upon the Ramsar site are anticipated as a result of the proposed scheme.
<i>Describe any likely impacts on the European Site as a whole in terms of:</i>	

Interference with the key relationships that define the structure of the site	556) The potential for a reduction of functionally-linked habitat, disturbance, fragmentation, a reduction in species density and impacts to water quality have the potential to adversely affect the key species and the migratory fish and bird assemblages and the qualifying habitats upon which they rely. Therefore, there is the potential for the project to interfere with the relationships that define the structure of the Ramsar site.
Interference with the key relationships that define the function of the site	557) The potential for a reduction of functionally-linked habitat, disturbance, fragmentation, a reduction in species density and impacts to water quality have the potential to adversely affect the key species and the migratory fish and bird assemblages and the qualifying habitats upon which they rely. Therefore, there is the potential for the project to interfere with the relationships that define the function of the Ramsar site.
<i>Indicate the significance as a result of the identification of impacts set out above in terms of:</i>	
Reduction of habitat area	558) A significant effect upon functionally linked habitat cannot be ruled out at this stage.
Disturbance to key species	559) A significant effect upon key species using functionally linked habitat cannot be ruled out at this stage.
Habitat or species fragmentation	560) A significant effect cannot be ruled out at this stage.
Disruption	561) A significant effect cannot be ruled out at this stage.
Disturbance	562) A significant effect upon key species using functionally linked habitat cannot be ruled out at this stage.
Change to key elements of the site (e.g. water quality, hydrological regime, etc.)	563) A significant effect cannot be ruled out at this stage.
<i>Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known:</i>	
<p>Reduction of functionally linked habitat</p> <p>564) While there will be no reduction of habitat area within the Ramsar site, construction activities have the potential to cause a reduction of available functionally-linked habitat to for Annex II migratory species. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the Ramsar site.</p> <p>Disturbance to key species (using functionally linked habitat)</p> <p>565) While there will be no disturbance to key species within the SAC, the potential for disturbance to the qualifying Annex II migratory species from the SAC utilising habitats local to the proposed scheme is identified. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the Ramsar site.</p> <p>Habitat or species fragmentation</p> <p>566) Annex II species and the migratory fish assemblage have the potential to be subject to fragmentation by the proposed scheme. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the Ramsar site.</p> <p>Reduction in species density</p>	

567)	Annex II fish species and the migratory fish assemblage have the potential to be subject to a change in recruitment and a reduction in species density by the project as a result of construction works. Given the preliminary stage of design detail currently available, further analysis is needed to enable an assessment of the significance of impacts upon the site and will be detailed within the Statement to Inform Appropriate Assessment for the Ramsar site.
	Water quality
568)	The potential for water quality impacts during construction and operation are identified for Annex II and migratory fish species utilising habitats local to the proposed scheme. Given the preliminary stage of design detail currently available measures to avoid pollution to ensure wider legislative compliance will be described within the Statement to Inform Appropriate Assessment for the Ramsar site.
Outcome of screening stage	569) A significant effect cannot be ruled out at this stage.
Are the appropriate statutory environmental bodies in agreement with this conclusion?	570) We are currently engaging with Natural England through a Discretionary Advice Service (DAS) agreement. Their views in addition to those of Natural Resources Wales will be sought over the conclusion of this assessment and will be reported within the HRA that will form part of the DCO application.

4 Conclusion

4.1 Hestercombe House SAC

- 4.1.1 It is not possible at this stage to conclude that no likely significant effects exist with regards to a reduction of available functionally linked habitat or disturbance to key species whilst utilising habitats local to the proposed scheme for the Hestercombe House SAC with respect to the qualifying lesser horseshoe bat population.
- 4.1.2 Desk study and survey data collected to date indicate that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by lesser horseshoe bats. Construction of the proposed scheme will include the removal of woodland vegetation adjacent to the existing A358 in addition to within the offline section to the north. While there will be no reduction of habitat or disturbance of key species within the SAC; given the distance of the proposed scheme from the SAC (3.77km), the identified BCT CSZ (3km), the sustenance zone identified for the SAC (6km) and the preliminary stage of design detail currently available for the proposed scheme, the potential for a reduction in available functionally linked habitat and disturbance to key species while using habitats local to the proposed scheme is identified. While a significant impact in relation to direct mortality is considered unlikely, due to the identified BCT CSZ (3km), further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC in relation to reduction of functionally linked habitat and disturbance.
- 4.1.3 Further analysis is needed to enable an assessment of the significance of potential impacts upon the SAC with respect to the qualifying lesser horseshoe population to establish whether there would be significant effects upon the SAC from the proposed scheme alone, or in combination with other proposals. Further surveys are to be undertaken in the 2021 survey season including roost, activity and radio-tracking surveys. The results of these surveys will be included in a Statement to Inform Appropriate Assessment for the SAC.

4.2 Exmoor and Quantocks SAC

- 4.2.1 It is not possible at this stage to conclude that no likely significant effects exist with regards to a reduction of available functionally linked habitat or disturbance to key species whilst utilising habitats local to the proposed scheme for the Exmoor and Quantocks SAC with respect to the qualifying barbastelle population.
- 4.2.2 Desk study and survey data collected to date indicate that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by Bechstein's and barbastelle bats. Construction of the proposed scheme will include the removal of woodland vegetation adjacent to the existing A358 in addition to within the offline section to the north. However, at a distance of 15.96km, the identified BCT CSZ (3km) for the species and what is known of the distances travelled between winter and summer roosts (most fall within 10km) it considered unlikely that the habitats to be impacted constitute functionally linked habitat for Bechstein's. Therefore, a reduction in area of functionally linked habitat for the species is not likely to occur. Given that the habitats within the proposed scheme are not considered to constitute functionally linked habitat for Bechstein's bats from the SAC, disturbance of Bechstein's bats originating from the SAC is

not likely to occur and no impact as a result of disturbance to this key species is identified.

- 4.2.3 With respect to barbastelle, while there will be no reduction of habitat within the SAC, given the identified BCT CSZ (6km), the sustenance zone identified for the SAC (15.5km) and the preliminary stage of design detail currently available for the proposed scheme, the potential for a reduction in available functionally linked habitat is identified. The potential for disturbance (including direct mortality through vehicle collision) is identified for the qualifying barbastelle population whilst using habitats local to the proposed scheme. While a significant impact is considered unlikely, due to the proposed scheme being on the outer limits of the sustenance zone identified for the SAC, further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC in respect of the barbastelle population.
- 4.2.4 Further analysis is needed to enable an assessment of the significance of potential impacts upon the SAC with respect to the qualifying barbastelle population to establish whether there would be significant effects upon the SAC from the proposed scheme alone, or in combination with other proposals. Further surveys are to be undertaken in the 2021 survey season including roost, activity and radio-tracking surveys. The results of these surveys will be included in a Statement to Inform Appropriate Assessment for the SAC.

4.3 Bracket's Coppice SAC

- 4.3.1 It is possible to conclude that no likely significant effects exist in relation to the Bracket's Coppice SAC with respect to the qualifying Bechstein's bat population.
- 4.3.2 There will be no reduction of habitat within the SAC. While desk study and survey data collected to date indicates that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by Bechstein's bats, given the identified BCT CSZ (3km) for the species and what is known of movements between summer and winter roosts (most fall within 10km), at a distance of 18.21km from the SAC, the proposed scheme is not considered to constitute functionally linked habitat for the species and no reduction of functionally linked habitat as a result of the proposed scheme is identified.
- 4.3.3 Given that the habitats within the proposed scheme are not considered to constitute functionally linked habitat for Bechstein's bats from the SAC, disturbance of Bechstein's bats originating from the SAC is not likely to occur and no impact as a result of disturbance to this key species is identified.
- 4.3.4 As such, no likely significant effects upon the Bechstein's bat population for which the SAC is designated are identified. The screening decision will be updated as part of the HRA that will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the screening process.

4.4 Beer Quarry and Caves SAC

- 4.4.1 It is not possible at this stage to conclude that no likely significant effects exist with regards to a reduction of functionally linked habitat or disturbance to key species whilst utilising habitats local to the proposed scheme for the Beer Quarry and Caves SAC with respect to the qualifying horseshoe populations.

- 4.4.2 Desk study and survey data collected to date indicate that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by Bechstein's, lesser and greater horseshoe bats. Construction of the proposed scheme will include the removal of woodland vegetation adjacent to the existing A358 in addition to within the offline section to the north. However, at a distance of 28.42km, the identified BCT CSZ (3km) for the species and what is known of the distances travelled between winter and summer roosts (most fall within 10km) it is considered unlikely that the habitats to be impacted constitute functionally linked habitat for Bechstein's. Therefore, a reduction in area of functionally linked habitat for this species is not likely to occur. Given that the habitats within the proposed scheme are not considered to constitute functionally linked habitat for Bechstein's bats from the SAC, disturbance of Bechstein's bats originating from the SAC is not likely to occur and no impact as a result of disturbance to this key species is identified.
- 4.4.3 With respect to the lesser and greater horseshoe populations, the identified BCT CSZs (3km for lesser and 2km for greater horseshoe bats) would indicate that the habitats present within the proposed scheme are unlikely to be used by horseshoe bats originating from the SAC for foraging. From what is known of movements of lesser horseshoe bats between summer and winter roosts (most fall within 5km but can be up to 22km) it is also considered unlikely that lesser horseshoes roosting within or close to the proposed scheme originate from the SAC population however the potential for a reduction on functionally linked habitat for roosting for this species is identified. Greater horseshoe movements between summer and winter roosts are identified as being up to 40km and as such, the potential for a reduction on functionally linked habitat for roosting for this species is identified.
- 4.4.4 The potential for disturbance (including direct mortality through vehicle collision) is identified for the qualifying horseshoe populations whilst using habitats local to the proposed scheme. While a significant impact is considered unlikely, due to the proposed scheme being approximately 26km outside of the identified CSZ, further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC in respect of the horseshoe populations.
- 4.4.5 Further analysis is needed to enable an assessment of the significance of potential impacts upon the SAC with respect to the qualifying horseshoe populations to establish whether there would be significant effects upon the SAC from the proposed scheme alone, or in combination with other proposals. Further surveys are to be undertaken in the 2021 survey season including roost, activity and radio-tracking surveys. The results of these surveys will be included in a Statement to Inform Appropriate Assessment for the SAC.

4.5 Somerset Levels and Moors SPA

- 4.5.1 It is not possible at this stage to conclude that no likely significant effects exist with regards to a reduction of functionally linked habitat, disturbance to key species whilst utilising habitats local to the proposed scheme or water quality impacts for the Somerset Levels and Moors SPA with respect to the qualifying wintering bird species and the waterfowl assemblage.
- 4.5.2 Construction of the proposed scheme will include the removal of habitats adjacent to the existing A358 in addition to the offline section to the north. While there will be no reduction of habitat or disturbance to key species within the SPA, the

potential is identified for a reduction of available functionally linked habitat which supports the qualifying species in all life stages including those outside of the non-breeding/wintering period. The potential for disturbance of qualifying bird species whilst using habitats local to the proposed scheme is identified. Given the preliminary stage of design detail currently available for the proposed scheme, further analysis on usage of habitats close to the proposed scheme by bird species is required to enable an assessment of impacts upon the SPA to establish whether there would be significant effects upon the site from the proposed scheme alone, or in combination with other proposals and will be detailed within the Statement to Inform Appropriate Assessment for the SPA.

- 4.5.3 Construction activities have the potential to generate water-borne pollution and the proposed scheme and the SPA are hydraulically connected. Construction activities will include the realignment of watercourses such as the River Ding and Black Brook and extensions to existing structures in proximity to watercourses. Operation of the proposed scheme has the potential to adversely affect the SPA through impacts to watercourses such as pollution events and surface water and road drainage. Impacts to water quality at the SPA have the potential to adversely affect the habitats upon which the qualifying bird species and assemblage rely. Given the preliminary stage of design detail currently available measures to avoid pollution to ensure wider legislative compliance will be described within the Statement to Inform Appropriate Assessment for the SPA.

4.6 Somerset Levels and Moors Ramsar site

- 4.6.1 It is not possible at this stage to conclude that no likely significant effects exist with regards to a reduction of functionally linked habitat, disturbance to key species whilst utilising habitats local to the proposed scheme or water quality impacts for the Somerset Levels and Moors Ramsar site with respect to the qualifying wintering bird species and the waterfowl assemblage.
- 4.6.2 Construction of the proposed scheme will include the removal of habitats adjacent to the existing A358 in addition to the offline section to the north. While there will be no reduction of habitat or disturbance to key species within the Ramsar site, the potential is identified for a reduction of available functionally linked habitat which supports the qualifying species in all life stages including those outside of the non-breeding/ wintering period. The potential for disturbance of qualifying bird species whilst using habitats local to the proposed scheme is identified. Given the preliminary stage of design detail currently available for the proposed scheme, further analysis on the usage of habitats close to the proposed scheme by bird species is required to enable an assessment of impacts upon the site to establish whether there would be significant effects upon the site from the proposed scheme alone, or in combination with other proposals and will be detailed within the Statement to Inform Appropriate Assessment for the site.
- 4.6.3 Construction activities have the potential to generate water-borne pollution and the proposed scheme and the Ramsar site are hydraulically connected. Construction activities will include the realignment of watercourses such as the River Ding and Black Brook and extensions to existing structures in proximity to watercourses. Operation of the proposed scheme has the potential to adversely affect the SPA through impacts to watercourses such as pollution events and surface water and road drainage. Impacts to water quality at the site have the potential to adversely affect the habitats upon which the qualifying bird species and assemblage rely. Given the preliminary stage of design detail currently

available measures to avoid pollution to ensure wider legislative compliance will be described within the Statement to Inform Appropriate Assessment for the site.

4.7 Severn Estuary SAC

- 4.7.1 It is not possible at this stage to conclude that no likely significant effects exist with regards to a reduction of available functionally linked habitat, disturbance to key species whilst utilising habitats local to the proposed scheme, species fragmentation, reduction in species density and water quality impacts to key species whilst using habitats local to the proposed scheme for the Severn Estuary SAC with respect to the qualifying Annex II migratory fish species and assemblage.
- 4.7.2 Construction activities will include the realignment of watercourses and while there will be no reduction of habitat within the SAC, the potential for a reduction of available functionally linked habitat utilised for life stages of migratory fish species is identified (with the exception of Twaite shad for which the watercourses potentially affected by the proposed scheme are not considered to provide suitable habitat). While there will be no disturbance of key species within the SAC, the potential for disturbance whilst using habitats local to the proposed scheme is identified. Annex II species and the migratory fish assemblage have the potential to be subject to fragmentation by the project as a result of realignment during construction and the potential to be subject to a change in recruitment and a reduction in species density by the project as a result of construction works.
- 4.7.3 Given the preliminary stage of design detail currently available for the proposed scheme, further analysis on usage of habitats local to the proposed scheme by qualifying migratory fish species is required to enable an assessment of the significance of potential impacts to the SAC to establish whether there would be significant effects upon the SAC from the proposed scheme alone, or in combination with other proposals and will be detailed within the Statement to Inform Appropriate Assessment for the site.
- 4.7.4 Given the distance of the proposed scheme from the closest watercourse potentially affected (approximately 25km), impacts to water quality at the SAC are not anticipated during construction or operation. However, the potential for water quality impacts during construction and operation are identified for Annex II and migratory fish species utilising habitats local to the proposed scheme. Given the preliminary stage of design detail currently available measures to avoid pollution to ensure wider legislative compliance will be described within the Statement to Inform Appropriate Assessment for the SAC.

4.8 Severn Estuary SPA

- 4.8.1 It is possible to conclude that no likely significant effects exist in relation to the Severn Estuary SPA.
- 4.8.2 Given the distance of the proposed scheme from the closest watercourse potentially affected (approximately 25km), impacts to water quality at the site are not anticipated during construction or operation. No other impacts to the qualifying interest features of the SPA are identified given the distance of the proposed scheme from the SPA.

- 4.8.3 The screening decision will be updated as part of the HRA that will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the screening process.

4.9 Severn Estuary Ramsar site

- 4.9.1 It is not possible at this stage to conclude that no likely significant effects exist with regards to a reduction of available functionally linked habitat, disturbance to key species whilst utilising habitats local to the proposed scheme, species fragmentation, reduction in species density and water quality impacts to key species whilst using habitats local to the proposed scheme for the Severn Estuary Ramsar site with respect to the qualifying Annex II migratory fish species and assemblage.
- 4.9.2 Construction activities will include the realignment of watercourses and while there will be no reduction of habitat within the site, the potential for a reduction of available functionally linked habitat utilised for life stages of migratory fish species is identified (with the exception of Twaite shad for which the watercourses potentially affected by the proposed scheme are not considered to provide suitable habitat). While there will be no disturbance of key species within the site, the potential for disturbance whilst using habitats local to the proposed scheme is identified. Annex II species and the migratory fish assemblage have the potential to be subject to fragmentation by the project as a result of realignment during construction and the potential to be subject to a change in recruitment and a reduction in species density by the project as a result of construction works.
- 4.9.3 Given the preliminary stage of design detail currently available for the proposed scheme, further analysis on usage of habitats local to the proposed scheme by qualifying migratory fish species is required to enable an assessment of the significance of potential impacts to the Ramsar site to establish whether there would be significant effects upon the Ramsar site from the proposed scheme alone, or in combination with other proposals and will be detailed within the Statement to Inform Appropriate Assessment for the site.
- 4.9.4 Given the distance of the proposed scheme from the closest watercourse potentially affected (approximately 25km), impacts to water quality at the site are not anticipated. However, the potential for water quality impacts during construction and operation are identified for Annex II and migratory fish species utilising habitats local to the proposed scheme. Given the preliminary stage of design detail currently available measures to avoid pollution to ensure wider legislative compliance will be described within the Statement to Inform Appropriate Assessment for the Ramsar site.

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Appendices

Appendix A European designated sites citations and standard data forms

- A.1 Beer Quarry and Caves SAC**
- A.2 Bracket's Coppice SAC**
- A.3 Exmoor and Quantocks SAC**
- A.4 Hestercombe House SAC**
- A.5 Somerset Levels Ramsar site**
- A.6 Somerset Levels SPA**
- A.7 Severn Estuary SAC**
- A.8 Severn Estuary SPA**
- A.9 Severn Estuary Ramsar site**

Appendix B European designated sites - plans

A.9.1.1 The following plans are included:

- European Designated Sites Plan

Appendix C PINS Screening Matrices

A.9.1.1 Potential effects upon the International site(s) which are considered within the submitted HRA screening report are provided in the table below.

Table C-1 Effects considered within the screening matrices

Designation	Effects described in submission information	Presented in screening matrices as
Hestercombe House SAC	<ul style="list-style-type: none"> • Loss of available functionally linked habitat for roosting, foraging & commuting for qualifying bat species – lesser horseshoe • Disturbance (including direct mortality) to qualifying bat species (lesser horseshoe) using local habitats 	<ul style="list-style-type: none"> • Reduction of habitat area (functionally linked habitat) • Disturbance
Exmoor and Quantock Oakwoods SAC	<ul style="list-style-type: none"> • Loss of available functionally linked habitat for roosting, foraging & commuting for qualifying bat species – Bechstein's and barbastelle • Disturbance (including direct mortality) to qualifying bat species (Bechstein's and barbastelle) using local habitats 	<ul style="list-style-type: none"> • Reduction of habitat area (functionally linked habitat) • Disturbance
Bracket's Coppice SAC	<ul style="list-style-type: none"> • Loss of available functionally linked habitat for roosting, foraging & commuting for qualifying bat species – Bechstein's • Disturbance (including direct mortality) to qualifying bat species (Bechstein's) using local habitats 	<ul style="list-style-type: none"> • Reduction of habitat area (functionally linked habitat) • Disturbance
Beers Quarry and Caves SAC	<ul style="list-style-type: none"> • Loss of available functionally linked habitat for roosting, foraging & commuting for qualifying bat species – Bechstein's, lesser and greater horseshoe • Disturbance (including direct mortality) to qualifying bat species (Bechstein's, lesser and greater horseshoe) using local habitats 	<ul style="list-style-type: none"> • Reduction of habitat area (functionally linked habitat) • Disturbance
Somerset Levels and Moors SPA	<ul style="list-style-type: none"> • Loss of available functionally linked habitat 	<ul style="list-style-type: none"> • Reduction of habitat area (functionally linked habitat)

	<ul style="list-style-type: none"> for roosting, foraging & commuting for qualifying bat species • Disturbance (including direct mortality) to qualifying bat species using local habitats • Ingress of pollutants 	<ul style="list-style-type: none"> • Disturbance • Water quality
Somerset Levels and Moors Ramsar site	<ul style="list-style-type: none"> • Loss of available functionally linked habitat for roosting, foraging & commuting for barbastelle bats • Disturbance (including direct mortality) to barbastelle bats using local habitats • Ingress of pollutants 	<ul style="list-style-type: none"> • Reduction of habitat area (functionally linked habitat) • Disturbance • Water quality
Severn Estuary SAC	<ul style="list-style-type: none"> • Loss of available functionally linked habitat for life stages of qualifying migratory fish species • Disturbance to qualifying migratory fish species using local habitats • Species fragmentation of qualifying migratory fish species • Reduction in species density through changes in recruitment of qualifying migratory fish species • Ingress of pollutants 	<ul style="list-style-type: none"> • Reduction of habitat area (functionally linked habitat) • Disturbance • Species fragmentation • Reduction in species density • Water quality
Severn Estuary SPA	<ul style="list-style-type: none"> • Loss of available functionally linked habitat for roosting, foraging & commuting for barbastelle bats • Disturbance (including direct mortality) to barbastelle bats using local habitats • Ingress of pollutants 	<ul style="list-style-type: none"> • Reduction of habitat area (functionally linked habitat) • Disturbance • Water quality
Severn Estuary Ramsar site	<ul style="list-style-type: none"> • Loss of available functionally linked habitat for life stages of qualifying migratory fish species • Disturbance to qualifying migratory fish species using local habitats • Species fragmentation of qualifying migratory fish species • Reduction in species density through changes in recruitment of qualifying migratory fish species • Ingress of pollutants 	<ul style="list-style-type: none"> • Reduction of habitat area (functionally linked habitat) • Disturbance • Species fragmentation • Reduction in species density • Water quality

The international sites included within the screening assessment are:

- Hestercombe House SAC
- Exmoor and Quantock Oakwoods SAC
- Bracket's Coppice SAC
- Beers Quarry and Caves SAC
- Somerset Levels and Moors SPA
- Somerset Levels and Moors Ramsar site
- Severn Estuary SAC
- Severn Estuary SPA
- Severn Estuary Ramsar site

Evidence for, or against, likely significant effects on the European site(s) and its qualifying feature(s) is detailed within the footnotes to the screening matrices in Appendix Table C2 to Appendix Table C9.

Matrix key

✓: Likely significant effect cannot be excluded

✗: Likely significant effect can be excluded

C: Construction

O: Operation

D: Decommissioning

Table C2 Hestercombe House SAC PINS Matrix

Name of European site and designation: Hestercombe House SAC									
EU code: UK0030168									
Distance to NSIP: 3.77km									
European site features	Likely effects of NSIP								
	Reduction of habitat area			Disturbance			In combination effects		
Effect	C	O	D	C	O	D	C	O	D
Lesser horseshoe bat <i>Rhinolophus hipposideros</i>	✓*a	✗*a	N/A	✓*b	✓*b	N/A	✓*c	✓*c	N/A

*a & b Desk study and survey data collected to date indicate that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by lesser horseshoe bats. Construction of the proposed scheme will include the removal of woodland vegetation adjacent to the existing A358 in addition to within the offline section to the north. While there will be no reduction of habitat or disturbance of key species within the SAC, given the distance of the proposed scheme from the SAC (3.77km), the identified BCT CSZ (3km), the sustenance zone identified for the SAC (6km) and the preliminary stage of design detail currently available for the proposed scheme, the potential for a reduction in available functionally linked habitat and disturbance to key species while using habitats local to the proposed scheme is identified. While a significant impact in relation to direct mortality is considered unlikely, due to the identified BCT CSZ (3km), further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC in relation to reduction of functionally linked habitat and disturbance.

*c If further assessment of the proposed scheme concluded that it would be likely to result in a reduction of habitat area or disturbance to qualifying species alone, the potential would exist for in combination effects with other plans and projects.

Table C3 Exmoor and Quantocks Oakwoods SAC PINS Matrix

Name of European site and designation: Exmoor & Quantock Oakwoods SAC									
EU code: UK0030148									
Distance to NSIP: 15.97km									
European site features	Likely effects of NSIP								
	Reduction of habitat area			Disturbance			In combination effects		
Effect	C	O	D	C	O	D	C	O	D
Bechstein's Bat <i>Myotis bechsteinii</i>	✗*d	✗*d	N/A	✗*e	✗*e	N/A	✗*f	✗*f	N/A
Barbastelle Bat <i>Barbastella barbastellus</i>	✓*g	✗*g	N/A	✓*h	✓*h	N/A	✓*i	✓*i	N/A
Otter <i>Lutra lutra</i>	✗*j	✗*j	N/A	✗*j	✗*j	N/A	✗*j	✗*j	N/A
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i>	✗*k	✗*k	N/A	✗*k	✗*k	N/A	✗*k	✗*k	N/A
Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles	✗*k	✗*k	N/A	✗*k	✗*k	N/A	✗*k	✗*k	N/A

*d & e Desk study and survey data collected to date indicate that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by Bechstein's bats. Construction of the proposed scheme will include the removal of woodland vegetation adjacent to the existing A358 in addition to within the offline section to the north. However, at a distance of 15.96km, the identified BCT CSZ (3km) for the species and what is known of the distances travelled between winter and summer roosts (most fall within 10km) it considered unlikely that the habitats to be impacted constitute functionally linked habitat for Bechstein's. Therefore, a reduction in area of functionally linked habitat for the species is not likely to occur. Given that the habitats within the proposed scheme are not considered to constitute functionally linked habitat for Bechstein's bats from the SAC, disturbance of Bechstein's bats originating from the SAC is not likely to occur and no impact as a result of disturbance to this key species is identified.

*f Potential effects of the proposed scheme upon the qualifying Bechstein's population are negligible and no potential for in combination effects is identified.

*g & h Desk study and survey data collected to date indicate that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by barbastelle bats. Construction of the proposed scheme will include the removal of woodland vegetation adjacent to the existing A358 in addition to within the offline section to the north. While there will be no reduction of habitat within the SAC, given the identified BCT CSZ (6km), the sustenance zone identified for the SAC (15.5km) and the preliminary stage of design detail currently available for the proposed scheme, the potential for a reduction in available functionally linked habitat is identified. The potential for disturbance (including direct mortality through vehicle collision) is identified for the qualifying barbastelle population whilst using habitats local to the proposed scheme during construction and operation. While a significant impact (in regards to direct mortality) is considered unlikely, due to the identified CSZ, further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC in respect of the barbastelle population.

*i If further assessment of the proposed scheme concluded that it would be likely to result in a reduction of habitat area or disturbance to qualifying species alone, the potential would exist for in combination effects with other plans and projects.

*j No hydrological pathway between the SAC and the proposed scheme has been identified and no impact to the SAC otter population will occur.

*k At a distance of 3.77km and with no hydrological pathway between the SAC and the proposed scheme, no impacts to the qualifying habitats will occur.

Table C4 Bracket's Coppice SAC PINS Matrix

Name of European site and designation: Bracket's Coppice SAC									
EU code: UK0030095									
Distance to NSIP: 18.21km									
European site features	Likely effects of NSIP								
	Reduction of habitat area			Disturbance			In combination effects		
Effect	C	O	D	C	O	D	C	O	D
Stage of development	C	O	D	C	O	D	C	O	D
Bechstein's Bat <i>Myotis bechsteinii</i>	X*I	X*I	N/A	X*m	X*m	N/A	√*n	√*n	N/A
Molina meadows on calcareous, peaty or clayey-silt-laden soils <i>(Molinion caeruleae)</i>	X*o	X*o	N/A	X*o	X*o	N/A	X*o	X*o	N/A

*I There will be no reduction of habitat within the SAC. While desk study and survey data collected to date indicates that habitats within and close to the proposed scheme are used for summer roosting,

foraging and commuting by Bechstein's bats, given the identified BCT CSZ (3km) for the species and what is known of movements between summer and winter roosts (most fall within 10km), at a distance of 18.21km from the SAC, the proposed scheme is not considered to constitute functionally linked habitat for the species and no reduction of functionally linked habitat as a result of the proposed scheme is identified.

*m Given that the habitats within the proposed scheme are not considered to constitute functionally linked habitat for Bechstein's bats from the SAC, disturbance of Bechstein's bats originating from the SAC is not likely to occur and no impact as a result of disturbance to this key species is identified.

*n The potential for in combination effects is identified. The screening decision will be updated as part of the HRA that will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the screening process.

*o At a distance of 18.21km and with no hydrological pathway between the SAC and the proposed scheme, no impacts to the qualifying habitats will occur.

Table C5 Beers Quarry and Caves SAC PINS Matrix

Name of European site and designation: Beer Quarry & Caves SAC									
EU code: UK0012585									
Distance to NSIP: 28.42km									
European site features	Likely effects of NSIP								
Effect	Reduction of habitat area			Disturbance			In combination effects		
Stage of development	C	O	D	C	O	D	C	O	D
Bechstein's Bat <i>Myotis bechsteinii</i>	X ^{*p}	X ^{*p}	N/A	X ^{*q}	X ^{*q}	N/A	X ^{*r}	X ^{*r}	N/A
Lesser horseshoe bat <i>Rhinolophus hipposideros</i>	✓ ^{*s}	X ^{*s}	N/A	✓ ^{*t}	✓ ^{*t}	N/A	✓ ^{*u}	✓ ^{*u}	N/A
Greater horseshoe bat <i>Rhinolophus ferrumequinum</i>	✓ ^{*v}	X ^{*v}	N/A	✓ ^{*w}	✓ ^{*w}	N/A	✓ ^{*x}	✓ ^{*x}	N/A

*p & q Desk study and survey data collected to date indicate that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by Bechstein's bats. Construction of the proposed scheme will include the removal of woodland vegetation adjacent to the existing A358 in addition to within the offline section to the north. However, at a distance of 28.42km, the identified BCT CSZ (3km) for the species and what is known of the distances travelled between winter and summer roosts (most fall within 10km) it is considered unlikely that the habitats to be impacted constitute functionally linked habitat for Bechstein's. Therefore, a reduction in area of functionally linked habitat for the species is not likely to occur. Given that the habitats within the proposed scheme are not considered to constitute functionally linked habitat for Bechstein's bats from the SAC, disturbance of Bechstein's bats originating from the SAC is not likely to occur and no impact as a result of disturbance to this key species is identified.

*r Potential effects of the proposed scheme upon the qualifying Bechstein's population are negligible and no potential for in combination effects is identified.

*s Desk study and survey data collected to date indicate that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by lesser horseshoe bats. Construction of the proposed scheme will include the removal of woodland vegetation adjacent to the existing A358 in addition to within the offline section to the north. The identified BCT CSZs (3km) would indicate that the habitats present within the proposed scheme are unlikely to be used by horseshoe bats originating from the SAC for foraging. From what is known of movements of lesser horseshoe bats between summer and winter roosts (most fall within 5km but can be up to 22km) is also considered unlikely that lesser horseshoes roosting within or close to the proposed scheme

originate from the SAC population however the potential for a reduction of functionally linked habitat for roosting for this species is identified.

*t The potential for disturbance (including direct mortality through vehicle collision) is identified for the qualifying horseshoe populations whilst using habitats local to the proposed scheme. While a significant impact is considered unlikely, due to the identified CSZ, further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC in respect of the horseshoe populations.

*u If further assessment of the proposed scheme concluded that it would be likely to result in a reduction of habitat area or disturbance to qualifying species alone, the potential would exist for in combination effects with other plans and projects.

*v Desk study and survey data collected to date indicate that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by greater horseshoe bats. Construction of the proposed scheme will include the removal of woodland vegetation adjacent to the existing A358 in addition to within the offline section to the north. The identified BCT CSZs (2km) would indicate that the habitats present within the proposed scheme are unlikely to be used by horseshoe bats originating from the SAC for foraging. Greater horseshoe movements between summer and winter roosts are identified as being up to 40km and as such, the potential for a reduction in functionally linked habitat for roosting for this species is identified.

*w The potential for disturbance (including direct mortality through vehicle collision) is identified for the qualifying horseshoe populations whilst using habitats local to the proposed scheme. While a significant impact is considered unlikely, due to the identified CSZ, further assessment is needed to enable an assessment of the significance of potential impacts upon the SAC in respect of the horseshoe populations.

*x If further assessment of the proposed scheme concluded that it would be likely to result in a reduction of habitat area or disturbance to qualifying species alone, the potential would exist for in combination effects with other plans and projects.

Table C6 Somerset Levels and Moors SPA PINS Matrix

Name of European site and designation: Somerset Levels & Moors SPA												
EU code: UK9010031												
Distance to NSIP: 3.44km												
European site features	Likely effects of NSIP											
	Reduction of habitat area			Disturbance			Water quality			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D
Berwick's Swan <i>Cygnus columbianus bewickii</i>	✓ *y	✗ *y	N/A	✓ *z	✓ *z	N/A	✓ *aa	✓ *aa	N/A	✓ *ab	✓ *ab	N/A
Eurasian Teal <i>Anas crecca</i>	✓ *y	✗ *y	N/A	✓ *z	✓ *z	N/A	✓ *aa	✓ *aa	N/A	✓ *ab	✓ *ab	N/A
European Golden Plover <i>Pluvialis apricaria</i>	✓ *y	✗ *y	N/A	✓ *z	✓ *z	N/A	✓ *aa	✓ *aa	N/A	✓ *ab	✓ *ab	N/A
Northern Lapwing <i>Vanellus vanellus</i>	✓ *y	✗ *y	N/A	✓ *z	✓ *z	N/A	✓ *aa	✓ *aa	N/A	✓ *ab	✓ *ab	N/A
Internationally important assemblage of waterfowl	✓ *y	✗ *y	N/A	✓ *z	✓ *z	N/A	✓ *aa	✓ *aa	N/A	✓ *ab	✓ *ab	N/A

*y & z Construction of the proposed scheme will include the removal of habitats adjacent to the existing A358 in addition to the offline section to the north. While there will be no reduction of habitat or

disturbance to key species within the SPA, the potential is identified for a reduction of available functionally linked habitat which supports the qualifying species in all life stages including those outside of the non-breeding/ wintering period. The potential for disturbance of qualifying bird species whilst using habitats local to the proposed scheme is identified. Given the preliminary stage of design detail currently available for the proposed scheme, further analysis is needed on usage of habitats local to the proposed scheme by bird species and nature of project effects is required to enable an assessment of impacts upon the SPA.

*aa Construction activities have the potential to generate water-borne pollution and the proposed scheme and the SPA are hydraulically connected. Construction activities will include the realignment of watercourses such as the River Ding and Black Brook and extensions to existing structures in proximity to watercourses. Operation of the proposed scheme has the potential to adversely affect the SPA through impacts to watercourses such as pollution events and surface water and road drainage. Impacts to water quality at the SPA have the potential to adversely affect the habitats upon which the qualifying bird species and assemblage rely.

*ab If further assessment of the proposed scheme concluded that it would be likely to result in a reduction of habitat area, disturbance to qualifying species or impacts to water quality alone, the potential would exist for in combination effects with other plans and projects.

Table C7 Somerset Levels and Moors Ramsar site PINS Matrix

Name of European site and designation: Somerset Levels & Moors Ramsar															
EU code: UK11064															
Distance to NSIP: 3.44km															
European site features				Likely effects of NSIP											
Effect				Reduction of habitat area			Disturbance			Water quality			In combination effects		
Ramsar criterion	Stage of development	C	O	D	C	O	D	C	O	D	C	O	D		
2	Supports 17 species of British Red Data Book invertebrates	✗ *ac	✗ *ac	N/A	✗ *ad	✗ *ad	N/A	✓ *ae	✓ *ae	N/A	✓ *af	✓ *af	N/A		
5	Assemblages of international importance of waterfowl with peak counts in winter	✓ *ag	✗ *ag	N/A	✓ *ah	✓ *ah	N/A	✓ *ai	✓ *ai	N/A	✓ *af	✓ *af	N/A		
6	<i>Eurasian Teal</i> (<i>Anas crecca</i>)	✓ *ag	✗ *ag	N/A	✓ *ah	✓ *ah	N/A	✓ *ai	✓ *ai	N/A	✓ *af	✓ *af	N/A		
	<i>Tundra swan</i> (<i>Cygnus columbianus bewickii</i>)	✓ *ag	✗ *ag	N/A	✓ *ah	✓ *ah	N/A	✓ *ai	✓ *ai	N/A	✓ *af	✓ *af	N/A		
	Northern Lapwing <i>Vanellus vanellus</i>	✓ *ag	✗ *ag	N/A	✓ *ah	✓ *ah	N/A	✓ *ai	✓ *ai	N/A	✓ *af	✓ *af	N/A		

*ac There will be no reduction of habitat area within the SAC.

*ad There will be no disturbance to the qualifying invertebrate assemblage within the SAC.

*ae & ai The proposed scheme has the potential to cause water quality effects to the SPA during construction and operation. Construction activities will include the realignment of watercourses such as the River Ding and Black Brook and extensions to existing structures near watercourses which could cause impacts to the habitats upon which the qualifying bird species and assemblage and the invertebrate assemblage relies.

*af If further assessment of the proposed scheme concluded that it would be likely to result in a reduction of habitat area, disturbance to qualifying species or impacts to water quality alone, the potential would exist for in combination effects with other plans and projects.

*ag & ah Construction of the proposed scheme will include the removal of habitats adjacent to the existing A358 in addition to the offline section to the north. While there will be no reduction of habitat or disturbance to key species within the SPA, the potential is identified for a reduction of available functionally linked habitat which supports the qualifying species in all life stages including those outside of the non-breeding/ wintering period. The potential for disturbance of qualifying bird species whilst using habitats local to the proposed scheme is identified. Given the preliminary stage of design detail currently available for the proposed scheme, further analysis is needed on usage of habitats local to the proposed scheme by bird species and nature of project effects is required to enable an assessment of impacts upon the SPA.

Table C8 Severn Estuary SAC site PINS Matrix

Name of European site and designation: Severn Estuary SAC																		
EU code: UK9015022																		
Distance to NSIP: 15.86km																		
European site features	Likely effects of NSIP																	
	Reduction of habitat area			Disturbance			Species fragmentation			Reduction in species density			Water quality			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of development																		
Estuaries	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A
Mudflats and sandflats not covered by seawater at low tide	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A
Atlantic salt meadows	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A
Sandbanks which are slightly covered by sea water all the time	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A
Reefs	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A	✗ *ak	✗ *ak	N/A
Sea lamprey <i>Petromyzon marinus</i>	✓ *al	✗ *al	N/A	✓ *am	✓ *am	N/A	✓ *an	✗ *an	N/A	✓ *ao	✗ *ao	N/A	✓ *ap	✓ *ap	N/A	✓ *aq	✓ *aq	N/A
River lamprey <i>Lampetra fluviatilis</i>	✓ *al	✗ *al	N/A	✓ *am	✓ *am	N/A	✓ *an	✗ *an	N/A	✓ *ao	✗ *ao	N/A	✓ *ap	✓ *ap	N/A	✓ *ar	✓ *ar	N/A
Twaite shad <i>Lampetra fluviatilis</i>	✗ *al	✗ *al	N/A	✗ *am	✗ *am	N/A	✗ *an	✗ *an	N/A	✗ *ao	✗ *ao	N/A	✗ *ap	✗ *ap	N/A	✗ *as	✗ *as	N/A
Migratory fish (salmon, eel, sea trout, Allis shad)	✓ *al	✗ *al	N/A	✓ *am	✓ *am	N/A	✓ *an	✗ *an	N/A	✓ *ao	✗ *ao	N/A	✓ *ap	✓ *ap	N/A	✓ *as	✓ *as	N/A

*ak Given the distance of the SAC from the proposed scheme, no impacts to the qualifying habitats are anticipated.

*al & am Construction activities will include the realignment of watercourses and while there will be no reduction of habitat within the SAC, the potential for a reduction of available functionally linked habitat utilised for life stages of migratory fish species is identified (with the exception of Twaite shad for which the watercourses potentially affected by the proposed scheme are not considered to provide suitable habitat). While there will be no disturbance of key species within the SAC, the potential for disturbance whilst using habitats local to the proposed scheme is identified. Annex II species and the migratory fish assemblage have the potential to be subject to fragmentation by the project as a result of realignment during construction and the potential to be subject to a change in recruitment and a reduction in species density by the project as a result of construction works.

*an & ao Annex II species and the migratory fish assemblage have the potential to be subject to fragmentation by the project as a result of realignment during construction and the potential to be subject to a change in recruitment and a reduction in species density by the project as a result of construction works.

*ap Given the distance of the proposed scheme from the closest watercourse potentially affected (31km), impacts to water quality at the SAC are not anticipated during construction or operation. However, the potential for water quality impacts during construction and operation are identified for Annex II and migratory fish species utilising habitats local to the proposed scheme.

*aq If further assessment of the proposed scheme concluded that it would be likely to result in a reduction of habitat area, disturbance to qualifying species, species fragmentation, a reduction in species density or impacts to water quality alone, the potential would exist for in combination effects with other plans and projects.

Table C9 Severn Estuary SPA PINS Matrix

Name of European site and designation: Severn Estuary SPA												
EU code: UK9015022												
Distance to NSIP: 15.86km												
European site features	Likely effects of NSIP											
	Reduction of habitat area			Disturbance			Water quality			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D
Stage of development												
Berwick's Swan <i>Cygnus columbianus bewickii</i>	X*at	X*at	N/A	X*au	X*au	N/A	X*av	X*av	N/A	√*aw	√*aw	N/A
Common Shelduck <i>Tadorna tadorna</i>	X*at	X*at	N/A	X*au	X*au	N/A	X*av	X*av	N/A	√*aw	√*aw	N/A
Gadwall <i>Anas strepera</i>	X*at	X*at	N/A	X*au	X*au	N/A	X*av	X*av	N/A	√*aw	√*aw	N/A
Dunlin <i>Calidris alpina alpina</i>	X*at	X*at	N/A	X*au	X*au	N/A	X*av	X*av	N/A	√*aw	√*aw	N/A
Common redshank <i>Tringa totanus</i>	X*at	X*at	N/A	X*au	X*au	N/A	X*av	X*av	N/A	√*aw	√*aw	N/A
Greater white-fronted goose <i>Anser albifrons albifrons</i>	X*at	X*at	N/A	X*au	X*au	N/A	X*av	X*av	N/A	√*aw	√*aw	N/A
Internationally important assemblage of waterfowl	X*at	X*at	N/A	X*au	X*au	N/A	X*av	X*av	N/A	√*aw	√*aw	N/A

*at, au, av Given the distance of the SAC from the proposed scheme, no impacts to the SAC as a result of the proposed scheme are identified.

*aw The potential for in combination effects is identified. The screening decision will be updated as part of the HRA that will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the screening process.

Table C10 Severn Estuary Ramsar site PINS Matrix

Name of European site and designation: Severn Estuary Ramsar site																			
EU code: UK11081																			
Distance to NSIP: 15.86km																			
European site features		Likely effects of NSIP																	
Effect		Reduction of habitat area			Disturbance			Species fragmentation			Reduction in species density			Water quality			In combination effects		
Ramsar criterion	Stage of development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
1	Sandbanks which are slightly covered by sea water all the time	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A
	Estuaries	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A
	Mudflats and sandflats not covered by seawater at low tide	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A
	Atlantic salt meadows	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A
3	Unusual estuarine communities, reduced diversity and high productivity	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A	X*ax	X*ax	N/A
4	Sea Trout <i>Salmo trutta</i>	√*ay	X*ay	N/A	√*az	√*az	N/A	√*ba	X*ba	N/A	√*bb	X*bb	N/A	√*bc	√*bc	N/A	√*bd	√*bd	N/A
	Salmon <i>Salmo salar</i>	√*ay	X*ay	N/A	√*az	√*az	N/A	√*ba	X*ba	N/A	√*bb	X*bb	N/A	√*bc	√*bc	N/A	√*bd	√*bd	N/A

	Sea Lamprey <i>Petromyzon marinus</i>	✓*ay	✗ *ay	N/A	✓ *az	✓ *az	N/A	✓* *ba	✗ *ba	N/A	✓ *bb	✗ *bb	N/A	✓ *bc	✓ *bc	N/A	✓ *bd	✓ *bd	N/A
	River Lamprey <i>Lampetra fluviatilis</i>	✓*ay	✗ *ay	N/A	✓ *az	✓ *az	N/A	✓* *ba	✗ *ba	N/A	✓ *bb	✗ *bb	N/A	✓ *bc	✓ *bc	N/A	✓ *bd	✓ *bd	N/A
	Twaite Shad <i>Alosa fallax</i>	✗ *ay	✗ *ay	N/A	✗ *az	✗ *az	N/A	✗ *ba	✗ *ba	N/A	✗ *bb	✗ *bb	N/A	✗ *bc	✗ *bc	N/A	✗ *bd	✗ *bd	N/A
	Allis Shad <i>Alosa alosa</i>	✓*ay	✗ *ay	N/A	✓ *az	✓ *az	N/A	✓* *ba	✗ *ba	N/A	✓ *bb	✗ *bb	N/A	✓ *bc	✓ *bc	N/A	✓ *bd	✓ *bd	N/A
	Eel <i>Anguilla anguilla</i>	✓*ay	✗ *ay	N/A	✓ *az	✓ *az	N/A	✓* *ba	✗ *ba	N/A	✓ *bb	✗ *bb	N/A	✓ *bc	✓ *bc	N/A	✓ *bd	✓ *bd	N/A
5	Assemblages of international importance of waterfowl with peak counts in winter	✗	✗	N/A	✗	✗	N/A	✗	✗	N/A	✗	✗	N/A	✗	✗	N/A	✗	✗	N/A
6	Tundra Swan <i>Cygnus columbianus berwicki</i>	✗ *be	✗	N/A	✗	✗	N/A	✗	✗	N/A	✗	✗	N/A	✗	✗	N/A	✗	✗	N/A
	Common shelduck <i>Tadorna tadorna</i>	✗	*be	N/A	*be	*be	N/A	*be	*be	N/A	*be	*be	N/A	*be	*be	N/A	*be	*be	N/A
	Gadwall <i>Anas strepera strepera</i>	*be	✗	N/A	✗	✗	N/A	✗	✗	N/A	✗	✗	N/A	✗	✗	N/A	✗	✗	N/A
	Dunlin <i>Calidris alpina alpina</i>	✗	*be	N/A	*be	*be	N/A	*be	*be	N/A	*be	*be	N/A	*be	*be	N/A	*be	*be	N/A
	Common redshank <i>Tringa totanus totanus</i>	*be	✗	N/A	✗	✗	N/A	✗	✗	N/A	✗	✗	N/A	✗	✗	N/A	✗	✗	N/A
Greater white-fronted goose <i>Anser albifrons albifrons</i>	✗	*be	N/A	*be	*be	N/A	*be	*be	N/A	*be	*be	N/A	*be	*be	N/A	*be	*be	N/A	

8	Tundra Swan <i>Cygnus columbianus berwickii</i>	*be	×	N/A	×	×	N/A												
	Common shelduck <i>Tadorna tadorna</i>	×	*be	N/A	*be	*be	N/A												
	Gadwall <i>Anas strepera strepera</i>	*be	×	N/A	×	×	N/A												
	Dunlin <i>Calidris alpina alpina</i>	×	*be	N/A	*be	*be	N/A												
	Common redshank <i>Tringa totanus totanus</i>	*be	×	N/A	×	×	N/A												
	Greater white-fronted goose <i>Anser albifrons albifrons</i>	×	*be	N/A	*be	*be	N/A												

*ax Given the distance of the SAC from the proposed scheme, no impacts to the qualifying habitats are anticipated.

*ay & az Construction activities will include the realignment of watercourses and while there will be no reduction of habitat within the SAC, the potential for a reduction of available functionally linked habitat utilised for life stages of migratory fish species is identified (with the exception of Twaite shad for which the watercourses potentially affected by the proposed scheme are not considered to provide suitable habitat). While there will be no disturbance of key species within the SAC, the potential for disturbance whilst using habitats local to the proposed scheme is identified. Annex II species and the migratory fish assemblage have the potential to be subject to fragmentation by the project as a result of realignment during construction and the potential to be subject to a change in recruitment and a reduction in species density by the project as a result of construction works.

*ba & bb Annex II species and the migratory fish assemblage have the potential to be subject to fragmentation by the project as a result of realignment during construction and the potential to be subject to a change in recruitment and a reduction in species density by the project as a result of construction works.

*bc Given the distance of the proposed scheme from the closest watercourse potentially affected (31km), impacts to water quality at the SAC are not anticipated during construction or operation. However, the potential for water quality impacts during construction and operation are identified for Annex II and migratory fish species utilising habitats local to the proposed scheme.

*bd If further assessment of the proposed scheme concluded that it would be likely to result in a reduction of habitat area, disturbance to qualifying species, species fragmentation, a reduction in species density or impacts to water quality alone, the potential would exist for in combination effects with other plans and projects.

*be Given the distance of the SAC from the proposed scheme, no impacts to the qualifying bird species or assemblage are anticipated.

Appendix D No Likely Significant Effects reports

A.9.1.2 The following sites require no significant effects report matrices:

- Bracket's Coppice SAC
- Severn Estuary SPA

Table D1 Bracket's Coppice SAC No LSE Report

Project name:	A358 Taunton to Southfields Dualling	
European Site under consideration:	Bracket's Coppice SAC	
Date	Author (Name/Organisation):	Verified (Name/Organisation):
09/08/2021	Alys Black (Arup) Sophie Amphlett (Arup)	Jenny Singh (Arup)
Name and location of European Site:	Bracket's Coppice SAC, Dorset, England, UK. The SAC is a located 18.21 south-east of the proposed scheme boundary and 4.54km south-east of the ARN, at the closest point.	
Description of the project:	The proposed scheme will include: <ul style="list-style-type: none"> • Provision of 8.5 miles (13.6km) of new, rural all-purpose dual carriageway for the A358. • Provision of a new two-lane single carriageway overbridge at Stoke Road. • Provision of a new grade-separated junction at Mattock's Tree Green. • Provision of a new bridge to carry the proposed eastbound carriage way at Griffin Lane. • Provision of a new two-lane single carriageway and bridge over the A358 at Village Road. • Provision of a new grade-separated junction at Ashill 	
Is the project directly connected with or necessary to the management of the site (provide details):	No	
Are there other projects or plans that together with the project being assessed could affect the site (provide details):	None	
The assessment of significance of effects		
Describe how the project (alone or in combination) is likely to affect the European Site:	There will be no reduction of habitat within the SAC. While desk study and survey data collected to date indicates that habitats within and close to the proposed scheme are used for summer roosting, foraging and commuting by Bechstein's bats, given the identified BCT CSZ (3km) for the species and what is known of movements between summer and winter roosts (most fall within 10km), at a distance of 18.21km from the SAC, the proposed scheme is not considered to constitute functionally linked habitat for the species and no reduction of functionally linked habitat as a result of the proposed scheme is identified.	

	<p>Given that the habitats within the proposed scheme are not considered to constitute functionally linked habitat for Bechstein's bats from the SAC, disturbance of Bechstein's bats originating from the SAC is not likely to occur and no impact as a result of disturbance to this key species is identified.</p> <p>As such, no likely significant effects upon the Bechstein's bat population for which the SAC is designated are identified. The screening decision will be updated as part of the HRA that will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the screening process.</p>
Explain why these effects are not considered significant:	As above.
List of agencies consulted: provide contact name and telephone or e-mail address	<u>Natural England</u> Simon Stonehouse: simon.stonehouse@naturalengland.org.uk
Response to consultation:	We are currently engaging with Natural England through a Discretionary Advice Service (DAS) agreement. Their views will be sought over the conclusion of this assessment and will be reported within the HRA that will form part of the DCO application,
Data collected to carry out the assessment	
Who carried out the assessment?	Alys Black (Arup) / Sophie Amphlett (Arup)
Sources of data	See reference list
Level of assessment completed	HRA Screening
Where can the full results of the assessment be accessed and viewed?	Table 3-3 Screening Matrix: Bracket's Coppice SAC of this report.

Table D2 Severn Estuary SPA No LSE Report

Project name:	A358 Taunton to Southfields Dualling	
European Site under consideration:	Severn Estuary SPA	
Date	Author (Name/Organisation):	Verified (Name/Organisation):
04/08/2021	Alys Black (Arup) Sophie Amphlett (Arup)	Jenny Singh (Arup)
Name and location of European Site:	<p>Severn Estuary SPA Gloucestershire, Avon, Somerset, South Glamorgan, Mid-Glamorgan, Gwent, (England and Wales, UK).</p> <p>The SPA is located 15.86km north of the proposed scheme boundary and 561.22m north of the ARN, at the closest point.</p> <p>The closest watercourse potentially affected by the proposed scheme is approximately 25km away.</p>	
Description of the project:	<p>The proposed scheme will include:</p> <ul style="list-style-type: none"> • Provision of 8.5 miles (13.6km) of new, rural all-purpose dual carriageway for the A358. • Provision of a new two-lane single carriageway overbridge at Stoke Road. 	

	<ul style="list-style-type: none"> • Provision of a new grade-separated junction at Mattock's Tree Green. • Provision of a new bridge to carry the proposed eastbound carriage way at Griffin Lane. • Provision of a new two-lane single carriageway and bridge over the A358 at Village Road. • Provision of a new grade-separated junction at Ashill
Is the project directly connected with or necessary to the management of the site (provide details):	No
Are there other projects or plans that together with the project being assessed could affect the site (provide details):	None
The assessment of significance of effects	
Describe how the project (alone or in combination) is likely to affect the European Site:	<p>Given the distance of the proposed scheme from the closest watercourse potentially affected (31km), impacts to water quality at the site are not anticipated during construction or operation. No other impacts to the qualifying interest features of the SPA are identified, given the distance of the proposed scheme from the SPA.</p> <p>The screening decision will be updated as part of the HRA that will form part of the DCO application, to include the effects of other plans and projects with the potential to combine with those associated with the proposed scheme, to ensure that these are assessed as part of the screening process.</p>
Explain why these effects are not considered significant:	As above.
List of agencies consulted: provide contact name and telephone or e-mail address	<p><u>Natural England</u> Simon Stonehouse: simon.stonehouse@naturalengland.org.uk</p>
Response to consultation:	We are currently engaging with Natural England through a Discretionary Advice Service (DAS) agreement. Their views in addition to those of Natural Resources Wales will be sought over the conclusion of this assessment and will be reported within the HRA that will form part of the DCO application,
Data collected to carry out the assessment	
Who carried out the assessment?	Alys Black (Arup)/ Sophie Amphlett (Arup)
Sources of data	See reference list
Level of assessment completed	HRA Screening
Where can the full results of the assessment be accessed and viewed?	Table 3-8 Screening Matrix: Severn Estuary SPA of this report.