



# **Worcestershire County Council**

## **Minerals Local Plan Habitats Regulation Assessment**

**Publication Version  
Record of Assessment**

1.1 May 2019

## Contents

|   |     |
|---|-----|
| 1. Executive Summary.....   | 6   |
| 2. Introduction.....  | 8   |
| Background to HRA .....   | 8   |
| Legislation.....  | 8   |
| Guidance and Process.....   | 9   |
| Habitats Regulations Assessment Process.....  | 9   |
| Approach to dealing with uncertainty .....  | 10  |
| Regulatory and Implementation Uncertainty: .....  | 11  |
| Planning Hierarchy Uncertainty:.....  | 11  |
| 3. Scanning and site selection list.....  | 12  |
| Information for Assessment .....  | 16  |
| 4. Key Potential Impacts.....   | 27  |
| 5. Approach to the Application of a Screening Framework .....   | 35  |
| Interpretation of 'likely significant effect' .....   | 35  |
| Consideration of Site Scanning Results: .....   | 36  |
| Likely Pathway to Impact Model.....   | 36  |
| Physical Damage to and Loss of Habitat, Including Effects of Land-Take and Habitat Fragmentation.....                                     | 38  |
| Hydrological change .....   | 42  |
| Non-Physical Disturbance.....   | 47  |
| Air Pollution.....  | 48  |
| Non-Toxic Contamination .....   | 49  |
| 6. Assessing the Minerals Local Plan Publication Version Document ..  | 53  |
| 7. Assessing the Spatial Policy .....   | 81  |
| Evolution of the MLP spatial strategy .....   | 81  |
| Strategic Corridors within the Publication Version MLP .....  | 82  |
| Summary .....   | 84  |
| 8. The 'In Combination' Assessment.....   | 85  |
| 9. HRA Summary and Invitation for Comments.....   | 87  |
| Appendix 1.....Location and boundaries of Scanned International Sites.  | 89  |
| Appendix 2. Supplemental Evidence supporting International Site Conservation Objectives.....  | 98  |
| Appendix 3..... Showing strategic corridors for Mineral Extraction  | 118 |
| Appendix 4..... International Sites with illustrative proximity buffers   | 124 |
| Appendix 5..... Showing International Sites within Worcestershire and their interaction with the most proximate strategic corridors. .... | 125 |
| Appendix 6. .... Natural England Comments on the HRA Screening Assessment.....  | 129 |

|  |     |
|--|-----|
| Second Stage Minerals Local Plan Consultation, 2013(Natural England consultation received 31/1/2014).....  | 129 |
| Third Stage Minerals Local Plan Consultation, 2016 (Natural England consultation received 15/3/2017).....  | 130 |
| Fourth Stage Minerals Local Plan Consultation, 2018 (Natural England consultation received 08/2/2019)..... | 130 |
| Appendix 7. Template for recording the conclusion of the Habitat Regulations Assessment .....              | 132 |

## Tables

|  |    |
|--|----|
| Table 1: International Sites to be considered within the HRA Screening Assessment .....  | 14 |
| Table 2: International Sites: Pertinent information for Site Scanning and Selection .....  | 16 |
| Table 3: Generic Minerals Impacts Associated with Different Materials .....  | 27 |
| Table 4: Broad Category Summary of Potential Impacts arising from Mineral Working.....   | 33 |
| Table 5: Summary of screening distances used for each source of impact.....  | 51 |
| Table 6: Screening Categories (after HRA Handbook, 2017) .....   | 53 |
| Table 7: Screening Assessment of Chapters and Policies constituting the Publication Version MLP .....  | 55 |
| Table 8: showing geographical relationship between proposed strategic corridors and scanned International Sites (approximate distance in km to closest point) .... | 82 |

## Figures

|   |    |
|---|----|
| Figure 1: Outline of the four stage approach to the assessment of plans under the Habitats Regulations .....  | 10 |
| Figure 2: Showing Initial Site Scanning Results .....   | 13 |
| Figure 3: Showing the extent of Worcestershire located within an IRZ for minerals development .....   | 40 |
| Figure 4: Shows fluvial pathways draining away from Bredon Hill SAC (and flowing away from Dixton Wood SAC).....  | 44 |
| Figure 5: Shows fluvial pathways around Worcester City demonstrating that pluvial recharge and ground water are the key elements maintaining sufficient water quantity to support Lyppard Grange SACs conservation objectives. .... | 46 |
| Figure 6: Traffic contribution to concentrations of pollutants at different distances from a road (Figure C1, DMRB.V11.S3 <sup>18</sup> ) .....   | 49 |
| Figure 7: Concentrations of pollutants arising from different types of mineral extraction activity at dispersal distances (source IAQM, 2016) .....   | 51 |
| Figure 8: Showing overview of Worcestershire and surrounding International Sites identified within this report. SACs marked in red, SPAs marked in purple, 15km County boundary marked in yellow. Detailed plans below.....         | 89 |
| Figure 9: Bredon Hill SAC .....   | 90 |
| Figure 10: Lyppard Grange Ponds SAC.....  | 91 |
| Figure 11: Fen Pools SAC.....   | 92 |
| Figure 12: Downton Gorge SAC.....   | 93 |
| Figure 13: Dixton Wood SAC .....  | 94 |
| Figure 14: Walmore Common SPA .....   | 95 |

|  |     |
|--|-----|
| Figure 15: River Wye SAC .....   | 96  |
| Figure 16: Severn Estuary SAC, SPA & RAMSAR.....   | 97  |
| Figure 17: Showing strategic corridors for mineral extraction within the County as defined in the Publication Version Worcestershire Minerals Local Plan. ....   | 118 |
| Figure 18: The Salwarpe Tributaries Strategic Corridor. ....   | 119 |
| Figure 19: The North East Strategic Corridor .....   | 120 |
| Figure 20: The Avon and Carrant Brook Strategic Corridor .....   | 121 |
| Figure 21: The North West Strategic Corridor .....   | 122 |
| Figure 22: The Lower Severn Strategic Corridor .....   | 123 |
| Figure 23: Showing International Sites overview with 200 and 400m buffers around SACs and 5000m buffers around SPAs highlighted. ....  | 124 |
| Figure 24: Showing International Sites with proximity buffers and distribution of mineral strategic corridors. ....  | 125 |
| Figure 25: Showing Lyppard Grange SAC with 200 and 400m buffers and the proximity to closest mineral strategic corridors. ....   | 126 |
| Figure 26: Showing Bredon Hill and Dixton Wood SAC with 200 and 400m buffers and the proximity to the closest mineral Strategic Corridor 'Avon and Carrant Brook' .....  | 127 |
| Figure 27: Showing Bredon Hill and Dixton Wood SAC with 200 and 400m buffers, proximity to the closest mineral Strategic Corridor 'Avon and Carrant Brook' and the 'Key' and 'Significant' mineral resources identified within the Publication Version of the MLP (i.e. indicative of likely locations for winning minerals in relation to International Site). .... | 128 |

## Supporting statement

This HRA report concludes that the policies and spatial strategy as set out within the Publication Version of the Worcestershire Minerals Local Plan ('MLP') will not cause a Likely Significant Effect on an International Site (SACs, SPAs and/or RAMSARs) and their designated features, either alone or in-combination with other plans or projects.

This assessment of the Worcestershire Minerals Local Plan has taken into account the findings of *People over Wind: Peter Sweetman v Coillte Teoranta*<sup>1</sup>

The MLP's spatial strategy is an innate characteristic of the plan itself; it sets out where winnable mineral resources are thought to be located ('Areas of Search' within mineral 'strategic corridors') and accompanying policies within the spatial strategy and throughout the plan establish how future mineral developments which emerge over the life of the plan (primarily within these corridors) will subsequently be considered through the planning process. Through four iterative public consultation drafts, and with full support of Natural England, the spatial strategy has evolved in character substantially. The boundaries of these strategic corridors have evolved in a manner which avoids adverse impact upon International Sites.

This innate characteristic of the plan has the 'incidental effect' of eliminating harmful effects on International Sites; as such this is a characteristic considered to be a fundamental and essential part of the plan itself, not an integrated mitigation measure.

While the plan contains a number of specific environmental protection measures, within both Development Management policies and supporting "reasoned justification" text, it is considered that the plan could theoretically be carried out without such features insofar as they are not specifically considered necessary to protect an International Site. They are integrated to ensure adherence with good environmental practice; to assist in resolving any future ambiguities which might arise in a forthcoming mineral development (specific sites are not allocated within the MLP and will be addressed within a separate development plan document); and to ensure net-gain for biodiversity is secured through the mineral planning process.

---

<sup>1</sup> Case C-323/17, 12<sup>th</sup> April 2018, <https://pinslibrary.org.uk/vufind/Record/22537/Holdings#tabnav> accessed August 2018.

# 1. Executive Summary

- 1.1 This document is a record of the Habitats Regulations Assessment ('HRA') for the Worcestershire Minerals Local Plan ('MLP') in compliance with Article 6(3)(Regulation 61) of Council Directive 92/43/EEC on the '*Conservation of natural habitats and of wild fauna and flora*' 1992 (hereafter referred to as the 'Habitats Directive') and Regulation 102 of the Conservation of Habitats and Species Regulations 2010 (hereafter referred to as the 'Habitats Regulations'). As the Minerals Local Plan is neither directly connected with nor necessary to the management of an International Site, it is not exempt from the Habitat Regulations Process.
- 1.2 A HRA Scoping Assessment of the Second Stage Consultation of the MLP was undertaken in 2013 by Worcestershire County Council. Natural England provided a number of specific recommendations regarding their emerging Supplemental Advice Documents (as pertains to the site screening process) and on potential for impacts arising through certain mineral extraction activities. The Third Stage Consultation of the MLP was accompanied by an updated HRA Scoping Assessment produced by Worcestershire County Council in November 2016. As the MLP was further refined over the period 2013 to 2016 the conclusions of the 2013 Scoping Assessment and HRA consultees' responses were duly taken into consideration. In the MLP's Third Stage Consultation a spatial strategy and a suite of draft development management policies emerged. Natural England agreed with the general breadth, detail and recommendations of the 2016 Scoping Assessment (representation included at Appendix 6). An update to the 2016 HRA Scoping Assessment evaluated the Fourth Stage Consultation draft of the MLP (2018). Revisions made to the spatial strategy and policies between 2016 and 2018 were evaluated and considered to be compliant with Article 6(3)(Regulation 61) of the Habitats Directives. Natural England concurred with these findings and their representation is included within Appendix 6.
- 1.3 This 2019 update to the HRA of the Fourth Stage MLP consultation reviews the Publication Version and the modifications to the Plan such as changes to policy wording and supporting Reasoned Justification text which have been implemented as a result of the Forth Stage consultation feedback. The aim of this Assessment is therefore to evaluate whether the Publication Version MLP remains compliant with Article 6(3)(Regulation 61) of the Habitats Directives.
- 1.4 It should be noted that this HRA has considered the 'Areas of Search' which have been identified within 'strategic corridors' designed to address locally and nationally important mineral resource. However, the MLP itself does not include specific site or preferred area allocations, as these will be the subject of a separate Mineral Site Allocations Development Plan Document (as per the Local Development Scheme, July 2018). The future Mineral Site

Allocations Development Plan Document will also require evaluation through the HRA process.

- 1.5 This Assessment does not remove the need for subsequent Habitats Regulations Assessment of further iterations of the MLP, should any be required as a result of the Plan's Examination in Public, nor of any subservient plans, projects, or permissions associated with, or arising out of the MLP. Acceptance that the MLP is consistent, so far as can be ascertained, with the requirements of the Habitats Directive and Habitats Regulations does not therefore guarantee that any plan or project derived from the MLP will also be found consistent.

## 2. Introduction

### Background to HRA

- 2.1 Habitats Regulations Assessment (HRA) is the process that Competent Authorities must undertake to consider whether a proposed development plan or programme is likely to have significant effects on a European Site designated for its nature conservation interest. With respect to the Worcestershire Minerals Local Plan, the Competent Authority will be Worcestershire County Council. HRA is often referred to as 'Appropriate Assessment' (AA) although the requirement for AA is first determined by an initial 'Screening' stage, undertaken by the Competent Authority as part of the full HRA.
- 2.2 The purpose of this record is therefore to evidence the processes through which the Publication Version of the Worcestershire Minerals Local Plan has been robustly and soundly evaluated through the course of its Habitats Regulations Assessment; to review recommendations made at HRA Scoping Assessment stages in relation to the Minerals Local Plan, and to report consultees' opinions and advice throughout this process.

### Legislation

- 2.3 The European Directive (92/43/EEC) on the Conservation of Natural Habitats and Wild Flora and Fauna (the Habitats Directive) protects habitats and species of European nature conservation importance. The Habitats Directive establishes a network of internationally important sites designated for their ecological status. These are referred to as 'Natura2000' sites.
- 2.4 Natura2000 is the centrepiece of EU nature & biodiversity policy. It is an EU-wide network of nature protection areas. The aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and habitats. It is comprised of Special Areas of Conservation (SAC) designated by Member States under the Habitats Directive, and also incorporates Special Protection Areas (SPAs) which they designate under the 1979 Birds Directive. Natura2000 is not a system of strict nature reserves where all human activities are excluded. Whereas the network will certainly include nature reserves, most of the land is likely to continue to be privately owned and the emphasis will be on ensuring that future management is sustainable, both ecologically and economically. The establishment of this network of protected areas also fulfils a Community obligation under the UN Convention on Biological Diversity. Natura2000 applies to both 'Birds Sites' and to 'Habitats Sites', which are divided into biogeographical regions. It also applies to the marine environment.
- 2.5 In the UK, the Habitats Directive is implemented via the protection of the Conservation of Habitats and Species Regulations, 2017 (Statutory



instrument 2017/1012). Articles 6 (3) and 6 (4) of the Habitats Directive require the application of HRA to all land use plans and an AA to be undertaken on proposed plans or projects which are not necessary for the management of the site but which are likely to have a significant effect on one or more European Sites either individually, or in combination with other plans and projects.

- 2.6 The Convention on Wetlands of International Importance, called the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The Ramsar Convention is the only global environmental treaty that deals with a particular ecosystem. The treaty was adopted in the Iranian city of Ramsar in 1971 and the Convention's member countries cover all geographic regions of the planet. The UK has designated 170 Ramsar sites covering 927,748 hectares.
- 2.7 The government's policy<sup>2</sup> is to afford Ramsar sites the same level of protection as that provided for Natura 2000 sites and therefore Ramsar sites are considered alongside International Sites in this assessment. In the UK, many Ramsar sites are also SPAs and most have statutory underpinning as Sites of Special Scientific Interest ('SSSIs') which are protected under the Wildlife and Countryside Act, 1981 (as amended by the Countryside and Rights of Way Act, 2000).
- 2.8 The term 'International Site' is adopted throughout this document to denote the international distribution of Natura2000 and Ramsar sites subject to consideration through the HRA process.

## Guidance and Process

- 2.9 The Habitats Directive and the Habitats Regulations set the requirement for HRA but do not prescribe how HRA/AA should be undertaken. Guidance on HRA of plans was produced for Local Authorities in England by the Department for Communities and Local Government (DCLG<sup>3</sup>), however on September 20<sup>th</sup> 2012 this guidance was archived.
- 2.10 Reference is made within this document both to DCLG guidance and the methodologies established in the Habitats Regulations Assessment Handbook (DTA Publications<sup>4</sup>), as is illustrated in the following extract from the Handbook:

## Habitats Regulations Assessment Process

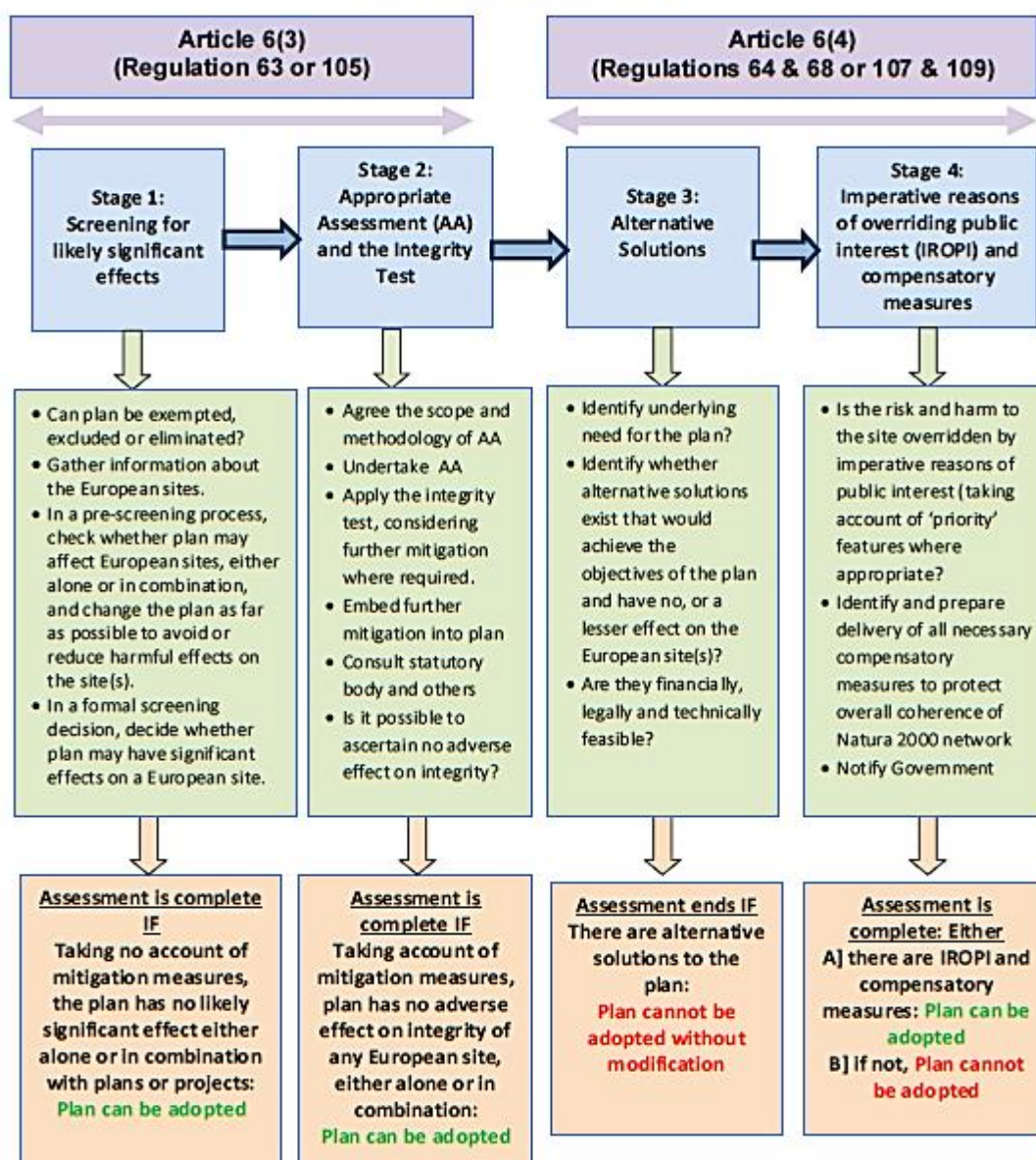
---

<sup>2</sup> [www.defra.gov.uk/rural/protected/internationally-designated-sites/](http://www.defra.gov.uk/rural/protected/internationally-designated-sites/)

<sup>3</sup> Planning for the Protection of European Sites: Appropriate Assessment (Guidance for Regional Spatial Strategies and Local Development Documents), April 2006, Department for Communities and Local Government

<sup>4</sup> [www.dtapublications.co.uk/handbooks](http://www.dtapublications.co.uk/handbooks) electronically accessed May 2019

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



Extract from *The Habitats Regulations Assessment Handbook*, [www.dtapublications.co.uk](http://www.dtapublications.co.uk)  
© DTA Publications Limited (October 2018) all rights reserved  
This work is registered with the UK Copyright Service

Figure 1: Outline of the four stage approach to the assessment of plans under the Habitats Regulations

## Approach to dealing with uncertainty

2.10 The assessment of effects can be affected by uncertainty in a number of ways; some of these are addressed below.

## Regulatory and Implementation Uncertainty:

- 2.11 Some plans will include references to proposals that are planned and implemented through other planning and regulatory regimes, for example, trunk road or motorway improvements. These will be included because they have important implications for spatial planning, but they are not proposals of the County Planning Authority (CPA), nor are they proposals brought forward by the MLP itself. Their potential effects will be assessed through other procedures. The CPA may not be the Competent Authority responsible for assessing the effects of such proposals and as such it would be inappropriate for us to do so as this would result in an unnecessary duplication, but they may be relevant in any necessary consideration of in-combination effects.

## Planning Hierarchy Uncertainty:

- 2.13 The higher the level of a plan in the hierarchy the more general and strategic its provisions will be and therefore the more uncertain its effects will be. The protective regime of the Directive is intended to operate at differing levels. In some circumstances assessment 'down the line' will be more effective in assessing the potential effects of a proposal on a particular site and protecting its integrity. However, three tests should be applied (see below).
- 2.14 It is only deemed appropriate to rely on the HRA of lower tier plans and projects in order for the CPA to ascertain a higher tier plan would not have an adverse effect on the integrity of an International Site when:
- A. The higher tier plan assessment cannot reasonably assess the effects on an International Site in a meaningful way; whereas
  - B. The HRA of the lower tier plan or project, which will identify more precisely the nature, scale or location of development, and thus its potential effects, will be able to change the proposal if an adverse effect on site integrity cannot be ruled out, because the lower tier plan or project is free to change the nature and/or scale and/or location of the proposal in order to avoid adverse effects on the integrity of any International Site (e.g. it is not constrained by location specific policies in the higher tier MLP); and
  - C. The HRA of the plan or project at the lower tier is required as a matter of law or Government policy.
- 2.15 Legal opinion, based on the High Court Feeney judgement (Feeney vs. Oxford City Council CO/3797/2011), confirms a similar view as to what a strategic plan can cover. In the Counsel Note responding to Oxford City's Waste Core Strategy the Inspector stated

*“the Law recognises that high level strategic plans which make land allocations which anticipate further, more detailed proposals are*

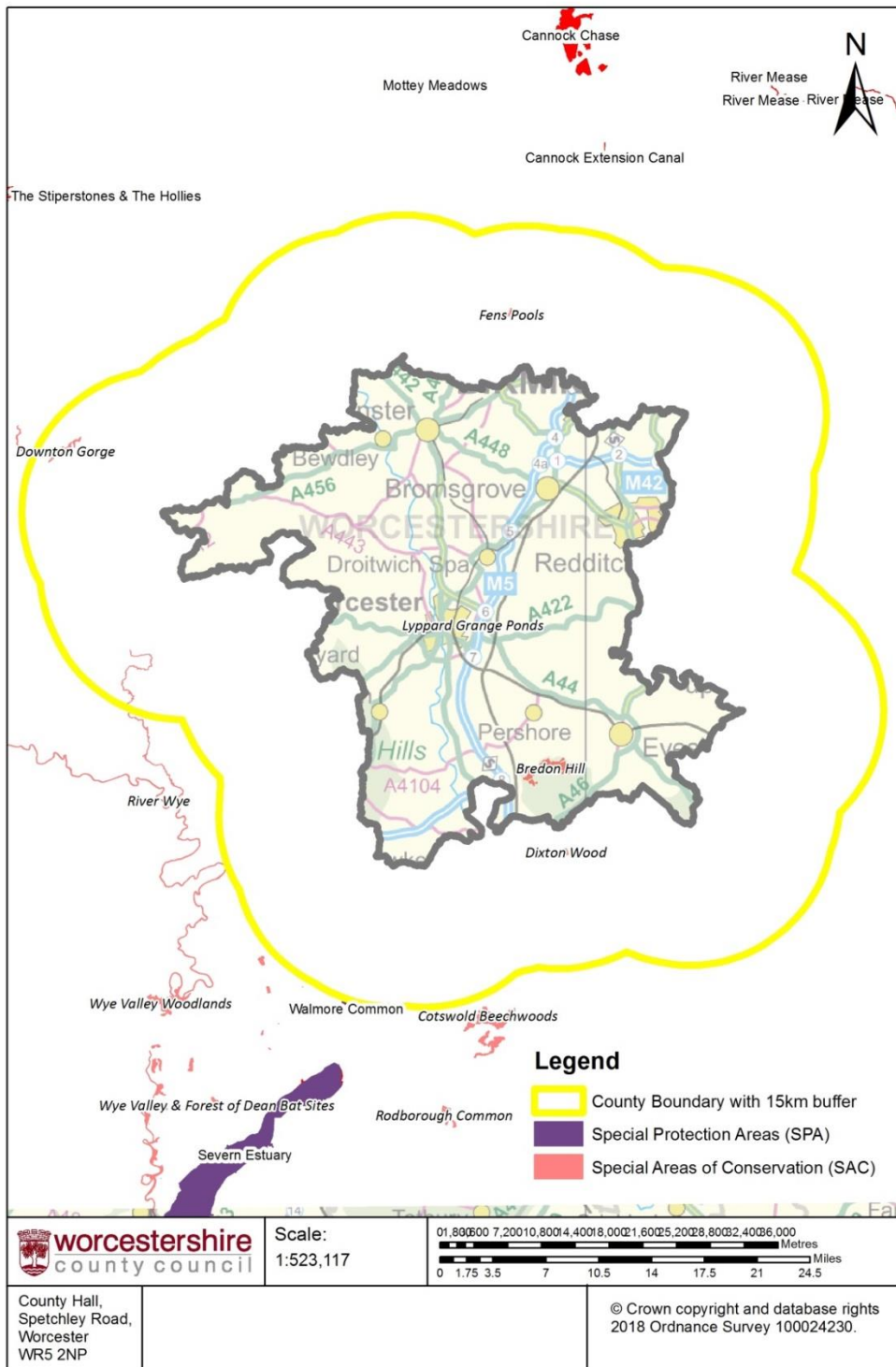
*allowed to be more general in their anticipation of effect. You can only know what you can know. You can only assess what you can assess. If a strategic high level plan can only be brought forward three years in advance of a detailed proposal then it plainly cannot discount all the possible effects of such a proposal on a SAC. The most it can do is provide a framework within which the latter application will be approved only if it meets the requirements of the Habitats Directive. Any other solution would bring an end to forward planning. The judge in Feeney dealt with this point in this way”.*

### **3. Scanning and site selection list**

- 3.1 The Habitats Regulations Assessment of the Worcestershire Minerals Local Plan evaluates likely effects of proposed mineral workings upon the International Sites found within Worcestershire (2 sites: Lyppard Grange Ponds SAC and Bredon Hill SAC).
- 3.2 Following confirmation from Natural England on the Screening Approach of the 2013 HRA Scoping Assessment a 15km radius was applied around the county boundary to identify additional International Sites. 15km is considered to be the 'upper limit' of dry deposition of pollutants such as dispersal of dust from a mineral extraction site, following Environment Agency Guidance under the Habitats Regulations<sup>5</sup>. However, specific commentary regarding hydrological linkage and International Sites beyond 15km of the County borders is recognised and discussed further within this HRA; as a precaution, sites located both within and in reasonable proximity to this 15km buffer (i.e. Fens Pools SAC, Dixton Wood SAC, Downton Gorge SAC and River Wye/Afon Gwy SAC, Walmore Common SPA and Ramsar and the River Clun) have been considered further (refer to table 1 below).
- 3.3 In addition, the Severn Estuary SAC, SPA and Ramsar (approximately 20km south of Worcestershire's borders, but hydrologically linked to the Rivers Severn, Avon, Wye and Teme), have been considered; given the importance of the estuary in a regional context and the potential hydrological pathway for mineral workings along these catchments to impact this downstream site.
- 3.4 These sites are listed in the Table below with a description of their location in relation to Worcestershire County boundary.

---

<sup>5</sup> Environment Agency (2010) Horizontal Guidance Note H1- annex F "Air Emissions"



**Figure 2: Showing Initial Site Scanning Results**

**Table 1: International Sites to be considered within the HRA Screening Assessment**

| <b>International Site</b>                    | <b>Location in relation to Worcestershire County</b> | <b>Qualifying Feature (refer to Table 2 for further information)</b>  |
|--|--|---|
| <b>Lyppard Grange Ponds SAC (1.09 ha)</b>    | Central  | Great crested newt population   |
| <b>Bredon Hill SAC (359.86 ha)</b>           | South central  | Violet click beetle population  |
| <b>Dixton Wood SAC (13.14 ha)</b>            | 2 km from the central southern boundary              | Violet click beetle population  |
| <b>Fens Pools SAC (20.4 ha)</b>              | 7 km from the central northern boundary              | Great crested newt population   |
| <b>River Wye / Afon Gwy SAC (2234.89 ha)</b> | 10 km from western boundary                          | <p>Habitats:<br/>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation; rivers with floating vegetation often dominated by water-crowfoot.</p> <p>Transition mires and quaking bogs; very wet mires often identified by an unstable 'quaking' surface.</p> <p>Species:<br/>White-clawed crayfish (<i>Austropotamobius pallipes</i>)<br/>Sea lamprey (<i>Petromyzon marinus</i>)<br/>Brook lamprey (<i>Lampetra planeri</i>)<br/>River lamprey (<i>Lampetra fluviatilis</i>)<br/>Twaite shad (<i>Alosa fallax</i>)<br/>Allis shad (<i>Alosa alosa</i>)<br/>Atlantic salmon (<i>Salmo salar</i>)<br/>Bullhead (<i>Cottus gobio</i>)<br/>Otter (<i>Lutra lutra</i>)</p> |
| <b>Downton Gorge SAC (69.3 ha)</b>           | 12km from northwest boundary                         | <p>Habitats:<br/><i>Tilio-Acerion</i> forests of slopes, screes and ravines; mixed woodland on base-rich soils associated with rocky slopes.</p>  |

| International Site                          | Location in relation to Worcestershire County | Qualifying Feature (refer to Table 2 for further information)  |
|---|---|--|
| <b>Walmore Common SPA (52.85 ha)</b>        | 15 km from southern boundary                  | Supports overwintering (non-breeding) population of Bewick's swan ( <i>Cygnus columbianus bewickii</i> )   |
| <b>Walmore Common Ramsar (52.85 ha)</b>     | As above                                      | Internationally important population of overwintering (non-breeding) <i>Cygnus columbianus bewickii</i>  |
| <b>River Clun SAC (14.64 ha)</b>            | 16km north-west of the county boundary        | Species:<br>Freshwater pearl mussel ( <i>Margaritifera margaritifera</i> )   |
| <b>Severn Estuary SAC (73,715.4 ha)</b>     | 20 km from the southern boundary              | Habitats:<br>Estuaries<br>Mudflats and sandflats<br>Saltmarsh<br><br>Species:<br>Sea lamprey ( <i>Petromyzon marinus</i> )<br>River lamprey ( <i>Lampetra fluviatilis</i> )<br>Twaite shad ( <i>Alosa fallax</i> )   |
| <b>Severn Estuary SPA (24,700.01 ha)</b>    | As above                                      | Supports overwintering populations of:<br><br><i>Cygnus columbianus bewickii</i><br>Curlew ( <i>Numenius arquata</i> )<br>Dunlin ( <i>Calidris alpina alpina</i> )<br>Pintail ( <i>Anas acuta</i> )<br>Redshank ( <i>Tringa totanus</i> )<br>Shelduck ( <i>Tadorna tadorna</i> )<br><br>Supports Ringed plover ( <i>Charadrius hiaticula</i> ) on passage. |
| <b>Severn Estuary Ramsar (24,662.98 ha)</b> | As above                                      | Regularly supports an assemblage of at least 20,000 waterfowl  |

3.5 For plans showing the location and boundaries of the International Sites please refer to Appendix 1.

## Information for Assessment

- 3.6 Conservation Objectives of International Sites are set by Natural England<sup>6</sup> to ensure that the obligations of the Habitats Directive are met, particularly to ensure that there should be no deterioration or significant disturbance of the qualifying features from their condition at the time the status of the site was formally identified. The conservation objectives are also essential in determining whether the effects of a plan or project are likely to have a significant effect (Article 6.2 of the Habitats Directive).
- 3.7 Following advice obtained by Natural England, a record is presented here of both the Conservation Objectives currently available online, as well as referencing the SAC Conservation Objectives Supplementary Advice Documents (where available), SSSI Favourable Condition Tables and Site Improvement Plans to provide an additional level of detail to inform the scope and nature of the HRA. For further detailed information on each Site's Supplemental Advice document and/or Site Improvement Plan (Where available) please refer to Appendix 2.

**Table 2: International Sites: Pertinent information for Site Scanning and Selection**

| International Site       | Conservation Objectives & Supplemental Evidence   | Site Condition <sup>7</sup>   |
|--------------------------|---|---|
| Lyppard Grange Ponds SAC | <p><b>SAC SITE CODE UK0030198 Conservation Objectives</b> (30 June 2014 "version 2"):</p> <p>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"> <li>• The extent and distribution of the habitats of qualifying species</li> <li>• The structure and function of the habitats of qualifying species</li> <li>• The supporting processes on which the habitats of qualifying species rely</li> <li>• The populations of qualifying species, and,</li> <li>• The distribution of qualifying species within the site.</li> </ul> | <p><b>Favourable</b><br/><b>92.03%</b></p> <p><b>Unfavourable – Recovering</b><br/><b>7.97%</b></p> |

<sup>6</sup> Refer to: [www.naturalengland.org.uk/ourwork/conservation/designatedareas/sac/conservationobjectives.aspx](http://www.naturalengland.org.uk/ourwork/conservation/designatedareas/sac/conservationobjectives.aspx)

<sup>7</sup> Summary condition of legally underpinning SSSI units have been identified using Natural England website <https://designatedsites.naturalengland.org.uk/>, as accessed August 2018.



| International Site | Conservation Objectives & Supplemental Evidence   | Site Condition <sup>7</sup>   |
|--------------------|---|---|
|                    | <p>The Site's Supplemental Advice document (24<sup>th</sup> June 2016) provides targets to maintain the attributes which support the Qualifying Features primarily focusing on positive aquatic and terrestrial management regimes together with maintaining the terrestrial connectivity for great crested newts with their associated meta-population. The Site Improvement Plan (V3.0, October 2014) describes the population as 'low' with a number of likely contributing factors, principally but not entirely anthropogenic in nature.</p>   |   |
| Bredon Hill SAC    | <p><b>SAC SITE CODE UK0012587 Conservation Objectives:</b><br/>           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"> <li>• The extent and distribution of the habitats of qualifying species</li> <li>• The structure and function of the habitats of qualifying species</li> <li>• The supporting processes on which the habitats of qualifying species rely</li> <li>• The populations of qualifying species, and,</li> <li>• The distribution of qualifying species within the site.</li> </ul> <p>The Conservation Objectives (COs) for Bredon Hill SAC are focussed on the component Site of Special Scientific Interest (SSSI): Bredon Hill.</p> <p>The COs for the European interest on the SSSI are:</p> <ul style="list-style-type: none"> <li>• to maintain, in favourable condition, the habitats for the violet click beetle (<i>Limoniscus violaceus</i>), with particular reference to the wood-pasture and ancient ash woodland.</li> </ul> <p>There is no Supplemental Advice document currently available, however the Site Improvement Plan (v1.0, February 2015) describes how inappropriate forestry and woodland management, disease, climate change, air pollution and a lack of knowledge about the violet click beetle's numbers and distribution all potentially contribute towards undermining the Site's Conservation Objectives. The site exceeds its maximum Nitrogen Critical Lode for broadleaved deciduous woodland, the feature which supports violet click beetles.</p> | <p><b>Favourable</b><br/> <b>95.45%</b></p> <p><b>Unfavourable – recovering</b><br/> <b>4.55%</b></p> |

| International Site | Conservation Objectives & Supplemental Evidence  | Site Condition <sup>7</sup>       |
|--------------------|--|-----------------------------------|
| Dixton Wood SAC    | <p><b>SAC SITE CODE UK0030135 Conservation Objectives:</b><br/> The Violet click beetle (<i>Limoniscus violaceus</i>) was discovered at Dixton Wood in 1998 and it has been found at the site on a single occasion subsequently. It is a small site with large number of ancient ash <i>Fraxinus excelsior</i> pollards, and supports a rich fauna of scarce invertebrate species associated with decaying timber on ancient trees.</p> <p><b>Conservation Objectives:</b><br/> 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"> <li>• The extent and distribution of the habitats of qualifying species</li> <li>• The structure and function of the habitats of qualifying species</li> <li>• The supporting processes on which the habitats of qualifying species rely</li> <li>• The populations of qualifying species, and,</li> <li>• The distribution of qualifying species within the site.</li> </ul> <p>The Conservation Objectives (COs) for Dixton Wood SAC are underpinned by the objectives indicated in the Favourable Condition Tables of the SSSI units:</p> <ul style="list-style-type: none"> <li>• maintaining, in favourable condition, the habitats for the population of violet click beetle;</li> <li>• principle risks to the site's integrity are lack of future replacement pollards (age-class skewed to older generation) and game management practices.</li> <li>• These are issues addressed through provision for the creation of new pollards as well as management of existing resource to prevent loss through senescence and wind-blow.</li> </ul> <p>There is no Supplemental Advice document currently available, however the Site Improvement Plan (v1.0, January 2015) describes how inappropriate forestry and woodland management, disease and a lack of robust baseline information about the violet click beetle's numbers and distribution potentially contribute in undermining the Site's Conservation Objectives. The site exceeds its maximum Nitrogen Critical Lode for broadleaved deciduous woodland, the feature which supports violet click beetles.</p> | Unfavourable – Recovering<br>100% |
| Fens Pools         | <b>SAC SITE CODE UK0030150 Conservation Objectives:</b>  | Favourable                        |

| International Site   | Conservation Objectives & Supplemental Evidence  | Site Condition <sup>7</sup> |
|----------------------|--|-----------------------------|
| SAC                  | <p>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"> <li>• The extent and distribution of the habitats of the qualifying species</li> <li>• The structure and function of the habitats of the qualifying species</li> <li>• The supporting processes on which the habitats of the qualifying species rely</li> <li>• The populations of qualifying species, and,</li> <li>• The distribution of qualifying species within the site.</li> </ul> <p><b>Qualifying Features:</b><br/>S1166. <i>Triturus cristatus</i>; Great crested newt</p> <p>The Conservation Objectives (COs) for Fens Pool SAC are underpinned by the objectives indicated in the Favourable Condition Tables of the SSSI units:<br/>To maintain the extent of the amphibian habitat (terrestrial and aquatics).</p> <ul style="list-style-type: none"> <li>• No loss of area or fragmentation of site (through significant barriers to amphibian dispersal) compared with status at designation.</li> </ul> <p>The Site's Supplemental Advice document (March 2017) describes how positive management of aquatic and terrestrial habitats for great crested newts is critical in supporting the site's Conservation Objectives as is the need to maintain and extend supporting habitats, terrestrial connectivity for great crested newts and habitat resilience to environmental change. The site has low sensitivity to climate change but is vulnerable to runoff which drains into it from surrounding development. The site is sensitive to concentrations and deposition of air pollutants. The Site Improvement Plan (v1.0, October 2014) identified that overgrazing, inappropriate scrub control, water pollution, habitat fragmentation and introduction of disease and competitive invasive species all potentially contribute in undermining the Conservation Objectives of this Site.</p> | 100%                        |
| River Wye / Afon Gwy | <p><b>SAC SITE CODE UK0012642 Conservation Objectives:</b><br/>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site</p>  | Favourable<br>12.69%        |

| International Site | Conservation Objectives & Supplemental Evidence  | Site Condition <sup>7</sup>                               |
|--------------------|--|---|
| SAC                | <p>contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:</p> <ul style="list-style-type: none"> <li>• The extent and distribution of qualifying natural habitats and habitats of qualifying species</li> <li>• The structure and function (including typical species) of qualifying natural habitats</li> <li>• The structure and function of the habitats of qualifying species</li> <li>• The supporting processes on which qualifying natural habitats and habitats of qualifying species rely</li> <li>• The populations of qualifying species, and,</li> <li>• The distribution of qualifying species within the site.</li> </ul> <p>The Conservation Objectives (COs) for River Wye SAC are underpinned by the objectives indicated in the Favourable Condition Tables of the SSSI units:</p> <ul style="list-style-type: none"> <li>• River Lugg</li> <li>• Lower Wye</li> </ul> <p>The COs for the European interest on the SSSIs are to maintain, in favourable condition, the qualifying features of:</p> <ul style="list-style-type: none"> <li>• floating formations of water crowfoot (<i>Ranunculus</i>) of plain and sub-mountainous rivers and populations of:</li> <li>• Atlantic salmon (<i>Salmo salar</i>)</li> <li>• Allis shad (<i>Alosa alosa</i>)</li> <li>• Twaite shad (<i>Alosa fallax</i>)</li> <li>• Bullhead (<i>Cottus gobio</i>)</li> <li>• Brook lamprey (<i>Lampetra planeri</i>)</li> <li>• River lamprey (<i>Lampetra fluviatilis</i>)</li> <li>• Sea lamprey (<i>Petromyzon marinus</i>)</li> <li>• White-clawed crayfish (<i>Austropotamobius pallipes</i>)</li> <li>• and the river and adjoining land as habitat for populations</li> <li>• Otter (<i>Lutra lutra</i>)</li> </ul> <p>There is no Supplementary Advice document currently available, however the Site Improvement Plan</p> | <p><b>Unfavourable – Recovering</b><br/><b>87.31%</b></p> |

| International Site | Conservation Objectives & Supplemental Evidence  | Site Condition <sup>7</sup>          |
|--------------------|--|--------------------------------------|
|                    | (v1.0, November 2014) identifies how water pollution, physical modifications including hydrological changes, water abstraction, inappropriate forestry and woodland management, invasive species and operations associated with fisheries all potentially contribute in undermining the Conservation Objectives for this site.   |                                      |
| Downton Gorge SAC  | <p><b>SAC SITE CODE UK0012735 Conservation Objectives:</b><br/> 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"> <li>• The extent and distribution of qualifying natural habitats and habitats of qualifying species</li> <li>• The structure and function (including typical species) of qualifying natural habitats</li> <li>• The structure and function of the habitats of qualifying species</li> <li>• The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely</li> <li>• The populations of qualifying species, and,</li> <li>• The distribution of qualifying species within the site.</li> </ul> <p><b>Qualifying Features:</b><br/> H9180. <i>Tilio-Acerion</i> forests of slopes, screes and ravines; Mixed woodland on base-rich soils associated with rocky slopes</p> <p>The Site's Supplementary Advice document (October 2016) describes how the positive management of broadleaved deciduous woodland, a supporting habitat for the Site's Qualifying Feature, is critical in delivering the Site's Conservation Objectives. In summary, the Supplemental Advice confirms that the site is vulnerable to the effects of air- and water-borne pollution, particularly in respect of its significant lichenological interest. The Site Improvement Plan (v0.5, December 2014) identifies that deer, game management, inappropriate forestry and woodland management, introduction of invasive species and disease, habitat fragmentation and air pollution all potentially contribute in undermining the Site's Conservation Objectives. The Site currently exceeds its critical lode for Nitrogen.</p> | <b>Unfavourable – Declining 100%</b> |

| International Site    | Conservation Objectives & Supplemental Evidence   | Site Condition <sup>7</sup>      |
|-----------------------|---|----------------------------------|
| Walmore Common SPA    | <p><b>SPA SITE CODE UK9007051 Conservation Objectives:</b><br/>           Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;</p> <ul style="list-style-type: none"> <li>• The extent and distribution of the habitats of the qualifying features</li> <li>• The structure and function of the habitats of the qualifying features</li> <li>• The supporting processes on which the habitats of the qualifying features rely</li> <li>• The population of each of the qualifying features, and,</li> <li>• The distribution of the qualifying features within the site.</li> </ul> <p><b>Qualifying Features:</b><br/>           A037 <i>Cygnus columbianus bewickii</i>; Bewick's swan (Non-breeding)</p> <p>This SPA holds an internationally important bird assemblage of <i>Cygnus columbianus bewickii</i>:</p> <ul style="list-style-type: none"> <li>• no significant reduction in numbers or displacement of wintering birds attributable to disturbance from an established baseline</li> <li>• significant disturbance attributable to human activities can result in reduced food intake and/or increased energy expenditure;</li> <li>• relevant attribute: disturbance in feeding or roosting areas;</li> <li>• measure: reduction or displacement of wintering birds.</li> </ul> <p>The site has no Supplementary Advice document currently available, however the Site Improvement Plan (November 2014) identifies that hydrological change (flooding), changes in species distribution, changes in land management, offsite habitat availability and management and disturbance including that associated with public access and energy production are all potentially undermining the delivery of the Site's Conservation Objectives.</p> | Unfavourable – No change<br>100% |
| Walmore Common Ramsar | <p>Internationally important bird assemblage of <i>Cygnus columbianus bewickii</i></p> <ul style="list-style-type: none"> <li>• no significant reduction in numbers or displacement of wintering birds attributable to disturbance from an established baseline.</li> <li>• maintain no less than 43 individuals, representing an average of 0.5% of the GB population (i.e. the 5 year peak mean 1998/9- 2002/3)</li> </ul>  |                                  |

| International Site | Conservation Objectives & Supplemental Evidence  | Site Condition <sup>7</sup>  |
|--------------------|--|--|
| River Clun SAC     | <p><b>SAC SITE CODE UK0030250 Conservation Objectives:</b></p> <p>Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.</p> <p>Subject to natural change, to maintain or restore:</p> <ul style="list-style-type: none"> <li>• The extent and distribution of qualifying natural habitats and habitats of qualifying species;</li> <li>• The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species;</li> <li>• The supporting processes on which qualifying natural habitats and habitats of qualifying species rely;</li> <li>• The populations of qualifying species;</li> <li>• The distribution of qualifying species within the site.</li> </ul> <p><b>Qualifying Features:</b><br/>S1029. <i>Margaritifera margaritifera</i>; Freshwater pearl mussel</p> <p>There is no Supplemental Advice document currently available, however the Site Improvement Plan (October 2014) identifies that physical modifications (which may reduce availability of gravel beds, remove overhanging trees reducing oxygen availability and impose physical barriers to salmonid vectors), siltation and changes in land management (which can lead to erosion, increased sediment loads etc), waterbourne pollution, low breeding successes and poor recruitment of freshwater pearl mussels together with introduction of invasive species and disease can all potentially contribute towards undermining the Conservation Objectives of this Site.</p> | <p><b>Unfavourable – No change</b><br/><b>96.61%</b></p> <p><b>Unfavourable – Declining</b><br/><b>3.39%</b></p> |
| Severn Estuary SAC | <p><b>SAC SITE CODE UK0013030 Conservation Objectives:</b></p> <p>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>  | <p><b>Favourable</b><br/><b>85.85%</b></p> <p><b>Unfavourable –</b></p>  |

| International Site | Conservation Objectives & Supplemental Evidence   | Site Condition <sup>7</sup>  |
|--------------------|---|--|
|                    | <ul style="list-style-type: none"> <li>• The extent and distribution of qualifying natural habitats and habitats of qualifying species</li> <li>• The structure and function (including typical species) of qualifying natural habitats</li> <li>• The structure and function of the habitats of qualifying species</li> <li>• The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely</li> <li>• The populations of qualifying species, and,</li> <li>• The distribution of qualifying species within the site.</li> </ul> <p>The COs for the European interest are to maintain, in favourable condition, the qualifying features of:</p> <ul style="list-style-type: none"> <li>• estuaries</li> <li>• mudflats and sandflats not covered by seawater at low tide</li> <li>• Atlantic salt meadows</li> </ul> <p>There is no Supplemental Advice document currently available for this Site, however the Site Improvement Plan (v1.0, March 2016) identifies that developmental impacts (drainage, run-off etc), coastal squeeze, changes in land management, marine pollution events, waterbourne pollution, airbourne pollution (the site currently exceeds its Critical Load for Nitrogen), physical modifications (e.g. changing hydrodynamics of the site) changes in species distribution, adverse effects of fisheries, introduction of invasive species, marine litter and disturbance (including effects arising from public access) all potentially contribute in undermining the delivery of the Site's Conservation Objectives.</p> | <p><b>Recovering</b><br/><b>3.31%</b></p> <p><b>Unfavourable – Declining</b><br/><b>10.84%</b></p> |
| Severn Estuary SPA | <p><b>SPA SITE CODE UK9015022 Conservation Objectives:</b></p> <p>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:</p> <ul style="list-style-type: none"> <li>• The extent and distribution of the habitats of the qualifying features</li> <li>• The structure and function of the habitats of the qualifying features</li> <li>• The supporting processes on which the habitats of the qualifying features rely</li> <li>• The population of each of the qualifying features, and,</li> <li>• The distribution of the qualifying features within the site.</li> </ul> <p><b>Qualifying Features:</b></p>  |  |



| International Site    | Conservation Objectives & Supplemental Evidence  | Site Condition <sup>7</sup> |
|-----------------------|--|-----------------------------|
|                       | <p>A037 <i>Cygnus columbianus bewickii</i>; Bewick's swan (Non-breeding)<br/> A048 <i>Tadorna tadorna</i>; Common shelduck (Non-breeding)<br/> A051 <i>Anas strepera</i>; Gadwall (Non-breeding)<br/> A149 <i>Calidris alpina alpina</i>; Dunlin (Non-breeding)<br/> A162 <i>Tringa totanus</i>; Common redshank (Non-breeding)<br/> A394 <i>Anser albifrons albifrons</i>; Greater white-fronted goose (Non-breeding) Waterbird assemblage</p> <ul style="list-style-type: none"> <li>• no significant reduction in numbers or displacement of wintering birds attributable to disturbance from an established baseline</li> <li>• significant disturbance attributable to human activities can result in reduced food intake and/or increased energy expenditure;</li> <li>• relevant attribute: disturbance in feeding or roosting areas;</li> <li>• measure: reduction or displacement of wintering birds.</li> </ul> <p>“Supporting habitats” are identified which describe the key habitats within the European marine site necessary to support the interest features i.e. the qualifying bird species. The “favourable condition table” contains further detail on habitat conditions.</p> <ul style="list-style-type: none"> <li>• subject to natural change, maintain in favourable condition the habitats for the internationally important populations of the Annex 1 and migratory species</li> <li>• intertidal mudflats and sandflats (Annex 1 species, migratory species and waterfowl assemblages);</li> <li>• saltmarsh communities (Annex 1 species, migratory species and waterfowl assemblages); and</li> <li>• shingle and rocky shore (migratory species and waterfowl assemblages).</li> </ul> |                             |
| Severn Estuary Ramsar | <p>No less than 68,026 individuals in the assemblage (i.e. the 5 year peak mean between 1988/9 – 1992/3).</p> <ul style="list-style-type: none"> <li>• Relevant attribute which may cause deterioration: Nonphysical disturbance, noise (e.g. coastal development); visual (coastal development). Non-toxic contamination: changes in nutrient loading and changes in organic loading (industrial outfalls).</li> </ul>  |                             |

| International Site | Conservation Objectives & Supplemental Evidence   | Site Condition <sup>7</sup> |
|--------------------|---|-----------------------------|
|                    | <ul style="list-style-type: none"> <li>• No significant reduction in numbers or displacement of wintering birds attributable to disturbance from an established baseline.</li> <br/> <li>Target number of Annex II species:               <ul style="list-style-type: none"> <li>• Dunlin &gt;41,683;</li> <li>• Shelduck &gt;2,892;</li> <li>• Redshank &gt;2,013; (i.e. the 5 year peak mean between 1988/9 – 1992/3).</li> </ul> </li> <br/> <li>Maintain in a favourable condition the habitats for the internationally important assemblages of waterfowl listed, in particular:               <ul style="list-style-type: none"> <li>• saltmarsh - Upper and lower saltmarsh provide important feeding and roosting areas. The European white-fronted geese graze on a range of saltmarsh grasses and herbs. The birds feed on the saltmarsh and the transition to coastal grazing marsh in front of the sea defences in the upper estuary.</li> <li>• mudflats and sandflats; and</li> <li>• coastal lagoons.</li> </ul> </li> </ul> |                             |

## 4. Key Potential Impacts

4.1 Minerals extraction and its associated infrastructure has the potential to cause severe damage to the conservation interests of Natura2000 sites through the loss, degradation and fragmentation of valuable habitat areas and a reduction in biodiversity. However, there may be potential benefits through restoration of minerals working in habitat creation and improving connectivity, Table 3 (below) provides further detail on the range of potential adverse environmental impacts known to arise from various mineral developments. Table 4 goes on to summarise these potential impacts.

**Table 3: Generic Minerals Impacts Associated with Different Materials**

| Material      | Activities associated with minerals development  | Environmental Impacts  |
|---------------|--|--|
| All materials | <p>Site operations will normally include:</p> <ul style="list-style-type: none"> <li>• Extraction of minerals by blasting or mechanical extraction etc.</li> <li>• Development of ancillary infrastructure.</li> <li>• Processing of the materials.</li> <li>• Transportation of materials around the site.</li> <li>• Transportation of minerals by road, rail, waterway, conveyor or pipeline.</li> <li>• Site restoration (either during and/or after workings) and aftercare.</li> </ul> | <p>Land take &amp; habitat loss/fragmentation</p> <ul style="list-style-type: none"> <li>• From extraction of minerals and the development of ancillary infrastructure. Any land take within an International Site is likely to have an adverse impact upon site integrity. It is likely to impact on species populations and species movements.</li> <li>• The impact may also relate to habitat features beyond the designated site boundary. For example, any fragmentation or loss of habitat associated with a SAC woodland, or equally any significant areas of woodland or hedgerows (or other habitats valuable in the context of the SAC's conservation objectives) in the vicinity of the SAC may have an adverse effect on species through the loss of foraging or commuting habitat. Similarly, removal of a habitat adjacent to or within the vicinity of an SAC or SPA habitat may have a negative impact on the designated site through a reduction in buffering, changes to local hydrology, severance and barrier effects or edge effects.</li> <li>• Restoring quarries for biodiversity can be positive for nature</li> </ul> |

|  |  |  |
|--|--|--|
|  |  | <p>conservation. Partial and full restoration of extraction sites has the potential to improve the SACs and SPAs through increasing the robustness of sites. This could be either through enhancing buffers or improving the connectivity of sites.</p> <p>Disturbance</p> <ul style="list-style-type: none"> <li>• Noise and light pollution from extraction, ancillary facilities, transportation and some types of restoration may impact upon fauna such as bats and birds. For example, restoration for amenity (dog-walking/water sports) or primarily for agriculture or afforestation can have a detrimental effect on the conservation value of local sites (e.g. modification of foraging value, or may promote the deterioration of nearby botanically rich grasslands).</li> <li>• Biological disturbance can also include factors such as: <ul style="list-style-type: none"> <li>○ Direct mortality (increased vehicular activity on and nearby sites),</li> <li>○ Out competition by non-native species (introduced via after-use such as the introduction of <i>Dikerogammarus villosus</i> through boating on amenity lakes, but an equal risk through forestry or development end-uses),</li> <li>○ Selective extraction of species (e.g. through fishing)</li> <li>○ Introduction of new species or habitats (e.g. through inappropriate restoration landscaping proposals)</li> <li>○ Changes in predator/prey numbers (e.g. restoration to woodland/heathland),</li> <li>○ Introduction of disease,</li> <li>○ Rapid fluctuations in populations,</li> <li>○ Natural succession,</li> <li>○ Loss/damage of plant species (e.g. by operational activities such as dredging, and inappropriate restoration after-uses).</li> </ul> </li> </ul> <p>Water pollution</p> <ul style="list-style-type: none"> <li>• Contamination of habitats may occur from a number of sources.</li> <li>• Impacts may include reductions in prey species with subsequent</li> </ul> |
|--|--|--|

|  |  |  |
|--|--|--|
|  |  | <p>impacts on the food chain, bioaccumulation of toxins in the food chain or eutrophication.</p> <ul style="list-style-type: none"> <li>• Contaminants can be transported large distances with surface or ground water. Impacts may depend on the strength of the pathway between the source and the site.</li> <li>• Wetland habitats are particularly vulnerable to pollution from surface or ground water sources.</li> </ul> <p>Air pollution</p> <ul style="list-style-type: none"> <li>• From on-site operations and transportation may result in reduced condition and integrity of International Sites.</li> <li>• The impacts of nitrogen and nitrogen oxides deposition on vegetation growth are of particular concern.</li> <li>• Other pollutants including sulphur dioxide, ozone and particulates.</li> <li>• Air pollution has been linked to ill health amongst trees, particularly over-mature specimens, and also a failure to regenerate, either from coppice, pollard or seed.</li> <li>• Air pollution may also cause changes in species assemblages, for example in lichens.</li> </ul> <p>Dust</p> <ul style="list-style-type: none"> <li>• Dust from extraction and on site operations may have an impact on habitats and species.</li> <li>• Potential for affecting the growth of plants.</li> <li>• Dust could also get into water sources.</li> </ul> <p>Soil compaction</p> <ul style="list-style-type: none"> <li>• Damaging ability of soil to support vegetation, modifying hydrological processes or pathways. Potential for impact to be generated either during extraction or through inappropriate restoration operations.</li> </ul> <p>Soil pollution</p> <ul style="list-style-type: none"> <li>• Pollution or contamination of watercourses during initial ground</li> </ul> |
|--|--|--|

|  |  |   |
|--|--|---|
|  |  | <p>investigation works (e.g. boreholes may provide pathways for contaminated water).</p> <ul style="list-style-type: none"> <li>Operational activities: previously contaminated aggregates, transport of aggregates, industrial processes on site (especially processing of fuels, oils and solvents), dewatering may bring in contaminated water from off-site.</li> <li>After-use such as industrial, commercial or residential development may cause soil pollution, as may future use as landfills through leachate or extractant pollution.</li> </ul> <p>Hydrology</p> <ul style="list-style-type: none"> <li>Decreased (for example as a result of extraction) or increased water quantity (for example due to impeded water flow or restoration) ground or surface water levels may impact upon designated habitats.</li> <li>This could impact on the integrity of the site by causing alterations in the species composition or reducing the extent of target habitats.</li> <li>Reduced water levels in water courses and water bodies could have direct impacts on wetland habitats and designated wildfowl populations.</li> <li>Reduced volumes of water would increase the concentration of contaminants.</li> <li>Any significant or long term changes in ground water levels may also affect woodland sites, either having a direct effect on species (canopy, basal flora or epiphytes) or indirectly by increasing stress and vulnerability to other factors.</li> </ul> <p>Introduced/invasive species</p> <p>Restoration and mitigation could potentially lead to the introduction or increased abundance of potential invasive species which could comprise an adverse impact on integrity of Natura2000 sites.</p> <p>Other non-toxic contaminants</p> <ul style="list-style-type: none"> <li>Nutrient enrichment (of water and soils) through processes such</li> </ul> |
|--|--|---|

|                            |   |  |
|----------------------------|---|--|
|                            |   | <p>as dredging, dewatering, agricultural and infilling end-uses.</p> <ul style="list-style-type: none"> <li>• Changes in salinity (e.g. ground works/boreholes causing pathways for contaminated water).</li> <li>• Changes in turbidity (e.g. through stockpiling finings escaping to watercourse, through industrial processes including sand pumped as slurry to processing plants and water returned to lakes, through production and inappropriate storage of secondary aggregates, by transport of aggregates (via road or conveyor), and by agricultural after-use (e.g. effects of fertiliser) or development (industrial, commercial or residential).</li> <li>• Creation and manipulation of waste materials, particularly through operations such as blasting and crushing. Waste materials pose multiple potential impacts from inappropriate storage resulting in soil compaction (and potentially contamination) through to additional movements of heavy vehicles and a cumulative increase in dust and other airborne pollutants.</li> </ul> |
| Sand and gravel (land won) | <p>Extracted by hydraulic elevators following the stripping of soil. Crushed, screened and washed. Silt is disposed of.</p> <p>While transport by barge using watercourses such as the River Severn Local Wildlife Site are viable routes from extraction to processing points, transport is often by road because of the small amounts being transported and cost of infrastructure such as wharfs. However, the fact that the material is relatively low value, bulk materials, for which transport costs make up a large proportion of the market price, can make water transport more attractive.</p> | <ul style="list-style-type: none"> <li>• In comparison to crushed rock, sand and gravel developments pose greater land take when also considering ancillary infrastructure. Likely to impact on species populations and species movements. Noise levels relatively low (compared to hard rock quarries).</li> <li>• Silt disposal capacity is important – water impacts.</li> <li>• Soil stripping in summer can cause dust problems.</li> <li>• Road/waterway transport impacts.</li> <li>• Working can be below the water table and may involve dewatering, therefore potential for hydrological modifications of adjacent land influenced through cone of depression during extraction phases.</li> </ul>   |
| Limestone                  | <p>Extracted through blasting or mechanical extraction, crushing and screening / washing.</p>   | <ul style="list-style-type: none"> <li>• Noise and dust impacts during blasting or mechanical extraction.</li> <li>• Working can be below the water surface so can have water pollution impacts and other hydrological consequences.</li> <li>• Quarries are often located in areas of landscape value.</li> </ul>   |

|              |   |   |
|--------------|---|---|
| Sandstone    | Extracted through blasting or mechanical extraction, crushing and screening / washing.  | <ul style="list-style-type: none"> <li>• Noise and dust impacts during blasting or mechanical extraction.</li> <li>• Quarries are often located in areas of landscape value.</li> </ul>   |
| Igneous rock | Extracted through blasting, crushing and screening. Material is not washed so no need for silt disposal.  | <ul style="list-style-type: none"> <li>• Noise and dust impacts during blasting.</li> <li>• Quarries are often located in areas of landscape value.</li> </ul>  |
| Clay         | Mechanical stripping and excavation   | <ul style="list-style-type: none"> <li>• Land take.</li> <li>• Road transport impacts.</li> <li>• Noise associated with extraction and transport.</li> <li>• Dust, especially if clay stockpiles are left out to dry.</li> <li>• Working can be below the water table and may involve de-watering, therefore potential for hydrological modifications of adjacent land influenced through cone of depression during extraction phases</li> </ul>  |
| Coal         | <p>(underground mining)</p> <p>Deep coal is typically reached via a vertical shaft, extracted coal is removed via roadways to be processed via screening, crushing, homogenising and onward transportation to coal preparation plants. The majority of surface tipping comprises spoil heaps immediately adjacent to the point of origin, comprising discard or a mixture of coarse and dewatered treated fines.</p> <p>(surface mining)</p> <p>Modern technology allows extraction to reach depths in excess of 200 metres, although 80 metres is more commonplace. The ratio of overburden to coal is high; consequently, extraction involves massive earth moving operations in order to recover relatively small quantities of coal.</p> <p>Soils and overburden are stripped and stored in large</p> | <ul style="list-style-type: none"> <li>• Land take - Surface development of the pithead and disposal of colliery waste.</li> <li>• Road transport impacts.</li> <li>• Noise.</li> <li>• Dust.</li> <li>• Lighting.</li> <li>• Subsidence.</li> <li>• Surface water pollution from contaminated run-off.</li> <li>• Land take.</li> <li>• Road transport impacts.</li> <li>• Noise.</li> <li>• Dust.</li> <li>• Waste piles created during the mining process can contribute sediment to water ways.</li> <li>• If mining takes place below the water table then drainage can result in a lowering of the water table as well as land subsidence.</li> </ul> |



|       |  |   |
|-------|--|---|
|       | <p>mounds. Once extracted, coal is normally taken by lorry to the nearest blending centre for processing. At large sites traffic generation can therefore be considerable. Most opencast coal sites can be reclaimed to their original or near original levels. This is because of the high overburden to coal ratio and the 'bulking up' effect of returned material.</p>   |   |
| Brine | <p>The Worcester Basin is one of a small number of Triassic saltfields in the UK which are economically the most important and account for some 90% of total production (most derived from the Cheshire Basin). In addition to salt, white salt, brine and chlorine production, saltfields in excess of 100m thick are also used for underground storage of gases.</p> <p>Because of dissolution by groundwater, most salt-bearing strata are absent to depths of about 70 meters. Almost all solution mining is now controlled by brine pumping which reduces risk of subsidence. The process, typically developed through a single borehole, recovers up to 25% of the total salt reserve.</p> | <ul style="list-style-type: none"> <li>• Land take - Surface development and infrastructure associated with boreholes and multiple wells.</li> <li>• Road transport impacts.</li> <li>• Noise.</li> <li>• Dust.</li> <li>• Lighting.</li> <li>• Subsidence/settlement.</li> <li>• Surface water pollution from contaminated run-off.</li> <li>• Hydrological modifications (groundwater/contamination/salinity).</li> </ul> |

**Table 4: Broad Category Summary of Potential Impacts arising from Mineral Working**

| <b>Impact Category</b> |  |
|------------------------|--|
| <b>1.</b>              | Physical Modification (including direct land take, functional and linked habitat loss/fragmentation, soil pollution, subsidence, settlement, compaction) |
| <b>2.</b>              | Disturbance (including noise, light, vehicle movement, invasive species, anthropogenic)  |

## Impact Category

- |    |  |
|----|--|
| 3. | Hydrological modification (including water pollution, contamination, littering)  |
| 4. | Air pollution (specifically NO <sub>x</sub> and heavy metals, but also potentially including NO <sub>2</sub> , NH <sub>3</sub> , O <sub>3</sub> , SO <sub>2</sub> .) |
| 5. | Dust and other non-toxic contaminants (including dust/particulate matter and littering)  |

## 5. Approach to the Application of a Screening Framework

- 5.0 Within this Chapter we articulate an approach adopted to ascertain whether a 'Likely Significant Effect' could arise upon a scanned International Site. In articulating this screening framework (subsequently applied in Chapter 6) it becomes possible to recognise that certain pathways and effects cannot, in actuality, pose a credible adverse impact. Therefore there exists at this stage an opportunity to focus the screening process more precisely upon those pathways and impacts deemed to have credible potential to cause a significant adverse impact upon a scanned International Site.

### Interpretation of 'likely significant effect'

- 5.1 Relevant case law helps to interpret when effects should be considered as a likely significant effect, when carrying out HRA of a land use plan.
- 5.2 In the Waddenzee case<sup>8</sup>, the European Court of Justice ruled on the interpretation of Article 6(3) of the Habitats Directive (translated into Reg. 102 in the Habitats Regulations), including that:
- *"any plan or project ... is to be subject to an appropriate assessment ... if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects"* (para 45)
  - *"Where plan or project has an effect on that site but is not likely to undermine its conservation objectives, it cannot be considered likely to have a significant effect on that site"* (para 47)
  - *"In assessing the potential effects of a plan or project, their significance must be established in the light, inter alia, of the characteristics and specific environmental conditions of the site concerned by that plan or project"* (para 48)

---

<sup>8</sup> ECJ Case C-127/02 "Waddenzee" 7<sup>th</sup> September 2004.

- 5.3 An opinion delivered to the Court of Justice of the European Union<sup>9</sup> commented that:
- “*The requirement that an effect in question be ‘significant’ exists in order to lay down a de minimus threshold. Plans or projects that have no appreciable effect on the site are thereby excluded. If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill.*”
- 5.4 This opinion (the ‘Sweetman’ case) therefore allows for the authorisation of plans and projects whose possible effects, alone or in combination, can be considered ‘trivial’ or *de minimus*; referring to such cases as those “*that have no appreciable effect on the site*”. In practice, such effects could be screened out as having no likely significant effect; they would be ‘insignificant’.
- 5.5 The implications of ‘Waddenzee’ and ‘Sweetman’ on screening scanned sites within a HRA are therefore that, if there are no causal connections or links between proposals and a site’s qualifying features, there cannot be an effect. If there is a ‘theoretical’ pathway, or ‘hypothetical’ cause, but in practice there is no credible evidence of a real (rather than a hypothetical) link to the site, it cannot be regarded as being potentially significant, either alone or in combination with other plans or projects. There would be no point including that supposition in further assessment.

## Consideration of Site Scanning Results:

### Likely Pathway to Impact Model

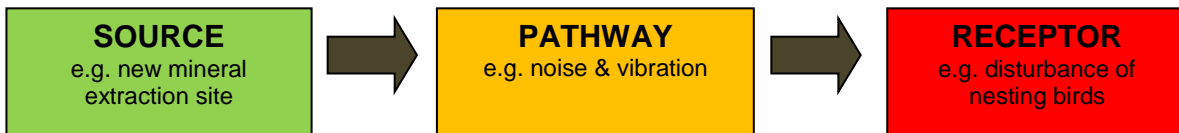
- 5.6 The Worcestershire Minerals Local Plan will have spatial implications that extend beyond the intended red-line boundaries of mineral extraction sites. In particular, it is recognised that when considering the potential for effects on International Sites, distance in itself may not be a definitive guide to the likelihood or severity of an impact. Other factors such as inaccessibility/ remoteness, the prevailing wind direction, river flow direction, ground water

---

<sup>9</sup> Advocate General’s Opinion to CJEU in Case C-258/11 Sweetman and others v An Bord Pleanála 22nd Nov 2012

flow direction as well as the cumulative effect of multiple mineral workings or other types of development in a locality may all have a bearing on the relative distance at which an impact can occur. This means that a plan directing development some distance away from an International Site could still have effects on the site and therefore needs to be considered as part of the HRA process.

- 5.7 Therefore, rather than rely on distance alone, another effective mechanism for considering the scope of the HRA is to use a 'source-pathway-receptor' model (see below) which focuses on whether there is a pathway by which impacts from the plan can affect the identified sensitivities/ vulnerabilities of International Sites' environmental conditions.



- 5.8 For instance, if works are proposed at a quarry (a 'source') which is neither proximate to nor linked hydrologically (i.e. upstream) to a SAC (a 'receptor') it could be proposed that certain impacts, such as increased levels of siltation, sedimentation or changes to water flow, are highly unlikely to be caused by the proposed operations.
- 5.9 Similarly if the conservation objectives indicate that a site shows no particular sensitivity to (for example) air pollution issues, then neither source nor pathway would be relevant in determining whether an impact due to modified air quality levels (for example an increase in nitrogen dioxide levels associated with quarry haulage traffic emissions) is likely.
- 5.10 While this approach cannot broadly exclude the potential of a quarry to have a Likely Significant Effect on an International Site, it is a useful tool in narrowing the scope of focus to specific sensitivities of sites and the likelihood of certain operations being able to cause an impact.

## Physical Damage to and Loss of Habitat, Including Effects of Land-Take and Habitat Fragmentation

- 5.11 For direct loss of habitat it is assumed that effects from minerals extraction or other associated development (aggregate processing plants, conveyors, wharves and so forth) would not be significant unless the minerals site extends within the boundary of the International Site. Increased pressure leading to habitat loss and/or habitat degradation might be anticipated through mineral extraction activities in the locality of an International Site.
- 5.12 It is recognised that there are many uncertainties associated with using set distances; there are very few standards available as a guide to how far impacts will travel. Applicable 'trigger threshold' for any 'fragmentation effects' impacting functionally linked habitats would clearly be any proposal which is located within, overlapping or immediately adjacent to any of the scanned International Site boundaries. The precise nature of fragmentation effects would require case-by-case analysis to establish applicable thresholds in order to avoid hypothetical risks becoming conflated with credible risks.
- 5.13 There were no standard distances capable of being used to help define risk of impact arising at a receptor from a variety of effects capable of arising from quarrying activities, such as sedimentation/siltation, habitat severance, erosion and settlement of ground surface. Therefore, the screening analysis considers implications of mineral working within proximity of each of the legally underpinning SSSI units associated with the scanned International Sites. An available spatial tool capable of assisting in this process is the network of Impact Risk Zones (IRZ)<sup>10</sup>.
- 5.14 The Natural England website defines Impact Risk Zones as:

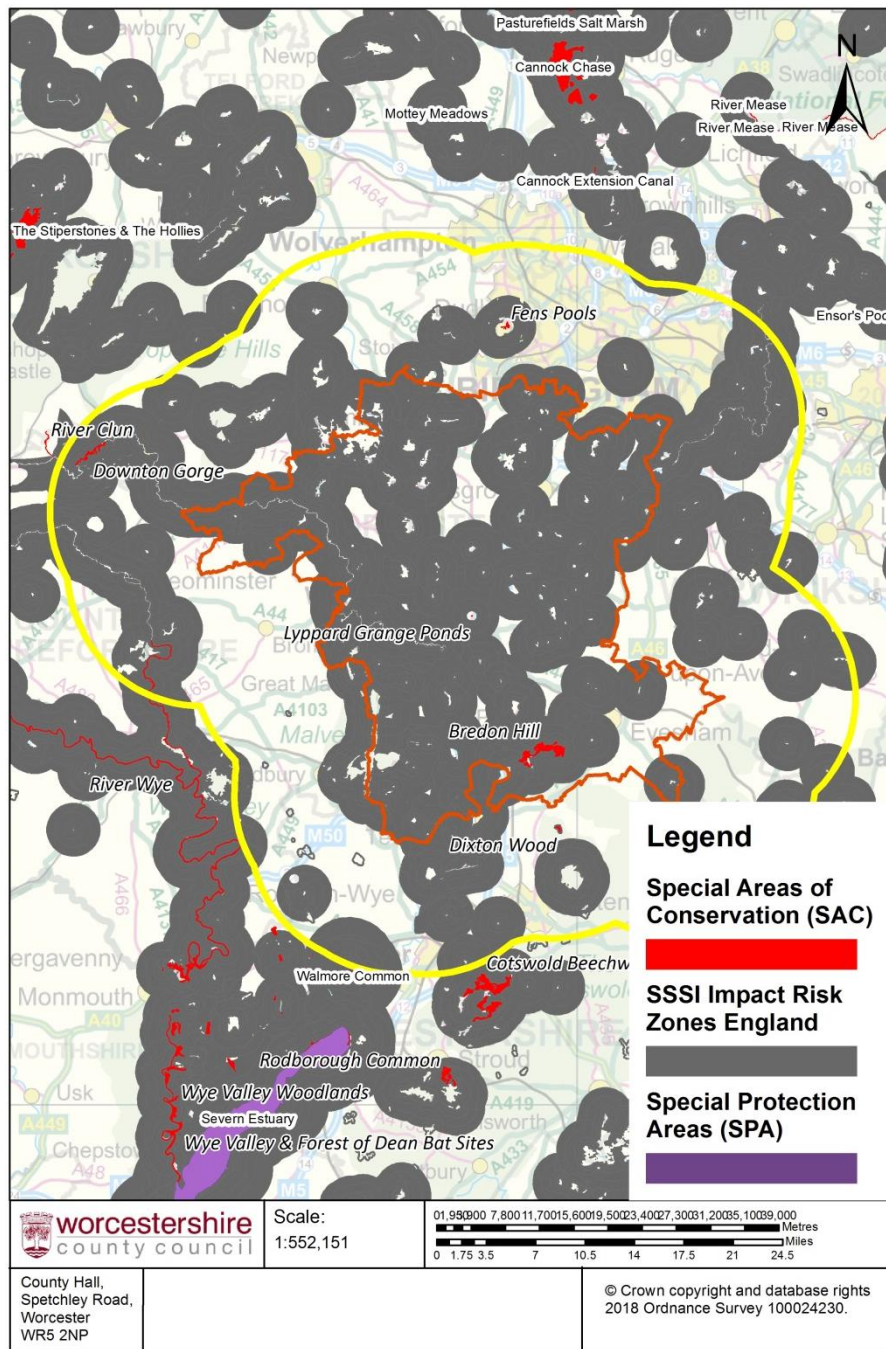
*"a GIS tool developed by Natural England to make a rapid initial assessment of the potential risks posed by development proposals to: Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites. They define zones*

---

<sup>10</sup> As accessed via <https://naturalengland-defra.opendata.arcgis.com/datasets/ssi-impact-risk-zones-england> July 2018.

*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".*

- 5.15 However, the area of land within Worcestershire which is covered by an IRZ with respect to planning applications for new or extension to existing mineral working schemes encompasses more than 85% of the county's physical extent. Therefore, as a predictive tool, the IRZ network appears unsuitable for predicting impacts upon the specific SSSI's units which legally underpin Worcestershire's two International Sites, because it appears impossible to extricate the specific impact risk zones distinct and unique only to impacts likely to affect these SSSIs. This effect, and the coverage of IRZ within Worcestershire is illustrated in Figure 3 below:



**Figure 3: Showing the extent of Worcestershire located within an IRZ for minerals development**

5.16 Therefore, in utilising IRZ as a physical proximity 'trigger' for HRA Screening Assessment, it is important to note that physical location within an IRZ entails neither a Likely nor Significant Effect upon an International Site arising through mineral working. Rather, the IRZ tool identifies the requirement, as signalled by Natural England, to further assess both pathways and credibility of impacts arising from mineral working upon local SSSI units.



## Functional Linkage

- 5.17 Natural England Report NECR207<sup>11</sup> defines functionally linked land as

*“the role or ‘function’ that land or sea beyond the boundary of European site might fulfil in terms of supporting the populations for which the site was designated or classified. Such an area of land or sea is therefore ‘linked’ to the main site in question because it provides a (potentially important) role in maintaining or restoring a protected population at favorable conservation status”.*

- 5.18 The Natural England commissioned report RP02966<sup>12</sup> identifies 97 high tide roosts on the Severn Estuary SSSI/SPA and considered 30 of these to be Primary Roost sites for the SPA as they hold more than 1% of the SPA population of one or more of the interest species under consideration. The report states:

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

- 5.19 Consequently, in their consultation response to the Fourth Consultation draft of the Minerals Local Plan, Natural England advised (refer to Appendix 6) that:

*“Natural England would like to draw your attention to the emerging evidence base in relation to the Severn Estuary SPA.... We are aware that SPA birds can travel across and up the Vale to the Cotswolds Scarp and as far north as Longdon Marsh. Such land is likely to form ‘functionally linked land’ (FLL) and as such influences planning with respect to the Habitats Regulations”.*

- 5.20 The Publication Version MLP is a high-level strategic document. While the plan identifies strategic corridor (each several thousand hectares in size) and provides

---

<sup>11</sup> CHAPMAN, C. & TYLDESLEY, D. 2016. Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects - a review of authoritative decisions. Natural England Commissioned Reports, Number207.

<sup>12</sup> IDENTIFICATION OF WINTERING WATERFOWL HIGH TIDE ROOSTS ON THE SEVERN ESTUARY SSSI/SPA PHASE 4 (GLOUCESTERSHIRE, WITH PART OF SOUTH GLOUCESTERSHIRE), Link Ecology Ltd, 2018.

policy direction for individual applications which will consequently come forwards (at a later date) within these corridors, the Plan does not identify specific locations for minerals development within those corridors. It is not possible on the basis of the precision of the plan to anticipate where within an overall corridor mineral development sites may ultimately come forwards. To assume that proposals will come forward across the entire corridor is unrealistic and excessively precautionary.

- 5.21 With regards application of a screening framework to identify potential impacts on functionally linked land, and consequently evaluate potential for LSE, it is evident that application of appropriate buffers can only be implemented once a specific site with functional linkage to the Severn Estuary SPA has been identified.
- 5.22 Report RP02966 highlights that a Functionally Linked Land map is in preparation by Natural England to identify key foraging/supporting fields around the estuary. It is anticipated that this evidence base will assist with the future Mineral Site Allocations Development Plan Document together with lower-tier plan and project-level HRA's.

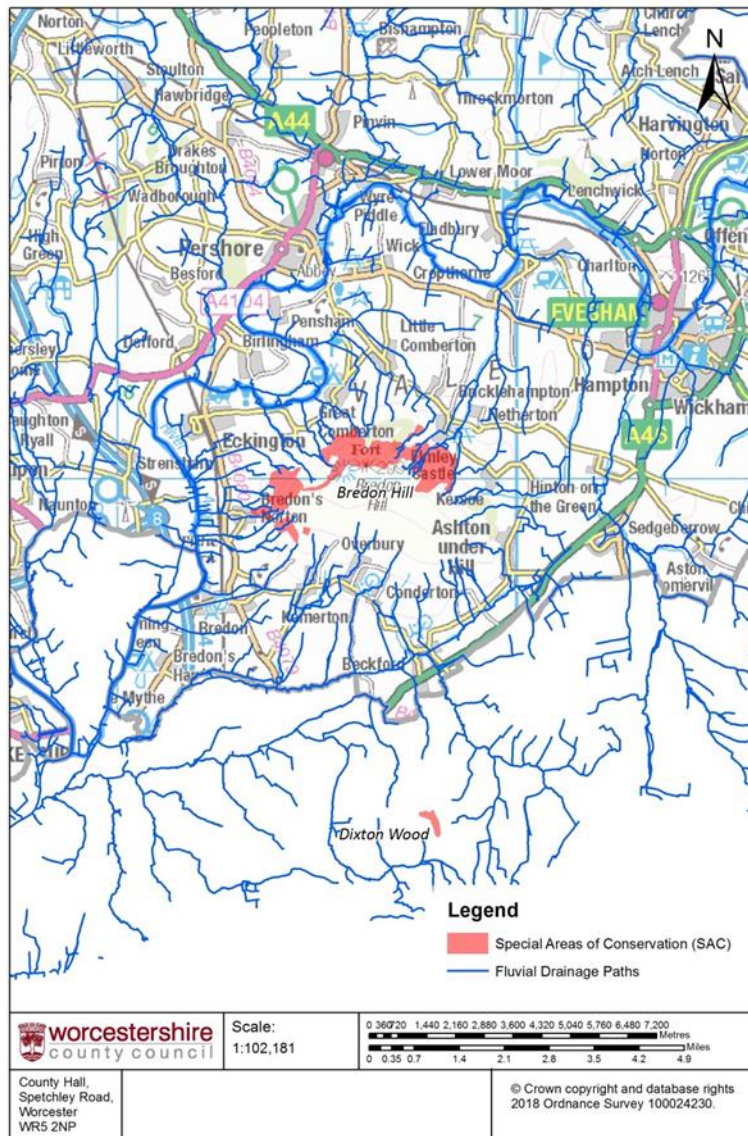
### Hydrological change

- 5.23 Potential impacts on hydrology are also relevant and could impact on sites outside the plan area if there is a hydrological connection.
- 5.24 Likely Significant Effects from sedimentation or changes in sediment dynamics associated with wharf activities were considered to be uncertain at Plan level as the specific numbers of shipping movements and location of dredging activities associated with each wharf site are not known. As a potential project level impact, assessments of potential hydrological impacts from wharf construction and operation will be cascaded to those individual projects where such proposals arise and the obligation to undertake a HRA is, as a matter of course, a legal requirement.
- 5.25 The International Sites identified within Worcestershire are Bredon Hill and Lyppard Grange Ponds. Bredon Hill is an extension of the Cotswold escarpment and consists of Lias clays and silts overlain by iron-rich sandy limestone of the Middle Jurassic Inferior Oolite. The clays form an

impenetrable barrier to water which seeps naturally through the porous limestone above, forming a natural spring-line around the southern flanks of Bredon Hill. It is difficult to see therefore how a downstream minerals proposal could have any impact to the SAC due to hydrological barriers from any surface waters within the downstream catchment. Bredon Hill has therefore been screened out of further assessment with regards to hydrological change.

- 5.26 The conservation objectives of Lyppard Grange on the other hand focus on the favourable conservation status of its population of great crested newts and are therefore inexorably entwined with issues pertaining to water quality and level. Focusing initially on water level alone, the River Severn is a major source of water for the West Midlands region. The Stratford-on-Avon District Consultation Core Strategy HRA (March 2010) states the following:

*"There are currently five major abstraction points. Water levels in the Severn Estuary cSAC/SPA/Ramsar site and Lyppard Grange SAC could be affected if water from the River Severn is over-abtracted, and the River Wye SAC could be affected if water from the River Wye is over-abtracted. There are already significant in-combination impacts on the Severn Estuary sites and the other SACs due to water abstraction, and further impacts are expected in the future. Increased abstraction from the River Severn at Ombersley was proposed in Severn [Trent] Water's draft Water Resources Management Plan but was withdrawn because of its potential to affect the Severn Estuary sites (Trewick Environmental Consultants, 2009)".*



**Figure 4: Shows fluvial pathways draining away from Bredon Hill SAC (and flowing away from Dixon Wood SAC).**

5.27 However, it is noted that abstraction operations are regulated by the Environment Agency and, as an 'expert' competent authority, the Environment Agency would undertake (or lead on) a HRA with regards to implications which abstraction associated with a mineral development might pose upon an International Site. In undertaking a project-level HRA of mineral development applications proposing such abstraction impacts, Worcestershire County Council would, in line with requirements of Regulation 67, consider issue of authorisation which takes into account the reasoning, conclusions or

assessment of another competent authority<sup>13</sup>, ensuring such interlinked work is co-ordinated wherever possible to do so. Where sequential (rather than interlinked) decision making is required, Worcestershire County Council, as a competent authority may consider adopting the reasoning, conclusions or assessment of previous decisions. In doing so it is imperative to ensure that the precautionary principle has been appropriately applied and any decision fully acknowledges that competent authorities remain responsible for ensuring their decisions are consistent with the Habitats Directive.

---

<sup>13</sup> Defra, July 2012, Habitats Directive Guidance on competent authority coordination under the Habitats Regulations.



**Figure 5: Shows fluvial pathways around Worcester City demonstrating that pluvial recharge and ground water are the key elements maintaining sufficient water quantity to support Lyppard Grange SACs conservation objectives.**

- 5.28 For other hydrological changes (e.g. in salinity, thermal regime, nutrient enrichment and turbidity of water etc), it was not possible to use a set distance as these effects will depend on hydrological continuity between a minerals site and an International Site.
- 5.29 As discussed further in 'Spatial Strategy' below, all of the Mineral 'strategic corridors' are hydrologically linked and upstream of the Severn Estuary SAC and RAMSAR via the River Severn. However, the physical distance exceeds 20km between the closest downstream receptor (Severn

Estuary SPA) and the county boundary. This figure will be much greater where continuity is measured via hydrological pathways (rather than direct physical distance), for example for dispersal of pollutants downstream through the catchment.

- 5.30 In a consultation response to the Gloucestershire Minerals Local Plan HRA Assessment, commenting on the Severn Estuary SAC/SPA, Natural England identified that:

*"This site is unlikely to be affected directly by on land mineral extraction but there could be significant indirect effects from changes to water flow patterns into the site"*

- 5.31 Consequently, in the HRA Main report for Gloucestershire's MLP<sup>14</sup>, mineral sites within the River Severn catchment but in excess of 30km distance from the River Severn Estuary SAC/SPA/RAMSAR were deemed to be 'very distant' with 'no pathway' present which could result in 'any conceivable effect' on the conservation objectives of the estuary. It is therefore a logical extension that similar mineral extraction proposals in Worcestershire, greater than 30km from the closest point of the Upper Severn Estuary, should also pose no conceivable effect on the water flow patterns or quality within that site, and therefore no adverse impacts to the Conservation Objectives of the Severn Estuary SAC/SPA/RAMSAR with regards hydrological change are foreseen. In the HRA of the Fourth Stage MLP consultation, and with no objections raised by Natural England, risk of hydrological impact upon this site was screened out of further consideration.

## Non-Physical Disturbance

- 5.32 From a review of former minerals policy statements<sup>15</sup> (in particular MPS2), Environment Agency internal guidance on HRA and various websites (e.g. [www.goodquarry.com](http://www.goodquarry.com)), it was considered that effects of vibration and noise are more likely to be significant if a minerals site is within 500m of an International Site with qualifying features sensitive to non-physical disturbance.
- 5.33 For biological disturbance, the 5km 'buffer' suggested in Environment Agency internal guidance on HRA was applied around International Sites where bird species

---

<sup>14</sup> Habitat Regulations Assessment Main Report for the Gloucestershire Minerals Local plan, March 2018. V.1.4.

<sup>15</sup> Extant government policy and guidance is contained within the National Planning Policy Framework and Planning Practice Guidance. However, the former policy statements and guidance documents contain useful technical information.

have been identified as a Qualifying Feature (SPA/Ramsar). This approach will also assist in gauging biological disturbance when considering restoration to mixed, amenity or recreational uses for minerals sites, where such use will increase pressures such as human disturbance on the conservation objectives of an International Site. Disturbance of fauna where these form part of the designating criteria of an International Site (including wintering waterfowl) where disturbance occurs outside the site boundaries but within Functionally Linked Land is addressed at 5.21.

## Air Pollution

- 5.34 The Air Pollution Information System (APIS<sup>16</sup>) identifies that the most significant pollutant releases arising from mineral activities are production of Nitrogen Oxides ('NOx'), Particulates ('PM') and heavy metals ('HM').
- 5.35 APIS identifies that the significant pollutants arising from road transport are also NOx, PM and HM but other significant pollutants generated are ammonia (NH<sub>3</sub>), volatile organic compounds ('VOCs' and Polycyclic Aromatic Hydrocarbons (PAH).
- 5.36 With regard to the dispersal distance and deposition concentrations of air pollutants which are associated with transport, Natural England's Internal Advice Note NEA001<sup>17</sup> (which in turn refers to evidence collated in the Natural England Commissioned Report NECR199<sup>18</sup>) indicates that the effects of road traffic emissions occur at distances of 'up to' 200m, with potential for this distance to be greater in some circumstances. This 200m dispersal figure is also utilised within Highways Agency guidance on predicting deposition of pollutants from road traffic<sup>19</sup> (as illustrated in Figure 6). NEA001 goes on to state that:

*"If none of the site's sensitive qualifying features known to be present within 200m are considered to be at risk due to their distance from the road, there is no credible risk of a significant effect which might undermine a site's conservation objectives".*

---

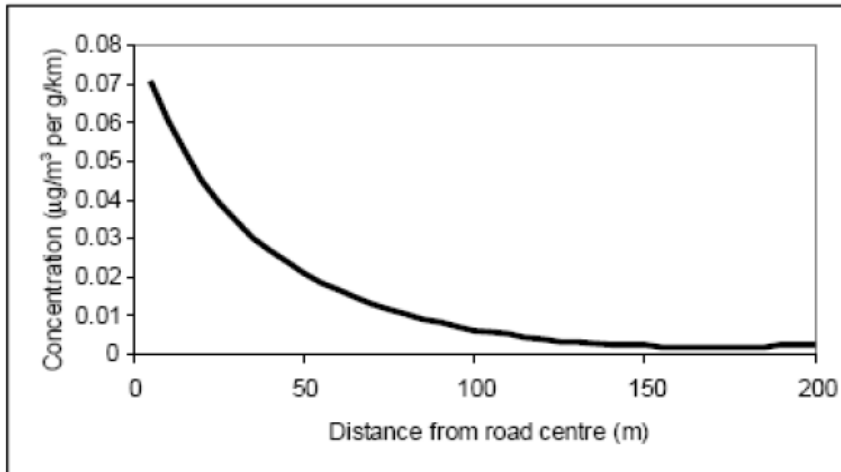
<sup>16</sup> [www.apis.ac.uk/starters-guide-air-pollution-and-pollution-sources](http://www.apis.ac.uk/starters-guide-air-pollution-and-pollution-sources) Accessed August 2018

<sup>17</sup> NE Internal Guidance – Approach to Advising Competent Authorities on Road Traffic Emissions and HRAs V1.4 Final - June 2018

<sup>18</sup> *The ecological effects of air pollution from road transport: an updated review*, Ricardo-AEA, 2016

<sup>19</sup> DMRB, Volume 11 Section 3, Air Quality, February 2003.





**Figure 6: Traffic contribution to concentrations of pollutants at different distances from a road (Figure C1, DMRB.V11.S3<sup>18</sup>)**

### Non-Toxic Contamination

5.37 Mineral extraction could contribute cumulatively to an overall deterioration in background air quality across an entire region. In July 2006, when this issue was raised by Runnymede District Council in the South East, Natural England advised that their Local Development Framework ‘*can only be concerned with locally emitted and short range locally acting pollutants*<sup>20</sup>’ as this is the only scale which falls within a local authority remit. In the light of this it is considered reasonable to conclude that diffuse pan-authority air quality impacts are the responsibility of national government, both since they relate to the overall quantum of development within a region or England as a whole (over which individual authorities have little control), and since this issue is best addressed at the highest pan-authority level. Diffuse air quality issues will not therefore be considered further within this HRA.

5.38 Atmospheric pollutants generated by minerals sites generally resolve themselves into dust and traffic exhaust emissions. Vehicle exhaust emissions have already been discussed (paragraph 5.30). Effects of dust on European wildlife sites and vegetation will depend on the prevailing wind direction and the transport distance is related to particle size; large particles (>30µm) will mostly deposit within 100m of the source, intermediate particles (10-30µm) are likely to travel up to 200 - 500m. Smaller

<sup>20</sup> Natural England (16 May 2006) letter to Runnymede Borough Council, ‘Conservation (Natural Habitats &c.) Regulations 1994, Runnymede Borough Council Local Development Framework’.

particles (<10µm) can travel up to 1km from the source<sup>21</sup>. With regard to the interest features of International Sites, it is likely to be the large and intermediate size particles (i.e. those typically deposited up to 500m from source) which are of most interest since if present in sufficient quantities they can smother vegetation, preventing light penetration to the chloroplasts and blocking stomata thus interrupting photosynthesis and transpiration. In prolonged cases, death can result.

- 5.39 The Institute of Air Quality Management Guidance on the Assessment of Mineral Dust Impacts for Planning<sup>22</sup> states that:

*"From the experience of the Working Group, adverse dust impacts from sand and gravel sites are uncommon beyond 250 m and beyond 400 m from hard rock quarries measured from the nearest dust generating activities.*

*In the absence of other information it is commonly accepted that the greatest impacts will be within 100 m of a source and this can include both large (>30 µm) and small dust particles. The greatest potential for high rates of dust deposition and elevated PM10 concentrations occurs within this distance. Intermediate-sized particles (10 to 30 µm) may travel up to 400 m, with occasional elevated levels of dust deposition and PM10 possible. Particles less than 10µm have the potential to persist beyond 400 m but with minimal significance due to dispersion".*

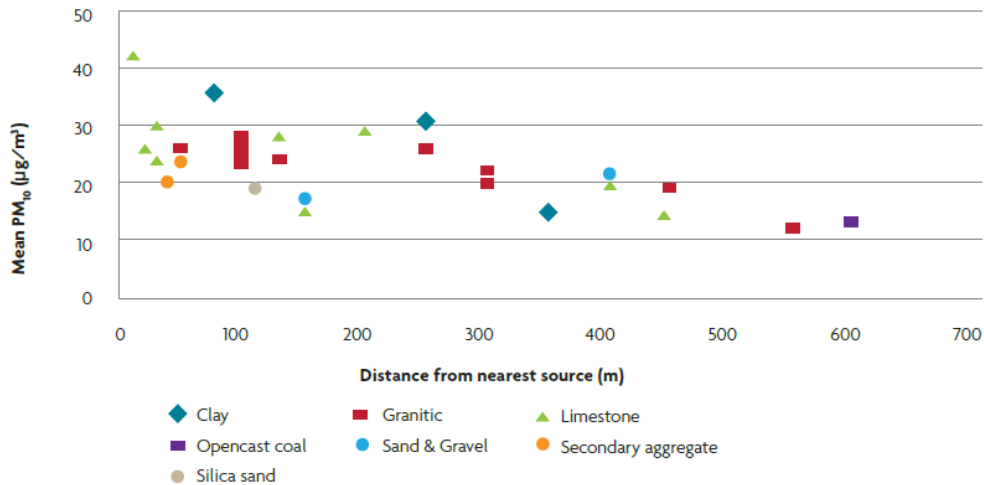
- 5.40 In relation to potential impact on International and other statutory designated sites, the level of dust deposition likely to lead to a change in vegetation is considered very high (over 1g/m<sup>2</sup>/day<sup>23</sup>) and current guidance indicates that the likelihood of a significant effect is therefore "very low except on the sites with the highest dust release close to sensitive habitats"<sup>20</sup>.

---

<sup>21</sup> Scottish Environment Protection Agency. 2003. Technical Guidance Note - Habitats Regulations & The Landfill Regulations Guidance: [http://www.sepa.org.uk/pdf/guidance/landfill\\_directive/habitats\\_landfill\\_regulations\\_guidance.pdf](http://www.sepa.org.uk/pdf/guidance/landfill_directive/habitats_landfill_regulations_guidance.pdf)

<sup>22</sup> Guidance on the Assessment of Mineral Dust Impacts for Planning, Institute of Air Quality Management, May 2016 (v1.1)

<sup>23</sup> Farmer, A M, (1993) The effects of dust on vegetation – a review. Environmental Pollution 79, 63-75 (cited in Guidance on the Assessment of Mineral Dust Impacts for Planning, IAQM, 2016)



**Figure 7: Concentrations of pollutants arising from different types of mineral extraction activity at dispersal distances (source IAQM, 2016)**

5.41 With due consideration of dust impacts on International Sites a proximity buffer of 400m has therefore been selected.

**Table 5: Summary of screening distances used for each source of impact**

| Mineral Working Impact Category   | Method of Assessing Interaction with Scanned Site   | Rationale   |
|---|---|---|
| <b>Physical Modification:<br/>Land Take, Habitat Loss, Fragmentation, Soil Pollution, Functionally Linked Land.</b> | Analysis of proximity using GIS boundaries and use of pathway model                                     | Proposals which abut, overlap or are located on land identified as functionally linked to an International Site |
| <b>Disturbance</b>  | 500m for non-physical disturbance   | Good practice guidance  |
|   | 5km where bird species are a site's qualifying feature (i.e. Severn Estuary SPA and Walmore Common SPA) | EA Guidance   |
| <b>Hydrological modification including water pollution</b>  | No set distance appropriate. Use pathway model.   |   |

| <b>Mineral Working Impact Category</b>       | <b>Method of Assessing Interaction with Scanned Site</b> | <b>Rationale</b>   |
|--|--|--------------------|
| <b>Air pollution</b>                         | 200m   | HA Guidance NEA001 |
| <b>Dust and other non-toxic contaminants</b> | 400m   | IAQM Guidance      |

## 6. Assessing the Minerals Local Plan Publication Version Document

- 6.1 The screening of the Worcestershire Minerals Local Plan has been undertaken following guidance and specific 'screening categories' provided in the HRA Handbook<sup>24</sup>, as listed in Table 6 below. Justification is provided as to why these have been screened in or out of any further assessment (refer to Table 7).

**Table 6: Screening Categories (after HRA Handbook, 2019)**

| Category | Justification   | Screened In or Screened Out                                 |
|----------|---|---|
|          | Administrative Text – introductory text about the plan  | Screened out  |
|          | The plan makers' 'vision' or 'general aspiration'   |   |
|          | The plan's aims, goals and objectives   |   |
| <b>A</b> | General Statement of policy / general aspiration  | Screened out  |
| <b>B</b> | Policy listing general criteria for testing the acceptability / sustainability of proposals   | Screened out  |
| <b>C</b> | Proposal referred to but not proposed by the plan   | Screened out  |
| <b>D</b> | General plan-wide environmental protection / site safeguarding / threshold policies   | Screened out  |
| <b>E</b> | Policies or proposals which steer change in such a way as to protect International Sites from adverse effects   | Screened out  |
| <b>F</b> | Policy that cannot lead to development or other change  | Screened out  |
| <b>G</b> | Policy or proposal that could not have any conceivable effect on an International Site  | Screened out  |
| <b>H</b> | Policy or proposal the (actual or theoretical) effects of which cannot undermine the conservation objectives (either alone or in combination with other aspects of this or other plans or projects) | Screened out  |
| <b>I</b> | Policy or proposal which may have a significant effect on a site alone  | Screened in   |
| <b>J</b> | Policy or proposal unlikely to have a significant effect alone  | To be re-classified as K or L following in-combination test |
| <b>K</b> | Policy or proposal UNLIKELY to have a significant effect either alone or in   | Screened out after in-combination test                      |

<sup>24</sup> [www.dtapublications.co.uk/handbooks](http://www.dtapublications.co.uk/handbooks) electronically accessed May 2019

| <b>Category</b> | <b>Justification</b>   | <b>Screened In or Screened Out</b>               |
|-----------------|--|--|
|                 | combination  |  |
| <b>L</b>        | Policy or proposal WHICH MIGHT BE LIKELY to have significant effect in combination after then in combination test        | Screened in after in-combination test            |
| <b>M</b>        | Bespoke area, site or case specific policies or proposals intended to avoid or reduce harmful effects on a European site | Screened in as part of an Appropriate Assessment |

**Table 7: Screening Assessment of Chapters and Policies constituting the Publication Version MLP**

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale   | Screening<br>Category | Screening conclusion   |
|---|--|-----------------------|--|
| <b>Chapter One</b><br>"Introduction"                                  | Administrative text<br>Establishing document purpose, preparation processes and links to other plans and policies  | -                     | Screened out   |
| <b>Chapter Two</b><br>"Portrait of<br>Worcestershire"                 | General description of County including its geology, its strategic infrastructure including transport, economic condition and environmental assets   | -                     | Screened out   |
| <b>Chapter Three</b><br>"Vision and objectives"                       | General statements of overall objectives   | -                     | Screened out   |
| <b>Chapter Four</b><br>"Spatial Strategy and associated policies"     | This chapter establishes a framework which articulates strategic development within the county: Areas of Search within "strategic corridors" provide policy direction for individual applications arising from the mineral resource areas within each corridor. Each Strategic Corridor's Green Infrastructure priorities establish a framework through which future mineral applications will be evaluated. |                       | Each part of the Spatial Strategy is considered in further detail, below. Refer also to MLP31 with regards the processes which have driven the spatial strategy and policy which safeguards mineral resources (both within and outside strategic corridors). |
| Key Diagram   | The MLP states that:<br><br><i>4.1"Mineral development in Worcestershire should be located in the five strategic corridors identified in Figure 4.1 (Key Diagram). The</i>   | A                     | Screened out<br><br><b>Rationale</b>   |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale   | Screening<br>Category | Screening conclusion   |
|---|--|-----------------------|--|
|   | <p><i>strategic corridors are the areas in the county where there is the greatest concentration of locally and nationally important mineral resources. They are well located to serve planned housing and infrastructure development and within each of the strategic corridors there are common characteristics and issues which will benefit from a cohesive approach to the working and restoration of multiple mineral sites".</i></p> <p>No Strategic Corridor overlays either in whole or part any International Site. This approach remains unchanged from the 2016 Habitats Regulations Assessment. However, in narrowing the scope for direct and indirect impacts arising from the MLP upon an International Site, a key variable will be the geographical proximity and potential impact pathways between these proposed 'strategic corridors' and any of the scanned International Sites, alongside the policies and protocols in place for determining minerals proposals arising outside such strategic corridors. Each part of the Spatial Strategy is considered in further detail, below.</p> |                       | <ul style="list-style-type: none"> <li>• General Statement of policy / general aspiration</li> </ul> |
| POLICY MLP1<br>Strategic location of<br>Development                   | The principle of mineral development within the strategic corridors is secured in MLP Policy 1 "Strategic location of development" and subsequent policies relating to the individual strategic corridors will be  | B                     | Screened out<br><b>Rationale:</b>  |



| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale  | Screening<br>Category | Screening conclusion  |
|---|---|-----------------------|---|
| POLICY MLP2<br>Borrow Pits  | <p>considered in turn and in more detail below. However, MLP1 (and MLP2) also provides direction on proposals for mineral developments which arise outside of a Strategic Corridor, and may therefore emerge in greater proximity to (or potentially within the boundaries of) an International Site.</p> <p>Policy MLP1.b allows for mineral development outside a strategic corridor where it is within the boundary of site with extant planning permission for mineral development, is a borrow pit (as per MLP 2), or would prevent a mineral resource being sterilised (as per MLP 31).</p> <p>Policy MLP1.c states that:</p> <p><i>"Planning permission will be granted for mineral development outside a Strategic Corridor where it is demonstrated that the mineral resource has qualities which mean sustainable supply of the mineral cannot be delivered from within the strategic corridors. For sand and gravel, silica sand and brick clay resources, this will be wholly exceptional".</i></p> | B                     | <ul style="list-style-type: none"> <li>Policy MLP1 lists general criteria for testing the acceptability of proposals. The policy is possibly a driver of potential effects upon the Bredon Hills SAC but, in line with section F.6.2.3 of the HRA Handbook (May 2019), policy MLP1 can be screened-out subject to implications arising from the Strategic Corridors being assessed under Policies MLP4-MLP8.</li> </ul> |
|   | As per Policy MLP1, there are no specific proposals for borrow pits (within or outside of strategic corridors) which are capable of being   | B                     | Screened out  |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale   | Screening<br>Category | Screening conclusion   |
|---|--|-----------------------|--|
|   | <p>assessed. The effects of this overarching policy will therefore be better assessed through the screening of Policies MLP4 - 8 (strategic corridors). In its own right, Policy MLP2 will have no likely significant effect. Policy MLP21 will ensure that any risks from development outside the strategic corridors are identified and addressed at project level. Policy MLP21 can therefore be relied upon to ensure that proposals coming forward under MLP2 will not undermine the Conservation Objectives' of any International Sites.</p> |                       | <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• A policy listing the general criteria for testing the acceptability / sustainability of proposals</li> <li>• As there are no specific proposals outside of strategic corridors which are capable of being assessed, Policy MLP21 will ensure that any risks from development outside the strategic corridors are identified and addressed at project level. Policy MLP21 can therefore be relied upon to ensure that proposals coming forward under MLP1.b or MLP1.c will not undermine the Conservation Objectives of any International Sites.</li> </ul> |
| POLICY MLP3<br>Green<br>Infrastructure                                | <p>Requires applications to undertake sufficient technical assessment so as to demonstrate that development(s) will, amongst other Green Infrastructure objectives, conserve and enhance ecological assets and networks and deliver net gains for biodiversity.</p>  | A                     | <p>Screened out</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• General Statement of policy / general aspiration</li> </ul>  |
| POLICY MLP4<br>Avon and Carrant<br>Brook Strategic<br>Corridor        | <p>A spatial strategy establishing mineral development within a Strategic Corridor.</p> <p>The closest Strategic Corridor to Bredon Hill SAC is the Avon and</p>   | H                     | <p>Screened out</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• A policy or proposal the (actual or theoretical)</li> </ul>  |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale  | Screening<br>Category | Screening conclusion  |
|---|---|-----------------------|---|
|   | <p>Carrant Brook (MLP4) which is located approximately 0.54km at its closest point to the SAC. This corridor 'skirts' the administrative boundaries of the Cotswolds Area of Outstanding Natural Beauty and no part of the Avon and Carrant Brook Strategic Corridor is located within 500m of Bredon Hill SAC (illustrated in Figure 26). As described in Figure 4, the Strategic Corridor is located entirely downstream of the SAC.</p> <p>While the Avon and Carrant Brook Strategic Corridor is located within the Impact Risk Zone for the underpinning SSSI units of Bredon Hill SAC, the MLP does not specify hard rock will be won from Bredon Hill and avoids directing mineral working from within or land abutting the SAC boundaries. No mineral working is anticipated within 200m of the SAC (nor within 500m) and therefore no road haulage associated with mineral development is foreseen (which might pose a direct or cumulative air pollution effect); thus no credible pathway for adverse impact is predicted.</p> <p>Bredon Hill SAC is hydrologically upstream of all strategic corridors and therefore there are no predicted pathways through which hydrological modification of the SAC would be anticipated.</p> |                       | <p>effects of which cannot undermine the conservation objectives (either alone or in combination with other aspects of this or other plans or projects)</p> <ul style="list-style-type: none"> <li>• MLP4 sets out a spatial strategy for mineral extraction in the locality, but not within 500m of any International Site.</li> <li>• Chapter 5 has established the screening framework and rationale regarding screening distances for potential mechanisms of impact.</li> <li>• Any development coming forward within the strategic corridor will not present a credible risk to Bredon Hill SAC. Additionally, it is recognised that development within 500m of Bredon Hill SAC is unlikely to have a significant effect (Chapter 5) and is likely to be deliverable with sufficient mitigation measures being secured through Policy MLP21 at project stage. The effects predicted through implementation of MLP4 are therefore deemed unlikely to undermine the Conservation</li> </ul> |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale  | Screening<br>Category | Screening conclusion  |
|---|---|-----------------------|---|
|   | <p>While not identified as a key sensitivity of the site's qualifying feature, increased anthropogenic disturbance may potentially impact decaying wood resources and consequently the number of opportunities for violet click beetle. However, no mineral working is anticipated within 500m of the SAC and no credible pathway for adverse impacts is therefore predicted. While it is recognised some invasive species are highly mobile, the introduction of new species or modification of habitat management practice/requirement is considered to be an unlikely implication arising from the MLP as no mineral working is proposed within 500m of the site.</p> <p>Dixton Wood SAC is located approximately 2.5km outside the county boundary there are no schemes which could be regulated through the Worcestershire Minerals Local Plan which would have an adverse impact upon the SAC. There are no likely pathways identified which could influence the site's existing management regimes. While hydrological modifications are not identified as a key site sensitivity, the SAC appears not to be hydrologically linked to Worcestershire other than via local watercourses downstream of the SAC which form part of the Severn's catchment. Therefore there is no credible pathway for adverse hydrological impact predicted. While air pollution has been identified as a key site sensitivity, there are no mineral workings</p> |                       | <p>Objectives of any International Site.</p> <ul style="list-style-type: none"> <li>• Together with the direction under MLP21.c. and Paragraph 6.73, it is considered that appropriate diligence to prevent downstream impacts to hydrologically linked International Sites can be demonstrated.</li> </ul> |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale   | Screening<br>Category | Screening conclusion |
|---|--|-----------------------|----------------------|
|   | <p>anticipated within 200m of the SAC (with regards likely winnable mineral resources, the nearest Key or Significant mineral resource is &gt;0.5km from site boundaries) and therefore no mineral development associated road haulage is foreseen and no credible pathway for adverse impacts is predicted.</p> <p>No proposals, detailed or otherwise are described within Policy MLP4 for the extraction or movement of materials within the River Severn itself.</p> <p>The Avon and Carrant Brook Strategic Corridor is more than 30km upstream of the otherwise hydrologically linked Severn Estuary SAC/SPA/RAMSAR. As per paragraph 5.25, given the physical distance there is no credible risk of adverse impacts upon this International Site predicted. No pathways through which impacts might arise upon Walmore Common SPA, the River Clun SAC, Downton Gorge SAC or Fens Pools SAC are foreseen.</p> <p>Additionally, while there are no specific proposals within the strategic corridors which are currently capable of being assessed, Policy MLP21 will ensure that any risks from development are identified and addressed at project level. Policy MLP21 can therefore be relied upon</p> |                       |                      |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale  | Screening<br>Category | Screening conclusion  |
|---|---|-----------------------|---|
|   | <p>to ensure that proposals coming forward under MLP4 will not undermine the Conservation Objectives' of any International Sites.</p> <p>In addition, any site-specific proposals considered in the development of the proposed Mineral Site Allocations Development Plan Document will legally require Habitats Regulation Assessment to assess any effect on an International Site.</p>   |                       |   |
| POLICY MLP5<br>Lower Severn<br>Strategic Corridor                     | <p>A spatial strategy establishing mineral development within a Strategic Corridor.</p> <p>The Lower Severn Strategic Corridor is more than 30km upstream of the otherwise hydrologically linked Severn Estuary SAC/SPA/RAMSAR. Pathways through which impacts might arise upon Walmore Common SPA, the River Clun SAC, Downton Gorge SAC, Dixton Wood SAC, Fens Pools SAC and Bredon Hill SAC cannot be foreseen.</p> <p>The closest International site, Lyppard Grange SAC, is located 4.97km at its closest point to the Lower Severn Strategic Corridor. No workings within or in proximity to the SAC boundaries are proposed. No likely</p> | H                     | <p>Screened out</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• A policy or proposal the (actual or theoretical) effects of which cannot undermine the conservation objectives (either alone or in combination with other aspects of this or other plans or projects)</li> <li>• MLP5 sets out a spatial strategy establishing mineral extraction within a strategic corridor. Chapter 5 has established the screening framework and rationale regarding screening</li> </ul> |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale   | Screening<br>Category | Screening conclusion  |
|---|--|-----------------------|---|
|   | <p>pathway has been identified which would influence the current management requirements and there is no conceivable pathway identified through which habitat fragmentation, soil pollution or compaction effects could occur. It has previously been discussed that over-abstraction is the key hydrological site sensitivity, however decreases in water quality would also adversely affect the great crested newt population. The site is highly urbanised in locale and there are no hydrological pathways through which impact might occur; this site recharges through rainfall and as such will not be downstream of any mineral working. It is recognised that increased anthropogenic disturbance (e.g. increased visitor pressure on the improved suite of local Green Infrastructure assets following restoration of a mineral site) would increase risk of spread of invasive species and diseases, which are sensitivities for the qualifying features of this site. Lyppard Grange SAC is separated from the Strategic Corridor's boundaries by residential development and highway associated with the City of Worcester. Due to the both terrestrial and hydrological remoteness of the Strategic Corridor to the scanned International Sites, no significant effect upon any site's Conservation Objectives is foreseen.</p> <p>While the Lower Severn Strategic Corridor is located within the Impact Risk Zone for the underpinning SSSI units of Bredon Hill SAC, the MLP</p> |                       | <p>distances for potential mechanisms of impact. The Lower Severn Strategic Corridor is located 4.7km from the nearest International Site (Bredon Hill SAC) so that no effects which could undermine the Conservation Objectives are foreseen.</p> <ul style="list-style-type: none"> <li>• The Strategic Corridor is hydrologically linked with the Severn Estuary SAC/SPA/RAMSAR however the distance between source and receptor is more than 30km so that a significant effect upon the International Site is not predicted to be likely.</li> <li>• Furthermore, direction provided under MLP21.c. and Paragraph 6.73 will ensure appropriate diligence to prevent any downstream impacts to hydrologically linked International Sites.</li> </ul> |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale   | Screening<br>Category | Screening conclusion   |
|---|--|-----------------------|--|
| POLICY MLP6<br>North East<br>Worcestershire<br>Strategic Corridor     | <p>does not specify hard rock will be won from Bredon Hill and avoids directing mineral working from within or land abutting the SAC boundaries. No mineral working is anticipated within 200m of the SAC (nor within 500m) and therefore no road haulage associated with mineral development is foreseen (which might pose a direct or cumulative air pollution effect); thus no credible pathway for adverse impact is predicted.</p> <p>The River Wye SAC joins the River Severn beyond the borders of the county, the SAC being located outside the catchment of Worcestershire's watercourses. Although this is the closest strategic minerals corridor to the SAC, there is no hydrological pathway identified between this site and any mineral development which might emerge through the Minerals Local Plan. Impacts such as increased siltation, turbidity, abstraction or sedimentation or point source pollution upon this site potentially arising from mineral development within Worcestershire are not anticipated.</p> |                       |  |
|   | <p>A spatial strategy establishing mineral development within a Strategic Corridor.</p> <p>While forming part of the River Severn's catchment, at its closest point this Strategic Corridor is more than 60km from the hydrologically linked</p>   | G                     | <p>Screened out</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• A spatial strategy establishing mineral</li> </ul> |



| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale   | Screening<br>Category | Screening conclusion  |
|---|--|-----------------------|---|
| POLICY MLP7<br>North West<br>Worcestershire<br>Strategic Corridor     | <p>Severn Estuary SAC/SPA/RAMSAR; a significant effect upon the International Site is not predicted to be likely.</p> <p>At its closest geographical point to the most proximate International Site, the North East Worcestershire Strategic Corridor is located downstream and approximately 9.5km due South of Fens Pools SAC. The Corridor is separated from the SAC by a densely urbanised environment and there are no foreseeable pathways through which mineral extraction within the Corridor could undermine the Conservation Objectives of this or any other International Site.</p> |                       | development in an area which is not perceived to have any conceivable effect on a site  |
|   | <p>A spatial strategy establishing mineral development within a Strategic Corridor.</p> <p>While forming part of the River Severn's catchment, at its closest point this Strategic Corridor is more than 60km from the hydrologically linked Severn Estuary SAC/SPA/RAMSAR; a significant effect upon the International Site is not predicted to be likely.</p> <p>At its closest geographical point to the most proximate International Site, the North West Worcestershire Strategic Corridor is located downstream and approximately 9km due South of Fens Pools SAC.</p>                   | G                     | <p>Screened out</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• A spatial strategy establishing mineral development in an area which is not perceived to have any conceivable effect on a site</li> </ul> |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019)  | Assessment and rationale  | Screening<br>Category | Screening conclusion   |
|--|---|-----------------------|--|
|  | <p>No workings within or in proximity to the SAC boundaries are proposed. Furthermore, no pathway to impact from development pressure, non-native introduction, modification of management regime or tree/scrub encroachment is anticipated due to the distance between this site and Worcestershire's borders. Both Fens Pool SAC and The River Clun SAC are located upstream of Worcestershire and therefore no credible hydrological pathway for an adverse impact is predicted. Although not identified as a key site sensitivity for Fen Pools SAC, air pollution could have an adverse effect on habitats supporting the qualifying feature. Nevertheless no mineral working is anticipated within 200m of the SAC and no credible pathway for adverse impacts is therefore predicted.</p> <p>As the Corridor is separated from the SAC by an urbanised environment and there are no foreseeable pathways through which mineral extraction within the Corridor could undermine the Conservation Objectives of this or any other International Site.</p> |                       |  |
| <p>POLICY MLP8<br/>Salwarpe<br/>Tributaries<br/>Strategic Corridor</p> | <p>A spatial strategy establishing mineral development within a Strategic Corridor.</p> <p>While forming part of the River Severn's catchment, at its closest point this Strategic Corridor is more than 50km from the hydrologically linked Severn Estuary SAC/SPA/RAMSAR; a significant effect upon the</p>   | G                     | <p>Screened out</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• A spatial strategy establishing mineral development in an area which is not perceived</li> </ul> |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019)   | Assessment and rationale   | Screening<br>Category | Screening conclusion   |
|---|--|-----------------------|--|
|   | <p>International Site is not predicted to be likely.</p> <p>At its closest geographical point to the most proximate International Site, the Salwarpe Tributaries Strategic Corridor is located approximately 5.5km due North of Lyppard Grange SAC. The Corridor is separated from the SAC by a densely urbanised environment and appears un-linked hydrologically; as has been articulated above for Policy MLP5, there are no foreseeable pathways through which mineral extraction within the Corridor could undermine the Conservation Objectives of this or any other International Site.</p>   |                       | to have any conceivable effect on a site   |
| <p><b>Chapter Five</b><br/>"Steady and Adequate Supply"</p> <p>POLICY MLP9<br/>Contribution of substitute,<br/>Secondary and recycled Materials<br/>and Mineral Waste to Overall Minerals</p> | <p>This chapter defines the criteria which demonstrate the 'need' and economic demand for mineral products. The likely temporal and spatial landbanks are defined which the County determine as likely to be required in order to meet this demand. Policies are established which instruct how applications relating to specific mineral resources must demonstrate compliance with the need and marketability of mineral products. The Chapter therefore establishes general criteria for testing the acceptability / sustainability of proposals.</p> <p>No specific proposals are brought forward through Policies MLP9 to MLP16 and therefore any minerals developments supported by these policies are more appropriately assessed through Policies MLP1 and</p> | B                     | <p>Screened out</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• Policy listing general criteria for testing the acceptability / sustainability of proposals</li> </ul> |

| <b>Element of the plan</b><br>(MLP Publication Version<br>assessed May 2019)  | <b>Assessment and rationale</b> | <b>Screening<br/>Category</b> | <b>Screening conclusion</b> |
|---|---------------------------------|-------------------------------|-----------------------------|
| Supply<br><br>POLICY MLP10<br>Steady and<br>Adequate Supply of<br>Sand and Gravel<br><br>POLICY MLP11<br>Steady Supply of<br>Crushed Rock<br><br>POLICY MLP12<br>Supply of Brick Clay<br>and Clay Products<br><br>POLICY MLP13<br>Steady and<br>Adequate Supply of<br>Silica Sand<br><br>POLICY MLP14<br>Adequate and | MLP4 to MLP8                    |                               |                             |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019)  | Assessment and rationale  | Screening<br>Category | Screening conclusion  |
|--|---|-----------------------|---|
| <p>Diverse Supply of Building Stone</p> <p>POLICY MLP15<br/>Supply of Other Locally and Nationally Important Industrial Minerals</p> <p>POLICY MLP16<br/>Supply of Energy Minerals</p> |   |                       |   |
| <p><b>Chapter Six</b><br/>Development Management policies</p> <p><i>Introduction:<br/>development proposals;<br/>planning conditions;</i></p>  | <p>The early sections of this Chapter establish the terms and framework of use of the proceeding Development Management policies. As such they list the general mechanisms for testing the acceptability / sustainability of proposals, planning conditions, community engagement and Review of Minerals Permissions (ROMPs).</p> | B                     | <p>Screened out</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• Text which establishes the general criteria used for testing the acceptability / sustainability of proposals</li> </ul> |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019)   | Assessment and rationale   | Screening<br>Category | Screening conclusion   |
|---|--|-----------------------|--|
| <i>review of mineral permissions;<br/>pre-application consultation.</i> |  |                       |  |
| POLICY MLP17<br>Prudent use of Resources                                | This policy requires schemes to demonstrate, through provision of a technical assessment, that prudent use of resources will be realised. This includes, as set out at MLP17.c.vii: " <i>the need to manage or mitigate impacts on the built, historic, natural and water environment and amenity</i> ". | B                     | Screened out<br><br><b>Rationale:</b><br><ul style="list-style-type: none"><li>• Policy listing general criteria for testing the acceptability / sustainability of proposals</li></ul> |
| POLICY MLP18<br>Green Belt  | The policy sets out technical requirements for mineral developments arising within the green belt. None of the Scanned International sites within the county occur within land designated as green belt and therefore no interaction between this policy and an International site is anticipated.       | B                     | Screened out<br><br><b>Rationale:</b><br><ul style="list-style-type: none"><li>• Policy listing general criteria for testing the acceptability / sustainability of proposals</li></ul> |
| POLICY MLP19<br>Amenity   | This policy establishes requirements to control air quality, noise, dust, vibration, light, land instability and contamination.  | B                     | Screened out<br><br><b>Rationale:</b><br><ul style="list-style-type: none"><li>• Environmental protection / site safeguard</li></ul>   |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale  | Screening<br>Category | Screening conclusion   |
|---|---|-----------------------|--|
| POLICY MLP20<br>Access and<br>Recreation                              | This policy requires schemes to be supported by adequate technical assessments demonstrating the protection and enhancement of rights of way and public access provision.   | B                     | policy<br>Screened out<br><b>Rationale:</b><br><ul style="list-style-type: none"><li>• Policy listing general criteria for testing the acceptability / sustainability of proposals</li></ul> |
| POLICY MLP21<br>Biodiversity  | This policy establishes the requirement for schemes to protect, conserve and enhance biodiversity. By its nature MLP21 cannot pose an adverse impact upon an International Site.<br><br>MLP21 requires that:<br><br><i>"A level of technical assessment appropriate to the proposed development and its potential impacts on biodiversity will be required to demonstrate that, throughout its lifetime, the proposed development will:</i><br><br>...<br><i>c) not adversely affect the integrity of a European site, or clearly demonstrate that there are no alternative solutions and there are imperative reasons of overriding public interest which justify the likely effects (where adverse effects are justified, appropriate</i> | D                     | Screened out<br><b>Rationale:</b><br><ul style="list-style-type: none"><li>• Environmental protection / site safeguard policy</li></ul>  |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale   | Screening<br>Category | Screening conclusion |
|---|--|-----------------------|----------------------|
|   | <p><i>compensatory measures will be required to ensure that the overall coherence of Natura 2000 is protected)"</i></p> <p>The Reasoned Justification supporting MLP21 goes on to state that:</p> <p>6.73 <i>In the case of a European designation, if it cannot be concluded that the development will not be likely to have a significant effect on the interest features of the site, either alone or in combination with other plans or projects, then an 'Appropriate Assessment' under the Habitat Regulations will be required. The applicant should provide sufficient information to enable the competent authority to undertake an Appropriate Assessment which will determine whether the development will have an adverse effect on the integrity of the site or the Natura 2000 network. The presumption in favour of sustainable development does not apply where development is likely to have a significant effect on a European site, unless an Appropriate Assessment has concluded that it will not adversely affect the integrity of the site. If an Appropriate Assessment concludes that the proposal would have a significant effect on a European site, then the proposal could only be agreed to where it is demonstrated that there are no</i></p> |                       |                      |



| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale  | Screening<br>Category | Screening conclusion  |
|---|---|-----------------------|---|
|   | <p><i>alternative solutions and there are imperative reasons of overriding public interest. Where such development is agreed to, all compensatory measures necessary must be taken to ensure that the overall coherence of Natura 2000 is protected. Applicants will be expected to provide sufficient detail of the necessary compensation measures and how they will be delivered.</i></p>  |                       |   |
| POLICY MLP22<br>Historic<br>Environment                               | <p>Policy MLP22 establishes the requirement for schemes to protect, conserve and enhance the historic environment. No interaction with an International Site is predicted from implementation of this Policy.</p>   | D                     | <p>Screened out</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• Environmental protection / site safeguard policy</li> </ul> |
| POLICY MLP23<br>Landscape   | <p>Policy MLP23 establishes the requirement for a technical assessment to demonstrate schemes will protect, conserve and enhance the character and distinctiveness of the landscape.</p> <p>Of particular relevance is the treatment of applications arising within Areas of Outstanding Natural Beauty (Bredon Hills SAC is located wholly within the Cotswolds AONB). MLP23 states that:</p> <p><i>i. "Great weight will be given to conserving the landscape and scenic beauty of Areas of Outstanding Natural</i></p> | D                     | <p>Screened out</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• Environmental protection / site safeguard policy</li> </ul> |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale   | Screening<br>Category | Screening conclusion |
|---|--|-----------------------|----------------------|
|   | <p><i>Beauty and proposals within them will be refused except in exceptional circumstances and where it is demonstrated that the proposed development is in the public interest; and</i></p> <p>ii. <i>where the proposed development would affect the setting of an Area of Outstanding Natural Beauty, regard will be given to conserving and enhancing the natural beauty of the Area of Outstanding Natural Beauty.</i></p> <p>The term 'natural beauty' is enshrined in the 1949 National Parks and Access to the Countryside Act. The natural beauty of an AONB reflects relationship between people and place and encompasses both the 'natural' and human elements which make an area distinctive<sup>25</sup>. Government guidance relating to AONBs provides a non-technical definition: "Natural Beauty" is not just the look of the landscape, but includes landform and geology, plants and animals, landscape features and the rich history of human settlement over the centuries'<sup>26</sup>. More</p> |                       |                      |

<sup>25</sup> Holdaway, E., *Origins and intentions of 1949 Act: Natural Beauty*. Bangor: Countryside Council for Wales 2007; Selman, P. and C. Swanwick, "On the Meaning of Natural Beauty in Landscape Legislation ". *Landscape Research*. **35** (1): p. 3-26 2010.

<sup>26</sup> Areas of Outstanding Natural Beauty: A guide for AONB Partnership members, Countryside Commission, CA24, November 2001, p.6.

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale  | Screening<br>Category | Screening conclusion  |
|---|---|-----------------------|---|
| POLICY MLP24<br>Soils   | <p>recently, the government clarified that land is not prevented from being treated as of natural beauty by the fact that it is used for agriculture, woodlands or as a park; or because its physiographical features are partly the product of human intervention in the landscape<sup>27</sup>.</p> <p>Cumulatively this guidance confirms that the designation criteria for International Sites, where these occur within an AONB, would be subject to protection, conservation and enhancement as per Policy MLP23.</p> |                       |   |
| POLICY MLP25<br>Best and Most<br>Versatile<br>Agricultural Land       | <p>Policy MLP24 establishes the requirement for a technical assessment to demonstrate schemes will protect and conserve soil resources and their quality. No interaction with an International Site is predicted from implementation of this Policy.</p>  | D                     | <p>Screened out</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• Environmental protection / site safeguard policy</li> </ul> |
| POLICY MLP25<br>Best and Most<br>Versatile<br>Agricultural Land       | <p>Policy MLP25 establishes requirements to undertake a technical assessment to identify developmental impacts upon land of best and most versatile agricultural value and to optimise (for example through green infrastructure strategies) measures to minimise impact and maximise land quality through restoration and after-use. No interaction</p>  | D                     | <p>Screened out</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• Environmental protection / site safeguard</li> </ul>        |

<sup>27</sup> Natural Environment and Rural Communities Act 2006: Section 99

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale   | Screening<br>Category | Screening conclusion  |
|---|--|-----------------------|---|
| POLICY MLP26<br>Geodiversity  | <p>with an International Site is predicted from implementation of this Policy.</p> <p>Policy MLP26 establishes the requirement for schemes to protect, conserve and enhance geodiversity.</p>  | D                     | <p>policy</p> <p>Screened out</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• Environmental protection / site safeguard policy</li> </ul> |
| POLICY MLP27<br>Water Quality and<br>Quantity                         | <p>MLP27 establishes the requirement for applications to demonstrate that schemes will protect and enhance the quality, quantity and flow of surface water and groundwater resources.</p> <p>Of relevance to downstream (i.e. hydrologically linked) International Sites is the requirement through MLP 27 for a level of technical assessment appropriate to the potential impact of the proposed development on the water environment in order to demonstrate that, throughout its lifetime, the proposed development "<i>will not have an unacceptable adverse effect on the quality, quantity or flow of ground or surface water</i>".</p> | D                     | <p>Screened out</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• Environmental protection / site safeguard policy</li> </ul>               |
| POLICY MLP28<br>Flooding  | <p>Policy MLP28 establishes the need for mineral developments to undertake a technical assessment to identify 'potential impacts of the proposed development on flood risk', including demonstrating that the</p>  | D                     | <p>Screened out</p> <p><b>Rationale:</b></p>  |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale   | Screening<br>Category | Screening conclusion   |
|---|--|-----------------------|--|
| POLICY MLP29<br>Transport   | <p>proposed development will not increase flood risk elsewhere. While implementation of this policy will have no adverse effect on an International Site, implementation would serve to ensure that schemes which are hydrologically connected to an International Site pose no significant risk of impact through hydrological modifications to the catchment.</p>  |                       | <ul style="list-style-type: none"> <li>Environmental protection / site safeguard policy</li> </ul>   |
|   | <p>Policy MLP29 establishes expectations for sustainable transport options for employees, visitors and the movement of minerals and materials throughout the full diversity of modal options available and which minimise harm to environmental and amenity assets. No interaction with an International Site is predicted from implementation of this Policy.</p> <p>The principal adverse impacts posed by transport on international sites are the effects of nitrogen deposition and non-toxic contamination such as heavy metals. With regards to air pollution and non-toxic contamination, as established in Table 5, critical thresholds are 200m and 400m respectively.</p> <p>There are no Strategic Corridors and therefore no Areas of Search within 500m of any international site. However, recognising the proximity of Bredon Hill SAC to the Avon and Carrant Brook Strategic</p> | B                     | <p>Screened out</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>Policy listing general criteria for testing the acceptability / sustainability of proposals</li> </ul> |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019)   | Assessment and rationale   | Screening<br>Category | Screening conclusion   |
|---|--|-----------------------|--|
|   | Corridor, it is relevant to consider the potential for residual effects which might arise from related HGV movements which might affect the SAC. There is only one road within 200m of the SAC, a minor road running through the village of Elmley Castle, and no major roads within 500m. It is considered that there is no credible evidence for a real risk that a development proposal will result in any significant increased traffic along this road given its rural character. |                       |  |
| POLICY<br>MLP30<br>Obligations  | To address any unacceptable impacts, it may be necessary to use a combination of planning conditions and planning obligations to secure measures which are necessary to make a proposed development acceptable. Policy MLP30 establishes how restoration and aftercare will be secured through such planning obligations.  | B                     | Screened out<br><br><b>Rationale:</b><br><br><ul style="list-style-type: none"> <li>• Policy listing general criteria for testing the acceptability / sustainability of proposals</li> </ul> |
| Chapter Seven<br>Safeguarding<br><br>POLICY MLP31<br>Safeguarding<br>Locally &<br>Nationally<br>Important Mineral | Safeguarding policies are designed to prevent unnecessary sterilisation of mineral resources and associated infrastructure by non-mineral developments permitted under other plans or regulatory systems outside of the remit of the MLP.<br><br>The individual policies (MLP31 & MLP32, see below for further information) within this Chapter are intended to protect mineral resources and supporting infrastructure from adverse impact and, as                                    | D                     | Screened out<br><br><b>Rationale:</b><br><br><ul style="list-style-type: none"> <li>• Environmental protection / site safeguard policy</li> </ul>  |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019)   | Assessment and rationale   | Screening<br>Category | Screening conclusion   |
|---|--|-----------------------|--|
| Resources<br><br>POLICY MLP32<br>Safeguarding<br>Permitted Mineral<br>Sites and<br>Supporting<br>Infrastructure | Paragraph 7.4 states, " <i>safeguarding mineral resources does not create a presumption that the resources defined as Mineral Safeguarding Areas will be worked during the lifetime of the Minerals Local Plan</i> ".  |                       |  |
| Chapter Eight<br>Implementation and<br>monitoring framework   | This section sets out arrangements for monitoring the effectiveness of the Minerals Local Plan in a set of Monitoring Schedules structured by reference to the Plan's objectives.  | G                     | Screened out<br><br><b>Rationale:</b><br><br><ul style="list-style-type: none"> <li>• A proposal which could not have any conceivable effect on an International Site</li> </ul> |
| Appendices & annexes<br><br>Appendix 1<br>Superseded<br>policies  | Principally administrative text.<br><br>Appendix 1 establishes that Policies 1, 2, 5, 6 and 7, adopted in the 1997 Herefordshire and Worcestershire MLP and subsequently 'saved' by the Secretary of State in September 2007, are to be superseded by the Worcestershire MLP (once adopted) and thereby will no longer form part of the Development Plan for Worcestershire. | G                     | Screened out<br><br><b>Rationale:</b><br><br><ul style="list-style-type: none"> <li>• A proposal which could not have any conceivable effect on an International Site</li> </ul> |

| Element of the plan<br>(MLP Publication Version<br>assessed May 2019) | Assessment and rationale  | Screening<br>Category | Screening conclusion   |
|---|---|-----------------------|--|
| Appendix 2<br>Identifying and<br>defining the<br>strategic corridors  | Appendix 2 sets out the rationale and methodology for identifying strategic corridors for minerals development within the county: aligned with the MLPs Vision and Objectives (Chapter 3) to drive how mineral working and restoration will maximise multifunctional green infrastructure gains at a landscape scale to benefit Worcestershire's environment, economy and communities. The Spatial Strategy is considered in greater detail in Policies MLP4 - MLP8 and Chapter 7, below. | -                     | Screened out<br><br>• <b>Rationale:</b> General statement of policy/general aspiration |
| Appendix 3<br>Glossary  |   | -                     | Screened out<br><br>• <b>Rationale:</b> Administrative text                            |
| Appendix 4<br>Acronyms  |   | -                     | Screened out<br><br>• <b>Rationale:</b> Administrative text                            |



## 7. Assessing the Spatial Policy

### Evolution of the MLP spatial strategy

- 7.1 The Second Stage Consultation of the MLP proposed 19 areas of search for sand and gravel and crushed rock together with an 'opportunity area' for clay mineral resources. Site-specific location criteria applicable to all proposals including those arising within an area of search were set out. Clusters of more than 200ha of aggregate resources were articulated through the process of selecting those "Significant" mineral resources which were located within 500m of a "Key" resource; a 250m buffer was then applied around the aggregation of "Key" and "Significant" resources to form what were then proposed to be "areas of search".
- 7.2 The Third Stage Consultation of the MLP proposed 3 specific sites and 2 sites as preferred areas. In addition, the Third Stage Consultation proposed five strategic corridors with status of Area of Search defined through aggregation of "Key" (>2m tonnes) and "Significant" (600,000 – 2m tonnes) mineral resources located within coherent landscape types. The Third Stage Consultation document set out that Specific Sites would be used as a tool to promote mineral development to help meet the provision requirement but that there would be no policy preference for the development on Specific Sites over other locations within the identified strategic corridors, provided all other policy requirements could be met.
- 7.3 In the Fourth Stage Consultation of the MLP the role of strategic corridors was reviewed. Each corridor was considered to provide policy direction, setting out the spatial portraits and Green Infrastructure priorities which minerals developments arising from the resources within them can contribute to. A separate Mineral Site Allocations Development Plan Document was proposed in order to establish a method for identifying specific sites and preferred area allocations and so that screening criteria can be consistently applied to both specific sites, strategic corridors and areas of search (based on mineral resources within the strategic corridor). Following consultation responses, the Fourth Stage MLP also revised the strategic corridor boundaries in order to take account of environmental and amenity constraints and to remove settlement and site allocation boundaries as they emerge in line with the South Worcestershire Development Plan (2016), Wyre Forest Core Strategy (2010), Wyre Forest Site Allocations and Policies Development Plan Document (2013), Bromsgrove District Plan (2017) and the Borough of Redditch Local Plan No.4 (2017).
- 7.4 The Worcestershire MLP background document "Screening and Site Selection Methodology" (2018) states that: "*Separating the site allocations from the main Minerals Local plan will ensure that the strategic elements of the plan can be progressed as quickly as possible to provide certainty*

*over the vision, objectives, spatial strategy and development management policies, whilst also building flexibility for Mineral Site Allocations to be reviewed and revised if necessary without affecting the strategic policies set out in the Minerals Local Plan"*

- 7.5 In line with the principles established within the second MLP HRA Screening Assessment and within section 2.14 above, any assessment of site-specific proposals will require detailed information pertaining to the nature, scale and location of mineral development; in the absence of this resolution of data the 'higher tier' MLP cannot reasonably assess any effect on an International Site. A Habitats Regulation Assessment will therefore legally be required of the proposed Mineral Site Allocations Development Plan Document prior to its adoption.

### **Strategic Corridors within the Publication Version MLP**

- 7.6 The spatial strategy identifies five strategic corridors. Each corridor reflects landscape scale clusters of deliverable mineral resources and the spatial strategy identifies the green infrastructure enhancements appropriate to each corridor which could be realised by mineral development. The five strategic corridors are illustrated within Appendix 3, referenced in relation to the scanned list of International Sites in Table 8 and have already been evaluated in detail in the context of Table 7.

**Table 8: showing geographical relationship between proposed strategic corridors and scanned International Sites (approximate distance in km to closest point)**

|                           |  | Strategic Corridor                       |  |                   |                                    |                          |
|---------------------------|--|--|--|-------------------|------------------------------------|--------------------------|
|                           |  | North West<br>Worcestershire<br>Corridor | North East<br>Worcestershire<br>Corridor | Salwarpe Corridor | Avon and Carrant<br>Brook Corridor | Lower Severn<br>Corridor |
| <b>International Site</b> | Fens Pool SAC                              | 9  | 9.5                                      | 10.5              | 39                                 | 37                       |
|                           | Lyppard Grange Ponds SAC                   | 13.5                                     | 17                                       | 5                 | 8.5                                | 5.5                      |
|                           | River Clun SAC                             | 38                                       | 51                                       | 44                | 58                                 | 48                       |
|                           | Bredon Hill SAC                            | 30                                       | 28.5                                     | 21.5              | 0.65                               | 5                        |
|                           | Dixton Wood SAC                            | 39.5                                     | 38                                       | 31.5              | 3.7                                | 8.5                      |
|                           | River Wye SAC                              | 30.5                                     | 46.5                                     | 33.5              | 27                                 | 33                       |
|                           | Downton Gorge SAC                          | 33                                       | 45                                       | 38.5              | 44                                 | 54.5                     |
|                           | Walmore Common SPA                         | 52                                       | 59.5                                     | 45.5              | 26                                 | 24                       |
|                           | (Upper) Severn Estuary SAC,<br>SPA, RAMSAR | 59                                       | 64                                       | 52.5              | 30.5                               | 29                       |

## Summary

- 7.7 All parts of the Minerals Local Plan have been screened against the scanned International Sites and no credible pathways identified through which an adverse effect is considered likely to arise upon the qualifying features of an International Site.
- 7.8 With due regard to the implications of both 'Waddensee' and 'Sweetman', where no causal connections or links between the policies of the Minerals Local Plan and an International Site's qualifying features can be identified, there cannot be an effect. If there is a 'theoretical' pathway, or 'hypothetical' cause, but in practice no credible evidence of a real (rather than a hypothetical) link to the site, it cannot be regarded as being potentially significant, either alone or in combination with other plans or projects. This is explored further in Chapter 8, below.

## 8. The 'In Combination' Assessment

- 8.1 It is a requirement of the Habitat Regulations that the impacts and effects of any land use plan being assessed are not considered in isolation but in combination with other plans and projects that may also be affecting the International Site(s) in question.
- 8.2 The HRA Handbook (DTA, February 2019 update) states (at Section C.8.6.2) that:
- "...If, on assessment alone, it is ascertained that the subject plan or project will in fact have no effect at all on the European site, an adverse effect in combination is ruled out and no further assessment is required. Adding the effects of other plans or projects could not make the effects of the subject plan or project more significant or more likely because it has no effect at all; the plan or project may be authorised"*
- 8.3 It is therefore evident that where a plan has no effect on an International Site at all, no 'in combination' test is necessary because it cannot contribute to any cumulative effects.
- 8.4 The screening categories from the HRA Handbook identifies several categories which require subsequent evaluation of potential impacts through an in combination assessment. Categories 'I', 'J', 'K', 'L' and 'M' require assessment of in combination effects. These categories have not been used against any of the policies within the Publication Version of the Minerals Local Plan and it therefore follows that no in combination assessment is required.
- 8.6 Having examined the MLP's Development Management and Spatial Strategy policies against the scanned International Sites, no credible pathways were identified through which a likely significant effect is likely to arise.
- 8.7 However, it is imperative to note that the assessment of compliance with the Habitats Regulations of lower tier plans and projects (i.e. once appropriate levels of detail emerge on the nature, scale and location of proposals) will be a legal requirement of the proposed Mineral Site Allocations Development Plan Document.

- 8.8 It is noted that any future mineral development proposal (regardless of whether this emerges through the proposed Site Allocation document or subsequently during the lifetime of the MLP) will be subject to the policies of the Development Plan in order to determine the acceptability in planning terms of such a mineral development proposal. This does not supersede nor remove any requirement for the HRA of such mineral development proposals where this is deemed appropriate by the Competent Authority.
- 8.9 In the event that further modifications to the Publication Version of the Minerals Local Plan are required subsequent to its Examination in Public, there may be a requirement to review the full text of the modified MLP document to ensure its adoption is legally compliant.

## 9. HRA Summary and Invitation for Comments

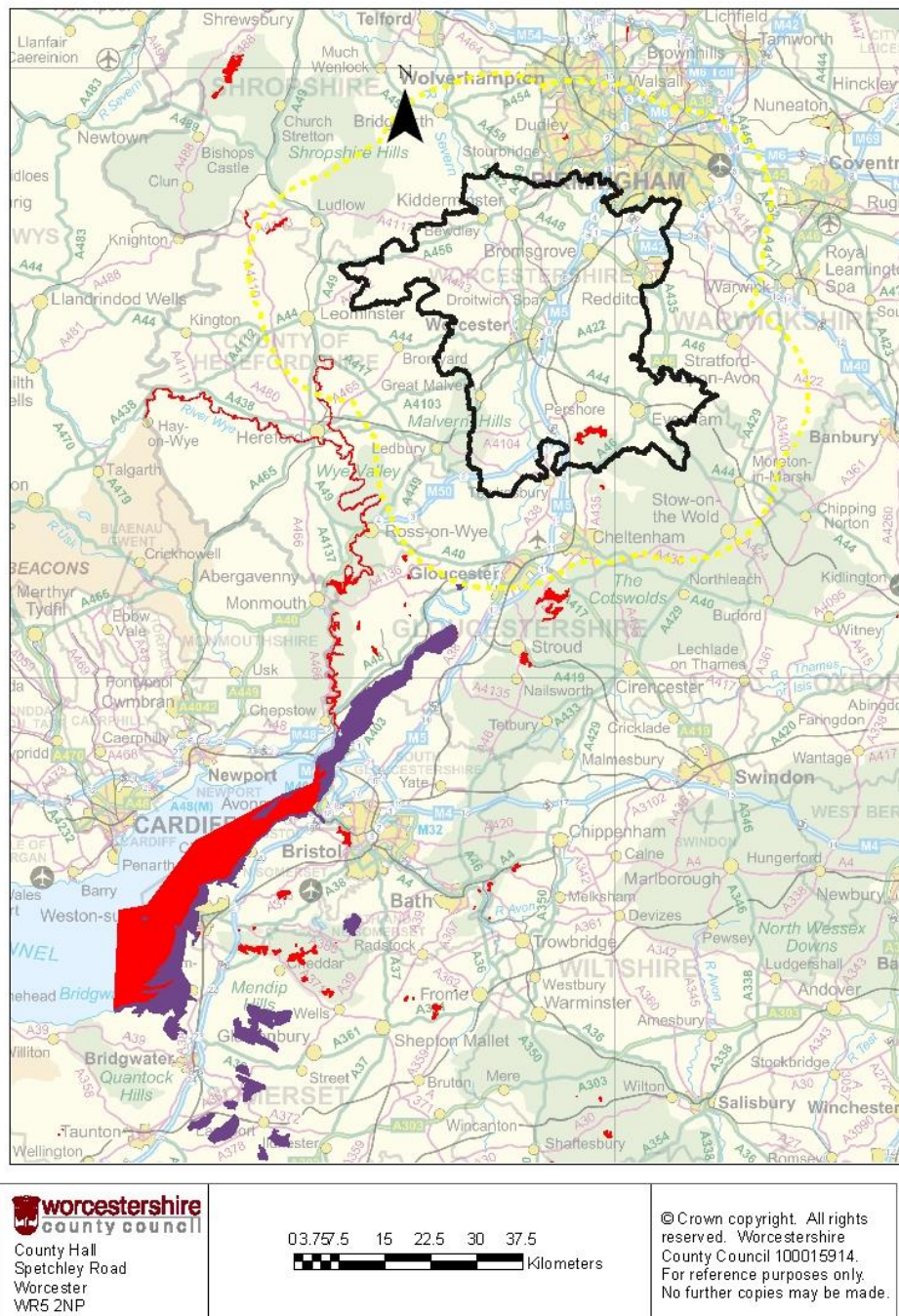
- 9.1 The HRA has identified no Likely Significant Effects arising 'alone' from the Minerals Local Plan upon any of the list of scanned International Sites. No cumulative effects (likely to cause a LSE 'in-combination' with effects arising from another plan or project) upon any of the list of scanned International Sites has been identified.
- 9.2 While this HRA examines Minerals Local Plan policies and spatial strategy, there is currently insufficient detail available to enable a comprehensive assessment as individual site allocations will emerge in a proposed Mineral Site Allocations Development Plan Document which will be developed subsequent to adoption of the MLP. It is noted that there is a legal requirement to undertake a separate HRA of the Mineral Site Allocations Plan. Given the rationale underpinning the articulation of strategic corridors (based on deliverable mineral resources) an approach of appraising compliance of the Areas of Search and 'strategic corridors' with Article 6(3)(Regulation 61) of the Habitats Directives has been adopted within this HRA.
- 9.3 It is noted that, whilst not considered critical to the development of the MLP, a suite of development management policies have been set out within the MLP which seek to resolve any ambiguity or uncertainty of potential for LSE arising upon an International Site from any future mineral development scheme by the requirement of an appropriate and robust technical assessment (or 'lower tier' project-level HRA) where appropriate to do so. The Plan does not rely on these policies for viable delivery as this is a legal requirement of any such project-based proposal. As such this is not considered to be a specific International Site mitigation measure and is instead intended to assess the acceptability and environmental sustainability of future proposals.
- 9.4 This Assessment does not therefore remove the need for later Habitats Regulations Assessment of subservient plans, projects, or permissions associated with, or arising out of the MLP; acceptance that the MLP is consistent, so far as can be ascertained, with the Habitats Regulations does not guarantee that any plan or project derived from the Plan will also be found consistent.

## Next steps

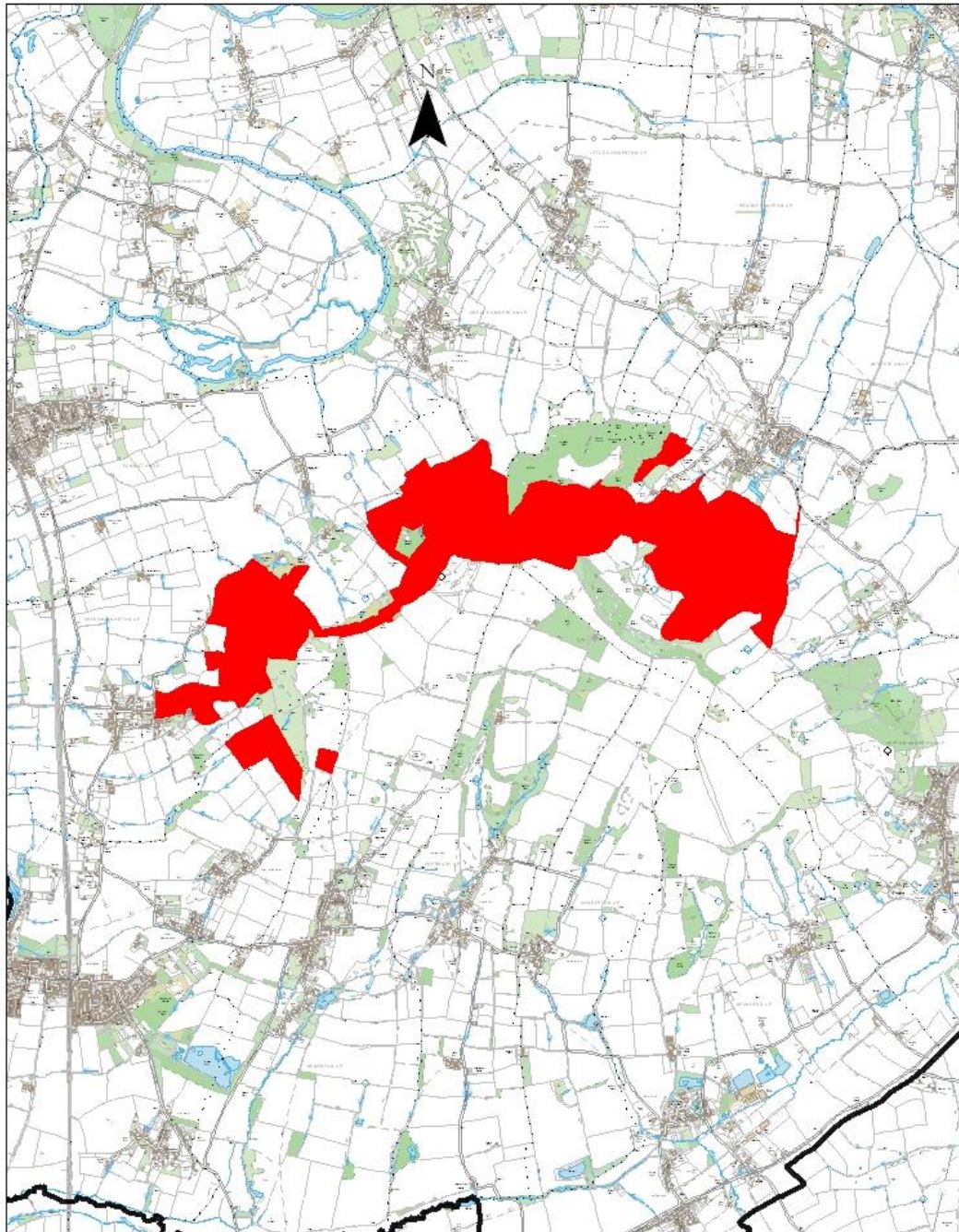
9.5 These findings are subject to consultation comments and advice from Natural England. If the findings of this assessment are determined to be sound, and assuming that no further amendments arise prior to plan adoption, the "Template for Recording the Conclusion of the Habitats Regulations Assessment" (Appendix 7) will be completed and submitted to Natural England prior to adoption of the final Minerals Local Plan.





## Appendix 1. Location and boundaries of Scanned International Sites.

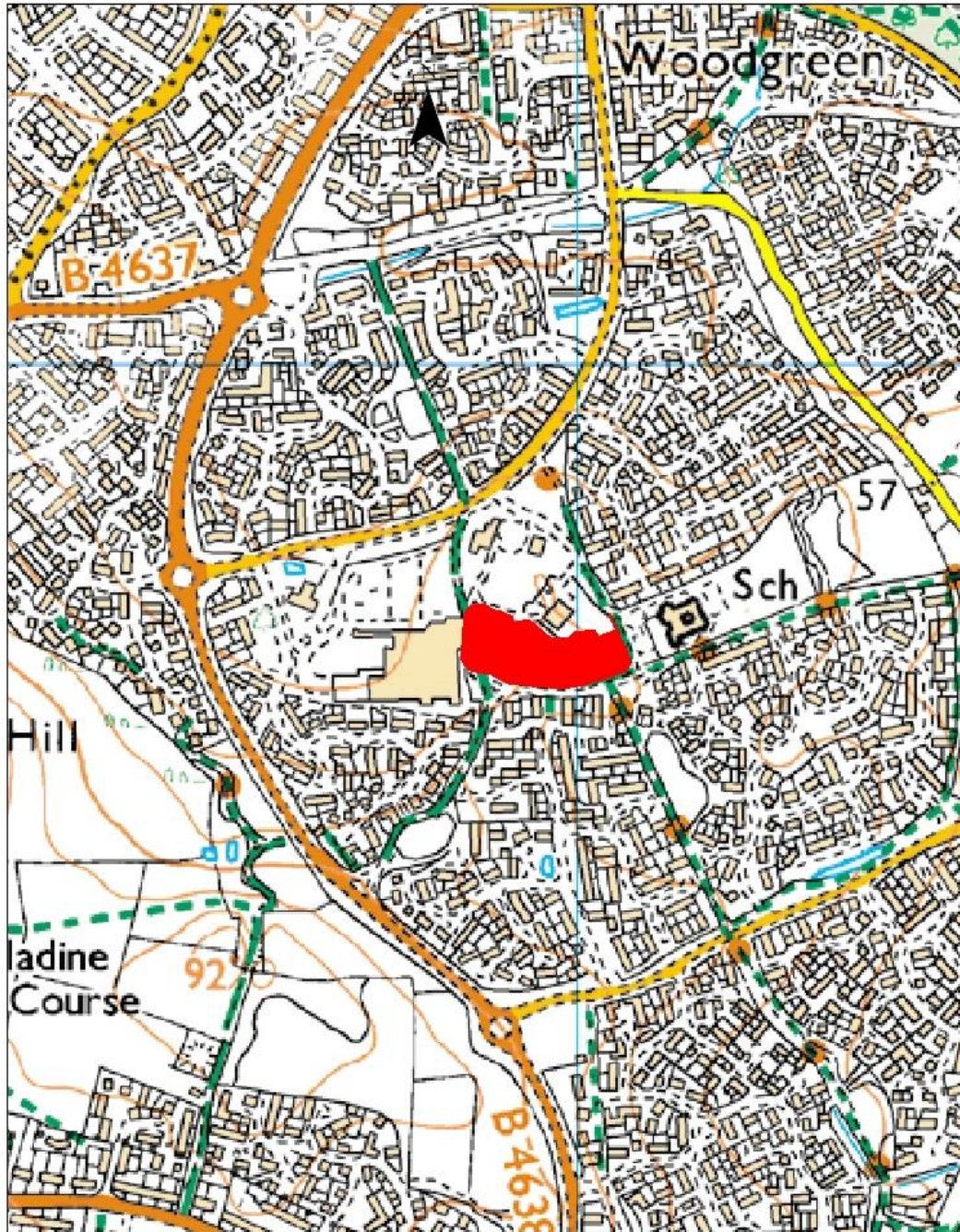




**Figure 8: Showing overview of Worcestershire and surrounding International Sites identified within this report. SACs marked in red, SPAs marked in purple, 15km County boundary marked in yellow. Detailed plans below.**



|   |   |   |
|---|---|---|
|  <p><b>worcestershire</b><br/>county council</p> <p>County Hall<br/>Spetchley Road<br/>Worcester<br/>WR5 2NP</p> | <p>0 0.3 0.6 0.9 1.2 1.5</p>  Kilometers | <p>© Crown copyright. All rights reserved. Worcestershire County Council 100015914. For reference purposes only. No further copies may be made.</p> |
|---|---|---|

**Figure 9: Bredon Hill SAC**



|   |  |   |
|---|--|---|
|  <p><b>worcestershire</b><br/>county council</p> <p>County Hall<br/>Spetchley Road<br/>Worcester<br/>WR5 2NP</p> | <p>0 0.05 0.1 0.15 0.2 0.25</p>  Kilometers | <p>© Crown copyright. All rights reserved. Worcestershire County Council 100015914. For reference purposes only. No further copies may be made.</p> |
|---|--|---|

**Figure 10: Lyppard Grange Ponds SAC**

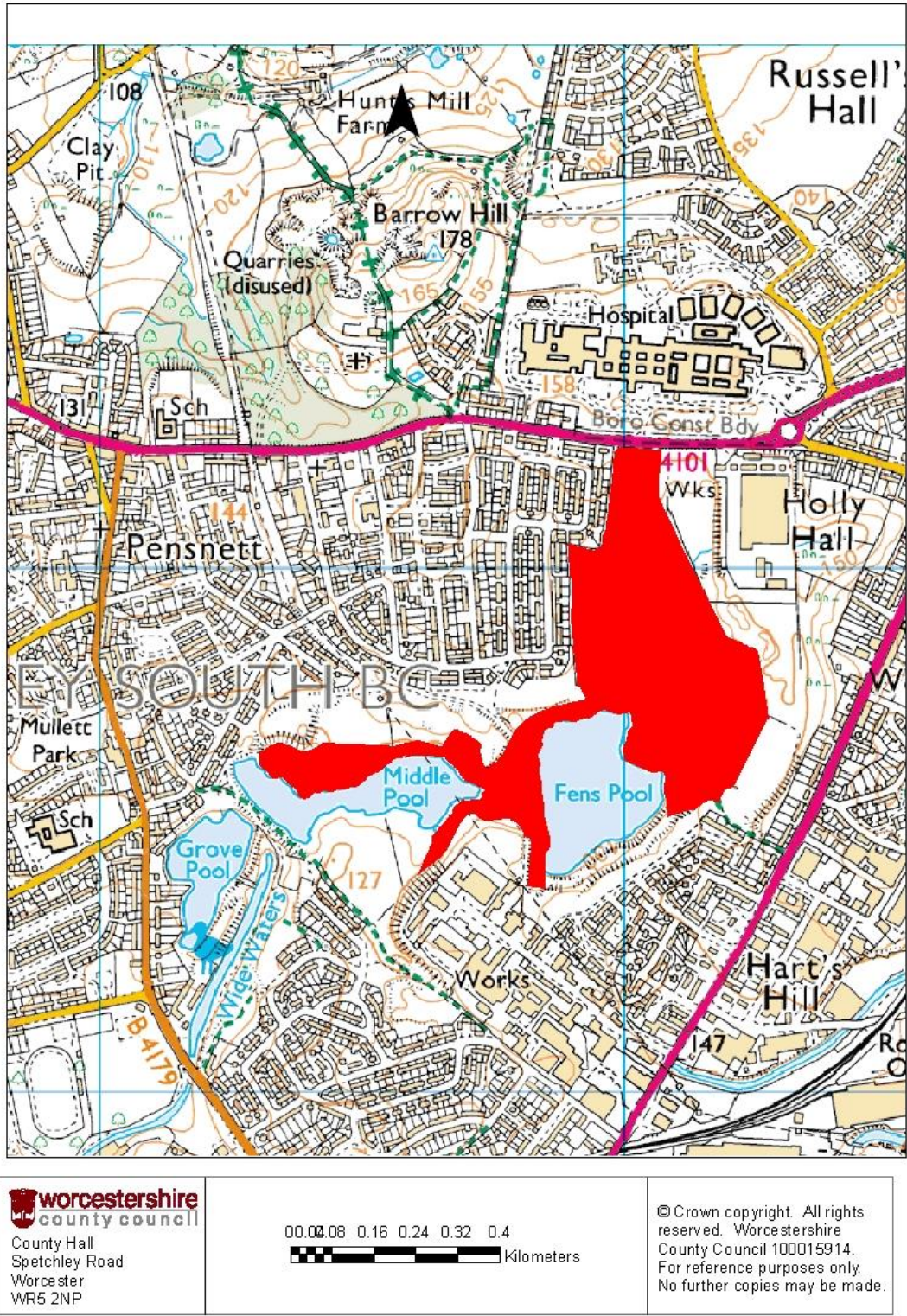
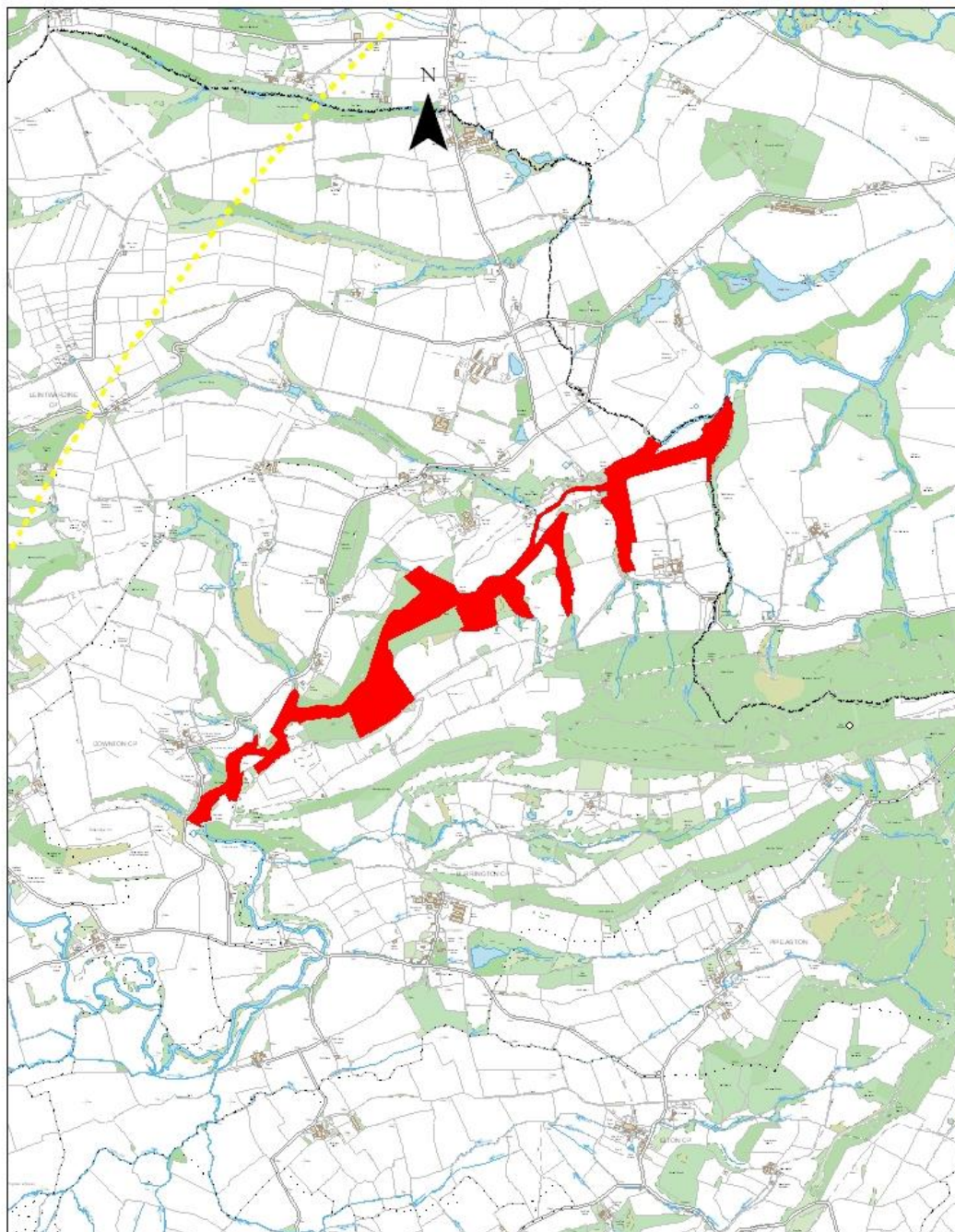


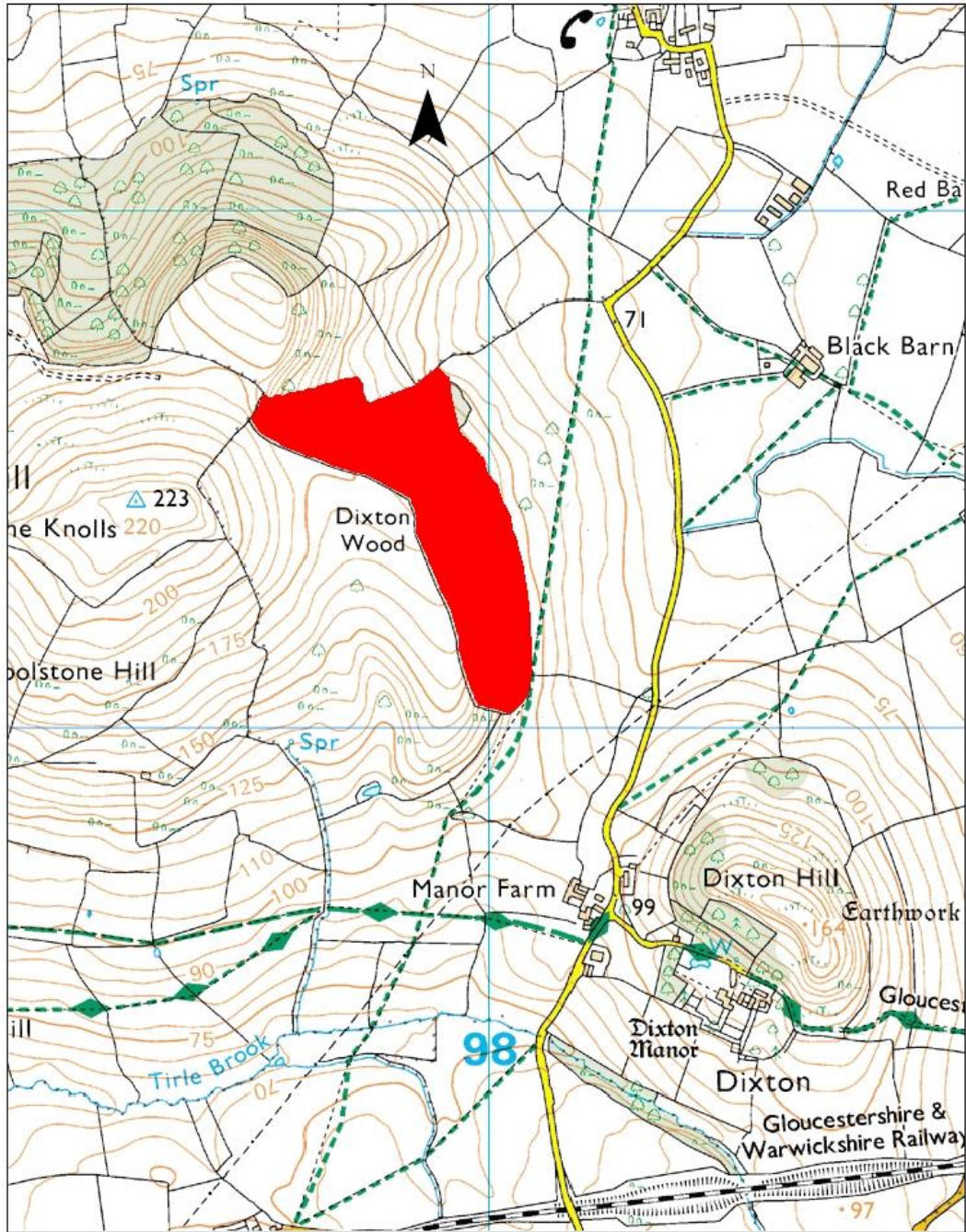


Figure 11: Fen Pools SAC



|   |   |   |
|---|---|---|
|  <p><b>worcestershire</b><br/>county council</p> <p>County Hall<br/>Spetchley Road<br/>Worcester<br/>WR5 2NP</p> | <p>0 0.3 0.6 0.9 1.2 1.5</p>  Kilometers | <p>© Crown copyright. All rights reserved. Worcestershire County Council 100015914. For reference purposes only. No further copies may be made.</p> |
|---|---|---|

**Figure 12: Downton Gorge SAC**





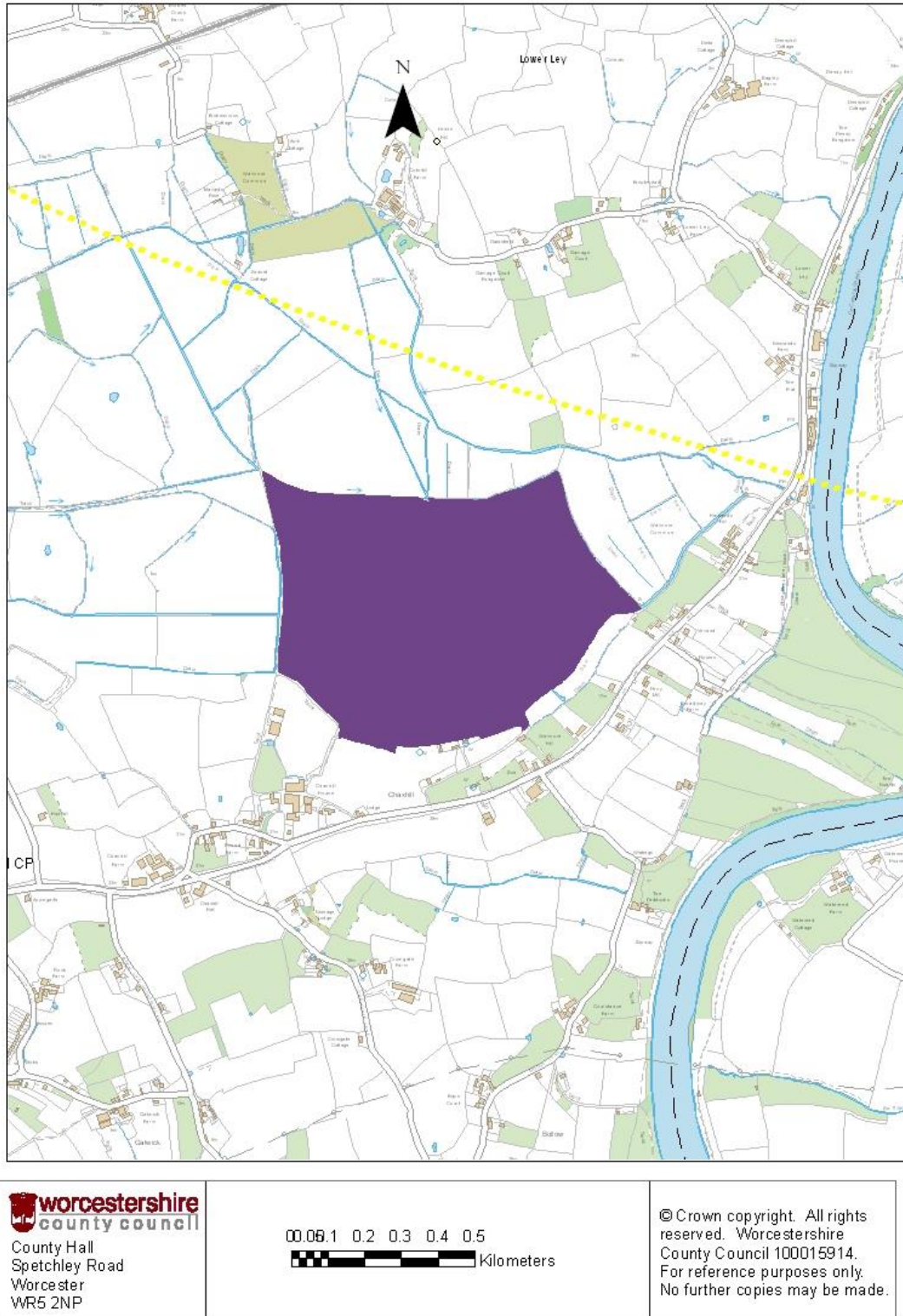
|   |   |   |
|---|---|---|
|  <p><b>worcestershire</b><br/>county council</p> <p>County Hall<br/>Spetchley Road<br/>Worcester<br/>WR5 2NP</p> | <p>0.04509 0.18 0.27 0.36 0.45</p>  Kilometers | <p>© Crown copyright. All rights reserved. Worcestershire County Council 100015914. For reference purposes only. No further copies may be made.</p> |
|---|---|---|

Figure 13: Dixon Wood SAC



**Figure 14: Walmore Common SPA**





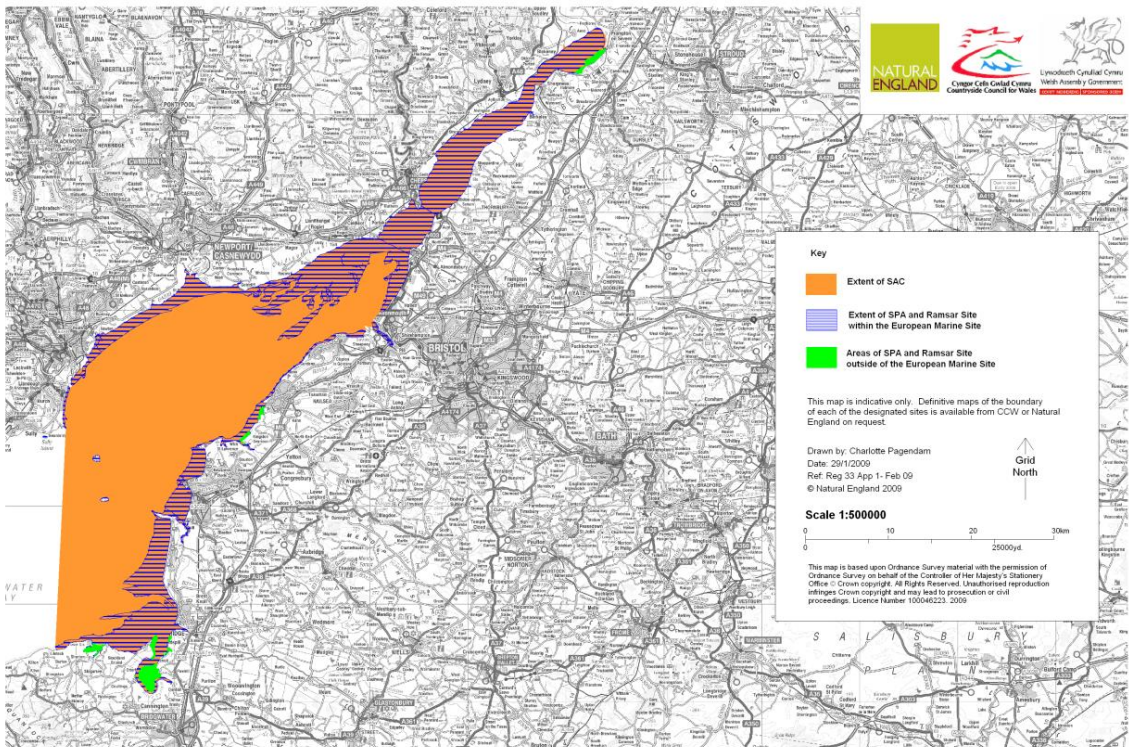
|   |   |   |
|---|---|---|
|  <p><b>worcestershire</b><br/>county council</p> <p>County Hall<br/>Spetchley Road<br/>Worcester<br/>WR5 2NP</p> | <p>0 0.5 1 2 3 4 5<br/>Kilometers</p>  | <p>© Crown copyright. All rights reserved. Worcestershire County Council 100015914. For reference purposes only. No further copies may be made.</p> |
|---|---|---|

Figure 15: River Wye SAC





**Figure 16: Severn Estuary SAC, SPA & RAMSAR.**

## Appendix 2. Supplemental Evidence supporting International Site Conservation Objectives

| International Site              | Supplemental Evidence supporting Conservation Objectives,  |
|---------------------------------|--|
| <b>Lyppard Grange Ponds SAC</b> | <p><b>Supplementary Advice on Conserving and Restoring Site Features (24<sup>th</sup> June 2016):</b><br/>           Targets to maintain the attributes supporting the Qualifying Features (i.e. conservation measures, supporting habitat extent, distribution of supporting habitat, adaptation and resilience of supporting features, soil/substrate/nutrient cycling, water quality/quantity, air quality, improving overall Habitat Suitability Index for great crested newts and maintaining population and meta-population viability) include:</p> <ul style="list-style-type: none"> <li>• Implement the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain the structure, functions and supporting processes associated with great crested newt and/or its supporting habitats.</li> <li>• Maintain the total extent of the habitats which support the great crested newt feature at:               <ul style="list-style-type: none"> <li>Lowland Ponds – 0.09ha</li> <li>Lowland Grassland - 1.00ha.</li> </ul> </li> <li>• Maintain the distribution and continuity of the great crested newt and its supporting habitat, including where applicable its component vegetation types and associated transitional vegetation types, across the site.</li> <li>• Restore the feature's ability, and that of its supporting habitat, to adapt or evolve to wider environmental change, either within or external to the site.</li> <li>• Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, within typical values for the great crested newt's supporting habitat.</li> <li>• Maintain pond water quality and quantity to a standard which provides the necessary conditions to support the feature.</li> <li>• Pond levels should typically be between 200-1000mm but ponds are seasonal and can dry out completely in dry summers.</li> <li>• Maintain the quality of pond waters within the site as indicated by the continued presence of an abundant and diverse</li> </ul> |

| International Site | Supplemental Evidence supporting Conservation Objectives,  |
|--------------------|--|
|                    | <p>invertebrate community.</p> <ul style="list-style-type: none"> <li>• Maintain or, where necessary, restore concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (<a href="http://www.apis.ac.uk">www.apis.ac.uk</a>).</li> <li>• For this SAC, maintain an overall great crested newt Habitat Suitability Index score of no less than 0.8.</li> <li>• Maintain the number and/or surface area of ponds present within the site at 2 ponds covering 0.09ha.</li> <li>• Maintain the permanence of water within ponds present within the site.</li> <li>• Maintain a high cover of macrophytes, typically between 50-80%, within ponds.</li> <li>• Maintain the quality of terrestrial habitat likely to be utilised by great crested newts, with no fragmentation of habitat by significant barriers to newt dispersal.</li> <li>• Ensure pond perimeters are generally free of shade (typically no more than 60% cover of the shoreline).</li> <li>• Ensure fish and wildfowl are either absent or rare in all ponds.</li> <li>• Maintain the abundance of the great crested newt population at a level which consistently exceeds an average peak count of 100 adults, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.</li> <li>• Maintain a consistent presence of great crested newt eggs in breeding ponds at a level which is likely to maintain the abundance of the population at or above its target level.</li> <li>• Maintain the connectivity of the SAC population with its associated meta-population (either within or outside of the site boundary).</li> </ul> <p><b>Site Improvement Plan 141006FINAL v3.0 (6<sup>th</sup> October 2014):</b></p> <ul style="list-style-type: none"> <li>• <b>Changes in species distributions:</b> The newt population is very low and has been for several years. The exact cause is unknown, but there may be many contributing factors including lack of egg laying substrate, domestic cat numbers, cumulative effect of additional development etc. Work has been undertaken to improve the terrestrial and aquatic habitat as part of an HLS agreement. Continued monitoring is required to see results of the current measures.</li> </ul> |
| Bredon Hill SAC    | <p><b>Supplementary Advice on Conserving and Restoring Site Features:</b><br/>None available.</p> <p><b>Site Improvement Plan 150225FINAL v1.0 (25<sup>th</sup> February 2015):</b></p>  |

**International  
Site**

**Supplemental Evidence supporting Conservation Objectives,**

- **Forestry and woodland management:** The lack of succession in veteran tree cohorts is an issue, as current planting will only benefit the beetles after about 400 years and it is uncertain how long tree surgery will prolong the veterans' lives. The beetle depends on the production of humid wood mould within decaying trees and the amount of available wood mould in the SAC is unknown.
- **Feature location/extent/condition unknown:** There is a current lack of information on the distribution across the site of the rare and secretive Violet click beetle.
- **Disease:** Ash die-back caused by the *Chalara fraxinea* fungus threatens the large number of current veteran ash trees and their replacements on which the Violet click beetle depends. Whilst the beetle is known to use other species elsewhere (e.g. Windsor), ash dominates the trees on Bredon Hill. The scale of this impact on the persistence and continuity of wood mould is uncertain and is likely to be beyond human control.
- **Climate change:** The likelihood of increased violent storm events and the viability of ash in a changed environment threatens the veteran ash trees on which the beetle depends.
- **Air pollution:** Nitrogen deposition exceeds site relevant critical loads. This site is sensitive to nitrogen deposition.

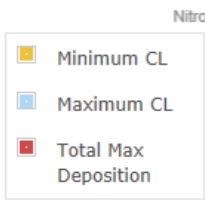
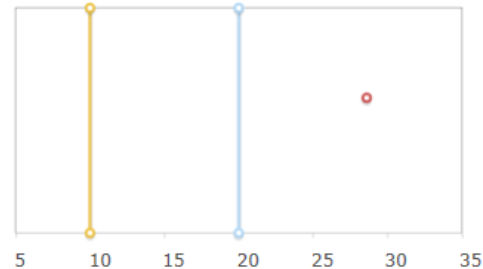
**International  
Site**

**Supplemental Evidence supporting Conservation Objectives,**

**Nitrogen Critical Loads**

**Feature:** Limoniscus violaceus - Violet click beetle  
**Critical Load Class:** Broadleaved deciduous woodland

**Critical Loads (kg N/ha/yr):** 10-20  
**Nitrogen Deposition (kg N/ha/yr):**  
Maximum: 28.6 Minimum: 26.7 Average: 27.2



*Screengrab from APIS website showing Bredon Hill SAC and exceedance of Nitrogen Critical Load, site accessed July 2018*

**Dixton  
Wood SAC**

**Supplementary Advice on Conserving and Restoring Site Features:**  
None available.

**Site Improvement Plan 15121FINAL v1.0 (21<sup>st</sup> January 2015):**

- **Changes in Species distributions:** Because of its rarity and highly specialised ecology associated with decaying wood and leaf litter in tree cavities, specialist involvement is required for survey, monitoring and the provision of detailed habitat management advice. Without it, appropriate management advice is difficult to provide to the woodland owner.
- **Forestry and woodland management:** The beetle depends on the production of humid wood mould where it lives for part of its life cycle within decaying trees; this is typically found in veteran trees where they show signs of rot. The amount of suitable and available wood mould in the SAC is unknown. The lack of succession in veteran cohorts is an issue and it make the need for extending the life of the existing veteran trees even more important. Although the woodland and the surrounding land is in HLS, it is unclear if the scheme (and indeed subsequent schemes) can adequately fund the required specialist tree climbing/surgery work which is very expensive on this challenging site.
- **Disease:** Ash dieback disease *Chalara fraxinea* is a potential threat to the site. The Violet click beetle population at Dixon Wood is thought only to use ash trees. The previous management advice has been to extend the life of the ash trees by pollarding suitable trees. The current advice on the control of the spread of the disease is not to coppice or pollard ash trees as this may make them more susceptible to disease. Although there is no current evidence that the disease is present, specialist advice is required to formulate a strategy regarding how to manage the woodland for the Violet click beetle whilst also considering the threat of *Chalara* disease.

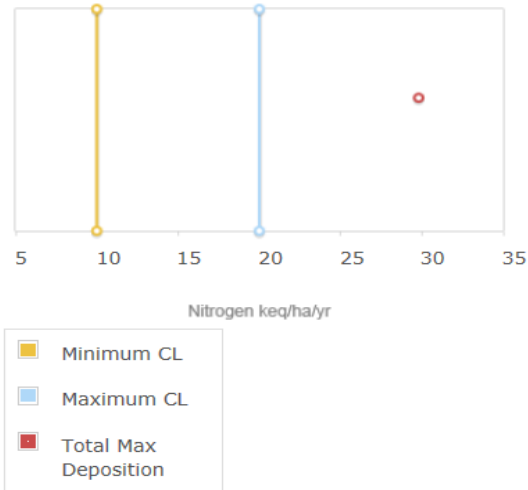
**International  
Site**

**Supplemental Evidence supporting Conservation Objectives,**

**Nitrogen Critical Loads**

**Feature:** Limoniscus violaceus - Violet click beetle  
**Critical Load Class:** Broadleaved deciduous woodland

**Critical Loads (kg N/ha/yr):** 10-20  
**Nitrogen Deposition (kg N/ha/yr):**  
Maximum: 29.8 Minimum: 29.8 Average: 29.8



*Screengrab from APIS website showing Dixton Wood SAC and exceedance of Nitrogen Critical Load, site accessed July 2018*

**Fens Pools  
SAC**

**Supplementary Advice on Conserving and Restoring Site Features (20<sup>th</sup> March 2017):**

- Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain the structure, functions and supporting processes associated with the Great Crested Newt feature and its supporting habitats.
- Maintain the total extent of the aquatic and terrestrial habitats which support great crested newts, including freshwater ponds

## International Site

## Supplemental Evidence supporting Conservation Objectives,

for breeding, and grasslands, scrub, deadwood and rocky habitat for hibernacula and connectivity.

- Maintain and expand the distribution and continuity of the great crested newt's supporting habitat, including pond networks and associated transitional vegetation, across the site. The most significant pond networks for great crested newts are identified through ongoing monitoring of populations; these need to be maintained and expanded on where possible. New ponds have been created in 2016 in order to achieve this.
- Maintain the feature's ability, and that of its supporting habitat, to adapt or evolve to wider environmental change, either within or external to the site.

The overall vulnerability of this SAC to climate change has been assessed by Natural England as being low, taking into account the sensitivity, fragmentation, topography and management of its supporting habitats. This means that this site is considered to be vulnerable overall but is a lower priority for further assessment and action. Individual species may be more or less vulnerable than their supporting habitat itself. In many cases, change will be inevitable so appropriate monitoring would be required. Using best available information, any necessary or likely adaptation or adjustment by the feature and its management in response to actual or expected climatic change should be allowed for, as far as practicable, in order to ensure the feature's long-term viability. The site is isolated from other suitable great crested newt sites and so long term monitoring will provide us with data on how the population is coping with factors such as habitat management, the non-native Alpine newt, and climate change, and allow to us to tailor management to meet needs.

- Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, within typical values for great crested newt supporting habitat
- Maintain water quality and quantity to a standard which provides the necessary conditions to support the great crested newt feature.

The site is vulnerable to runoff that drains into it from the surrounding residential areas and industrial estate. There is known problem area, relating to discharges from ServoSteel Ltd into the inflow stream feeding Pond 11, which subsequently drains into Pond 26/25, then into shallow bay at the north east corner of Pond 01. Many of the ponds are naturally eutrophic and base-rich from the local clay geology. This attribute concerns point source, anthropogenic pollution resulting from discharges onto the site or dumping adjacent to ponds. The main water source for the site is rainfall and surface runoff draining into the site from the neighbouring impervious residential area.

- Maintain concentrations and deposition of air pollutants at or below the site-relevant Critical Load or Level values given for great crested newt supporting habitats on the Air Pollution Information System.



## International Site

## Supplemental Evidence supporting Conservation Objectives,

The supporting habitat of this feature is considered sensitive to changes in air quality. Exceedance of critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition (including food-plants) and reducing supporting habitat quality and population viability of this feature.

- Maintain an overall great crested newt Habitat Suitability Index score of no less than 0.8.
- Maintain the current series of ponds present within the site.

Eleven ponds are present judging from the 1999 aerial photograph. great crested newts are concentrated in the ponds at the northern end of the site. Additional ponds have been created since notification: over 20 now present, with an additional 5 present outside SAC boundary)

- Maintain a certain level of permanence of ponds across the site: levels should be high enough in late winter through to mid-summer to maintain breeding habitat but can drop considerably or dry out altogether to eliminate potential predatory fish populations from establishing.
- Maintain the quality of terrestrial habitat likely to be utilised by great crested newts, with no fragmentation of habitat by significant barriers to newt dispersal.
- Ensure pond perimeters are generally free of shade (typically no more than 60% cover of the shoreline)
- Ensure fish and wildfowl are absent in over 75% of newt ponds.
- Maintain the quality of pond waters within the SAC as indicated by the presence of an abundant and diverse invertebrate community.
- Maintain the abundance of the great crested newt population at a level which consistently exceeds a minimum average peak count of 100 adults, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.
- Maintain the presence of great crested newt eggs in breeding ponds at a level which is likely to maintain the abundance of the population at or above its target level.
- Maintain the connectivity of the SAC' s great crested newt population with its associated meta-populations (either within or outside of the site boundary)

A meta-population associated with a SAC may occur outside of the designated site boundary. Near Fens Pools there is a small population of newts at Barrow Hill and Tansy Green SSSI, though it is not thought that the two populations interact. The connection between Fens Pools SAC and this site is currently limited as they are separated by a major A road, part of a residential estate and Russell's Hall hospital and car park. However, as the landscape in the area changes through development and potential modification of waterways – and possible new linkages to the three feeder canals to the site - the connectivity of the

wider local landscape to the SAC may become more prevalent.

**Site Improvement Plan 141007FINAL v1.0 (7<sup>th</sup> October 2014):**

- **Overgrazing:** High illicit stocking with tethered horses especially during the summer months means that the grass sward is severely overgrazed. There are indications that this is having a detrimental impact on the frog and toad population due to reduced availability of invertebrate food prey on the overgrazed grasslands. There is concern that this will be impacting the great crested newt (GCN) population in a similar way. The grass sward in Jan 2014 was less than 2cm and causing sediment run off around the breeding pool areas. The lengthy process involved in removing from site illegally present horses means the avoidance of damage is difficult. Even when horses can be removed often more appear within a short time period.
- **Inappropriate scrub control:** Scrub management around the pools has not been carried out in the last few years. In addition some pools have dried out and are getting smaller due to vegetation encroachment. Discussions have taken place between the owner/ occupier and Natural England to address the scrub management and pool restoration over the next 3 years but the resources required to implement this require confirmation.
- **Disease:** In 2009 Alpine newts infected with Chytrid fungus were identified, which may pose a risk to the great crested newt population, the effects of this disease is unknown. Surveys since 2009 have not detected the fungus in smooth, alpine or great crested newts. The numbers of GCN have remained constant since 2009 even though the alpine newt numbers have increased, indicating that the alpine newts are not out-competing the GCN for food and having a detrimental impact on the notified feature.
- **Water Pollution:** Off road vehicles/burnt out vehicles pose a pollution threat to the GCN when the abandonment affects the breeding pools for the GCN. The local authority are now more proactive in removing the vehicles as soon as possible and have improved procedures and times scales for doing so.
- **Habitat fragmentation:** Fens Pools is partially isolated as a result of its location within a large urban area. The connectivity / genetic interchange with other great crested newt populations is believed to be low or non-existent. There is a need to improve the habitat linkages for the great crested newts by improving habitat corridors to other suitable sites in the local area, such as Barrow Hill SSSI and Saltwells LNR.

**International  
Site**

**Supplemental Evidence supporting Conservation Objectives,**

**SAC**

**Site Improvement Plan 141201FINAL v1.0 (4<sup>th</sup> November 2014):**

- **Water Pollution:** Water quality is important for all SAC species and habitats, e.g. high water quality is vital to the breeding success of Salmon. Point sources of concern are relatively localised e.g. mining waste, raised metals concentrations and phosphates. Sedimentation and diffuse pollution are key issues in the catchment including upland acidification (affecting river pH values). Implementation of a Diffuse Water Pollution Plan and Nutrient Management Plan is necessary. Pesticides have been a concern historically e.g. pyrethroids, cypermethrin and metaldehydes. Current and future changes in cropping patterns across the catchment could cumulatively impact on the water quality, predominantly through diffuse pollution e.g. planting maize to feed biodigesters, siting of potato fields, irrigation needs, levels of poultry manure. The promotion of sustainable farming practice throughout the catchment is required to help address this.
- **Physical Modification:** This is a relatively near natural river system and needs to be maintained as such. Small scale development has occurred throughout the river and is impacting on hydromorphology and character. Ongoing work to the riverbank eases public access but causes localised erosion issues. A series of weirs on the Lugg affect the natural hydromorphology. River Restoration Plans have been prepared for the Wye and Lugg and these need to be implemented. Gravel input from the upper catchment is reduced due to the Elan Reservoirs, and low bankside tree cover may minimise the input of large woody debris necessary within a healthy river system.
- **Invasive species:** Himalayan Balsam, Japanese Knotweed, Giant Hogweed and hybrids are present throughout the catchment and these require control. In addition a management strategy is required for Signal crayfish which are also present within the catchment and SAC. To prevent other invasive species, for example, killer/demon shrimps reaching the catchment, a biosecurity strategy is required.
- **Hydrological changes:** Urban drainage and new development can affect the hydrology. Poor siting of infrastructure causes excessive (and silt laden) run-off, e.g. new windfarm or forestry track. Woody debris in the river system is of benefit to fish but is limited by lack of tree cover. Bankside grazing generally limits tree cover which, with other factors such as climate change, could lead to an associated water temperature increase over time. Cattle and sheep have free access to the river, throughout the year, in many places so extensification of grazing stock would be beneficial. The planting of tree belts and strategic use of appropriate fencing on vulnerable land will help improve runoff.
- **Forestry and woodland management:** Gauging appropriate management levels is difficult but there is a need to balance management and risks with fisheries management, navigation and flood risk management. Tree cover is highly variable across the catchment. Clearfell/management of upland conifer plantations can lead to sediment and nitrate release which is a concern. A floodplain forest LIFE partnership bid to improve management of Upper Wye (Wales) is being developed. In

| International Site       | Supplemental Evidence supporting Conservation Objectives,   |
|--------------------------|---|
|                          | <p>addition the Lower Wye (England) would benefit from further tree planting.</p> <ul style="list-style-type: none"> <li>• <b>Fisheries (Freshwater):</b> The management of banks and vegetation by river users is not always compatible with the SAC features e.g. digging steps and mowing banks. In channel management of gravels may impact the river habitat. Angling is managed via bylaws e.g. compulsory catch and release of salmon year round on the Wye and Shad fishing is not permitted. The potential to license those that hire boats may help highlight environmental considerations.</li> <li>• <b>Fisheries (Fish stocking):</b> Fish stocking is continuing at present. Fish hatcheries are being phased out by National Resources Wales (NRW).</li> <li>• <b>Water abstraction:</b> Water flow does not follow the near natural pattern because of the effects of Elan reservoirs and the releases made from the dams. Work is underway (Usk and Wye Abstraction Group 'UWAG') to assess and agree a revised set of reservoir release rules that will require changes to the operating agreement. More natural flushing and migration flows are proposed. There is a potential impact on hydro-morphology and ecology due to regular higher than natural flows. There is a need to integrate environmental requirements with the need for public water supply and agriculture. Necessary changes will be made to both river regulation and abstraction licences to ensure that the best use of water resources is made to balance these needs. In the River Lugg catchment, licences are already being varied to ensure low flows are protected. Winter storage reservoirs for agriculture are encouraged and the Environment Agency is awaiting Defra guidance on the regulation of trickle irrigation.</li> </ul> |
| <b>Downton Gorge SAC</b> | <p><b>Supplementary Advice on Conserving and Restoring Site Features (14<sup>th</sup> October 2016):</b></p> <p>Targets to maintain the attributes supporting the Qualifying Features (i.e. maintain extent and distribution, structure and function of the feature and their supporting processes) include:</p> <ul style="list-style-type: none"> <li>• Maintain the total extent of the H9180 feature at 69.3 ha</li> <li>• Maintain the distribution and configuration of the H9180 feature, including where applicable its component vegetation types, across the site</li> <li>• Ensure the component vegetation communities of the H9180 feature are referable to and characterised by the following National Vegetation Classification type (s): <ul style="list-style-type: none"> <li>▪ W8 <i>Fraxinus excelsior</i> – <i>Acer campestre</i> – <i>Mercurialis perennis</i> woodland</li> <li>▪ W10 <i>Quercus robur</i> – <i>Pteridium aquilinum</i> – <i>Rubus fruticosus</i> woodland.</li> <li>▪ Mosaic of W8/W10 types</li> </ul> </li> <li>• Restore an appropriate tree canopy cover across the H9180 feature, which will typically be between 30-90% of</li> </ul>   |

**International  
Site**

**Supplemental Evidence supporting Conservation Objectives,**

the site

- Maintain areas of permanent/temporary open space within the H9180 feature, typically to cover approximately 10% of area
- Maintain areas of relatively undisturbed mature/old growth stands or a scatter of large trees allowed to grow to over-maturity/death on site (e.g. a minimum of 10% of the woodland).
- A minimum of 3 fallen lying trees >20 cm diameter per ha and 4 trees per ha allowed to die standing.
- Restore at least 3 age-classes (pole stage/ medium/ mature) spread across the average life expectancy of the commonest trees.
- Restore an understorey of shrubs to cover 20% of the stand area.
- Restore a graduated woodland edge into adjacent semi-natural open habitats, other woodland/wood-pasture types or scrub.
- Maintain the resilience of the H9180 feature by ensuring a diversity of site-native trees (at least 4 site native tree species) e.g. ash/ small-leaved lime/ aspen/ alder/ sycamore/ rowan/ bird cherry/ birch) is present across the site.
- Reduce browsing to a (low) level that allows a well-developed understorey with no obvious browse line, & lush ground vegetation with some grazing-sensitive species evident (e.g. bramble, ivy), and tree seedlings and sapling common in gaps.
- Maintain the potential for sufficient natural regeneration of desirable trees and shrubs to occur. typically seedlings and saplings of desirable species should be visible in sufficient numbers in gaps, at the wood edge and/or as regrowth as appropriate
- No planting, apart from exceptional circumstances to restore conifer plantation to broadleaves.
- Restore the abundance of the species listed below to enable each of them to be a viable component of the H9180 habitat;
- Ash *Fraxinus excelsior*, elms *Ulmus spp.*, hazel *Corylus avellana*, oaks *Quercus spp.*, large-leaved lime *Tilia platyphyllos*, small-leaved lime *T. cordata* and wild service *Sorbus torminalis*.
- Distinctive species; Wood Fescue, *Festuca altissima*, Water Betony *Scrophularia umbrosa*, Lily of the valley,

**International  
Site**

**Supplemental Evidence supporting Conservation Objectives,**

Herb Paris *Convallaria majalis*, *Paris quadrifolia*, Rock Stonecrop, *Sedum forsterianum*

- Lower plant assemblage, including epiphytic lichens
- Assemblage of ferns including Oak Fern *Gymnocarpium dryopteris* and Brittle Bladder Fern *Cystopteris fragilis*.
- Assemblage of notable saproxylic (decaying-wood) invertebrates
- Ensure invasive and introduced non-native species are either rare or absent, but if present are causing minimal damage to the H9180 feature
- Ensure sycamore is not preventing regeneration of native trees and shrubs.
- Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal:bacterial ratio, to within typical values for the H9180 habitat.
- Restore the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site
- Restore the concentrations and deposition of air pollutants to within the site-relevant Critical Load or Level values given for the H9180 feature of the site on the Air Pollution Information System ([www.apis.ac.uk](http://www.apis.ac.uk)).
- At a site, unit and/or catchment level (as necessary), maintain natural hydrological processes to provide the conditions necessary to sustain the H9180 feature within the site
- Maintain any artificial light at a level which is unlikely to affect natural phenological cycles and processes to the detriment of the H9810 feature and its typical species at this site.
- Implement management measures (either within and/or outside the site's boundary as appropriate) which are necessary to maintain and restore the structure, functions and supporting processes associated with the H9180 feature

The site is therefore potentially vulnerable to the effects of air- and water-borne pollution, particularly in respect of its significant lichenological interest. However these effects are not related to the management of the site.

**Site Improvement Plan 141222FINAL v0.5 (18<sup>th</sup> December 2014):**

- **Deer:** Deer are having an adverse impact on woodland vegetation and are affecting the vertical woodland structure

**International  
Site**

**Supplemental Evidence supporting Conservation Objectives,**

by selectively browsing on herbs, shrubs and young trees. Without improvements in their management (enhanced cull at the local and landscape level and selective fencing), the deer population will impose long-term changes on the composition of the site's woodland. The undisturbed and secluded nature of the site appears to make it attractive as a local refuge for deer in the area.

- **Game management (pheasant rearing):** A large number of pheasants are reared and released each year on land immediately surrounding the Gorge. Many of these remain within the site all year round and there is evidence that they are causing some damage to the ground flora. There are also some issues relating to the shoot such as the cutting of vegetation to allow beating and unsympathetic woodland track management.
- **Forestry and woodland management:** Most woodland management on the site is carried out as part of NNR management and therefore generally this is done sympathetically within the SAC itself. There are however a few relatively small scale issues such as the removal of deadwood and issues with cutting vegetation, as well as less sympathetic woodland management immediately adjacent to the site.
- **Disease:** *Phytophthora* disease affects some riparian alders present in the site and can lead to the death of trees. Ash-die back disease, *Chalara*, whilst not known to be present at this time, has the potential to affect the health and abundance of the ash component of the site's woodlands. Monitoring for the presence and extent of these diseases is required. In addition planning should be undertaken to consider how to mitigate for and adapt to this increasing threat.
- **Invasive species:** Several invasive species, including Himalayan balsam, Japanese knotweed and rhododendron are present and these need to be contained and reduced. Himalayan balsam is present along the riverside and long-term effective control of it requires catchment-wide approach.
- **Habitat fragmentation:** The site is a small isolated remnant of the once much larger Bringewood Chase, of which there are very few other remaining parts, however in remnant areas adjoining the SAC many of the oak trees were felled in the mid twentieth century and re-planted with conifers. These conifers influence the SAC through shade, microclimate, hydrology etc. Many of these plantations are reaching maturity. Although the existing plantations influence the site, were they to be clear felled it would have an even more drastic influence on the SAC through changing the above parameters and potentially increasing the isolation of the site from other mature woodlands. The isolation of the site increases the vulnerability of the site to the extinction of species through disease or climate

**International Site**

**Supplemental Evidence supporting Conservation Objectives,**

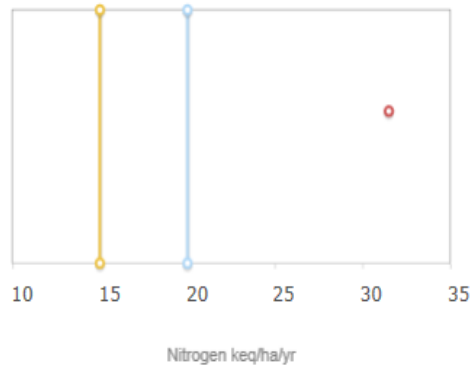
change. The threat would be partly addressed by a continuous cover woodland plan, which looks to convert the existing conifers to sympathetic broadleaf woodland. The new tree cover would be supportive of the wildlife interests of the SAC, notably the woodland flora, the lichens and mosses of deciduous trees and the birds of western valley deciduous woodlands.

- **Air pollution:** Nitrogen deposition exceeds site relevant critical loads

**Nitrogen Critical Loads**

**Feature:** Tilio-Acerion forests of slopes, screes and ravines  
**Critical Load Class:** Meso- and eutrophic Quercus woodland

**Critical Loads (kg N/ha/yr):** 15-20  
**Nitrogen Deposition (kg N/ha/yr):**  
Maximum: 31.5 Minimum: 25.8 Average: 30.3



*Screengrab from APIS website showing Downton Gorge SAC and exceedance of Nitrogen Critical Load, site accessed July 2018*

**Walmore Common**

**Supplementary Advice on Conserving and Restoring Site Features:**  
None available.



| International Site | Supplemental Evidence supporting Conservation Objectives,   |
|--------------------|---|
| SPA                | <p><b>Site Improvement Plan 141113FINAL v1.0 (13<sup>th</sup> November 2014):</b></p> <ul style="list-style-type: none"> <li>• <b>Hydrological change:</b> The swans will only visit the SPA if it is under flood conditions. The operating protocol for the tilting weir installed in 2011 needs to have regards for creating flood conditions in the winter months when required.</li> <li>• <b>Changes in species distribution:</b> It is thought, by the British Trust for Ornithology (BTO), that declining numbers are due to broad scale re-distribution of this species rather than to specific site problems. As numbers over-wintering on the nearby Severn Estuary SPA have remained stable, it is important to continue to protect all known sites for this species (only some of which are designated).</li> <li>• <b>Changes in land management:</b> Maintenance of suitable habitat is essential for the Bewick's Swan. Changes in management on neighbouring land may also have an adverse impact.</li> <li>• <b>Offsite habitat availability/management:</b> It is necessary to include all regular feeding and roosting areas within a designated site in order to protect the resource for this species from adverse management or developments</li> <li>• <b>Public Access/Disturbance:</b> Any disturbance to these birds while feeding or roosting is likely to have an adverse effect on the ability of this species to over-winter here.</li> <li>• <b>Energy production:</b> The potential for developments such as wind turbines and solar panels to affect Bewick's Swans needs to be better understood and any sensitive areas identified. A turbine was to be located on the swans' descending flight path onto the SPA, and could have led to a possible risk of collision for flying swans in poor visibility. In addition there is common consensus that the swans use the River Severn for navigation between Slimbridge and Walmore however concerns have been expressed regarding the possibility of the solar panels causing confusion when they are flying between the two sites.</li> </ul> |
| River Clun SAC     | <p><b>Supplemental Advice Document:</b><br/>None available</p> <p><b>Site Improvement Plan 141007FINAL v1.0 (7<sup>th</sup> October 2014):</b></p> <ul style="list-style-type: none"> <li>• <b>Siltation:</b> Siltation is a major issue affecting the health of Freshwater Mussel, both by acting directly on the adult mussels but also by preventing juvenile recruitment. Excessive delivery of fine sediment, from the catchment or artificially enhanced bank erosion, may lead to a range of problems relating to surface siltation, the compaction or concretion of river beds and to the in-filling of substrate interstices. This affects oxygen supply and exchange between the river water and the substrate as well as the ability of juvenile and adult mussels to burrow. Infiltration by fine sediments is one of the main causes of decline in juvenile recruitment for mussel populations. Fine sediments also subsequently provide a medium for macrophyte growth and further silt trapping, which makes the river bed habitat unsuitable for mussels. It should be noted that host salmonids also require</li> </ul>  |

## International Site

## Supplemental Evidence supporting Conservation Objectives,

clean gravels for spawning and are particularly sensitive to siltation of gravel beds. The River Clun Restoration Plan and Nutrient Management Plan highlight the issues around increased sediment loads and siltation affecting the remaining freshwater mussels. The scientific and local stakeholder consensus is that agriculture is responsible for the majority of sediment loads in the River Clun.

- **Water Pollution:** Water quality is important for all life stages of Freshwater Mussel. Juvenile mussels, after they drop off the host fish and live within the river gravels, are most vulnerable to pollution events. Phosphorus, together with nitrogen, is important in enhancing productivity and elevated levels from point and diffuse sources are an important factor in eutrophication. As with siltation, nutrient enrichment can have serious and ongoing impacts on juvenile and adult mussels. Increased inputs of dissolved nutrients tend to lead to filamentous algal and macrophyte growth. The respiration of artificially large growths of benthic or floating algae may generate large diurnal sags in dissolved oxygen and poor substrate conditions (increased siltation) for fish and invertebrate species. Macrophytes can also smother the mussel habitat even further, and trap more sediment, exacerbating the problem in the long term. The River Clun Nutrient Management Plan identified agriculture as a significant contributor of P, N (also sediment). Agriculture (livestock and arable) are shown to contribute 61% of P and 92% of N. In addition Sewage treatment plants contribute 35% of P, at current levels. As there is pressure for more development this will only increase unless it is tackled.
- **Low breeding success/poor recruitment:** The stressed and aging population of Freshwater Mussel is very vulnerable to one off events (floods, drought, pollution). Surveys since 1995 show there has been no juvenile recruitment and there has been an overall loss of 60% of mussels between 1995 and 2013. Most of the remaining mussels are in very poor condition and although they are long lived, the remaining population may only survive for another 20 years without major intervention. This is an aging population which is very stressed, the remaining mussels have been found covered in silt and algae and sitting on the surface of the gravel rather than buried amongst it. The numbers of mussels may reach a point where there is insufficient genetic diversity to maintain a healthy population. Studies have shown that translocation of mussels from river to river is relatively unsuccessful with mortalities of over 50% in the first three years. There may be physiological accommodation or genetic adaptation to particular rivers. Therefore it is crucial to maintain the existing population in situ.
- **Disease:** Tree death is compounding other problems such as siltation and nutrient enrichment. Alder phytophthora is killing numerous trees in the Clun catchment. Dead trees are leading to less stable banksides and contributing directly to bankside erosion/increased siltation. Occasional trees are falling into river and pulling out the whole bank side. As well as adding silt to the river, over time this will effectively widen the river, causing slower and shallower water which will compound the other issues of siltation and pollution. Tree shade also helps to keep the river cool, cold water holds more oxygen and shade can

| International Site | Supplemental Evidence supporting Conservation Objectives,   |
|--------------------|---|
|                    | <p>help prevent the growth of plants and algae.</p> <ul style="list-style-type: none"> <li>• <b>Physical modification:</b> The Freshwater mussel has a commensal relationship with migratory salmonids (salmon and trout), as the glochidia (larval stage) attach themselves to the gills of the fish before dropping off to bury themselves in clean gravels. Weirs and dams (not all of which are in the SAC itself, some are downstream in River Teme SSSI) affect the movement of migratory salmonids on which the mussels depend. Although salmonids are arriving in the headwaters they are likely to be less healthy than if progress upstream was unimpeded.</li> <li>• <b>Invasive species:</b> Himalayan balsam is the main problem species in the catchment at the moment. Work has begun to map and tackle the spread of this species. As Himalayan balsam dies back in winter, it often leaves bare banks during the winter season making them more vulnerable to erosion. This will add to the siltation problems faced by the Freshwater mussel although this has not actually been quantified. It is important to tackle this in conjunction with other issues in the catchment to prevent it undoing work that is happening elsewhere.</li> <li>• <b>Change in land management:</b> Current and future changes in land management in the catchment, particularly intensification of farming practices are a concern. There is a general trend of arable farming replacing grazed grasslands. Changes in land use are a feature across the catchment. Arable, including potato growing has increased in the last decade, including on the steeper slopes higher up in the catchment. The soil types are vulnerable to erosion. Increased sediment loads are evident in the river and have impacted on the riverbed habitat affecting the Freshwater mussel population (siltation).</li> </ul> |
| Severn Estuary SPA | <p><b>Supplementary Advice on Conserving and Restoring Site Features:</b><br/>None available.</p> <p><b>Site Improvement Plan 150413FINAL v1.0 (19<sup>th</sup> March 2015):</b></p> <ul style="list-style-type: none"> <li>• <b>Public access/Disturbance:</b> Public access and recreation (including third party activities) may have an impact on bird species sensitive to disturbance, causing displacement from feeding, roosting and moulting areas, and if severe could affect long term survival and population numbers and distributions within the Estuary. There are a wide range of recreational activities within the site (walking, dog walking, horse riding, biking, beach activities, angling, wildfowling, other shooting (e.g.</li> </ul>  |

## International Site

## Supplemental Evidence supporting Conservation Objectives,

- clay pigeon)) that may cause damage to habitats where pressure is high.
- **Physical modification:** Modification to water courses and barriers to Annex II migratory fish (and those included in the fish assemblage) in the tributary rivers\*<sup>28</sup> are preventing completion of the life cycle and potentially altering the hydrodynamics of the site. This includes existing structures and operations (bridges, power station lagoons, jetties, dredging, flood alleviation) influencing the flow of water, sediments and therefore migration.
  - **Impacts of development:** Strategic planning issue. More rigorous assessment of cumulative, in-combination and offsite impacts (drainage, disturbance, runoff, impacts on managed realignment etc) on sensitive bird species and other habitats and species may be required, given the range of planned development within and adjacent to the Estuary (including residential, transport, energy and other industrial developments).
  - **Coastal squeeze:** As sea levels rise, man-made defences are constraining the natural roll back of estuarine habitats, causing squeeze and loss of habitat and having impacts on species dependant upon those habitats (birds: feeding/ roosting, and fish: feeding/ nursery and shelter areas).
  - **Changes in land management:** Changes in management and use of grassland and saltmarsh habitat within and bordering the estuary. Changes in ownership and other land practices can result in changes in management and use of land (e.g. changes in grazing practice) which affects species composition, habitat availability, and quality of saltmarsh habitats and use of land for other activities that may cause damage or disturbance.
  - **Changes in species distribution:** There is a risk of significant changes in estuarine populations (including declines in some SPA bird populations) in parts of the Estuary resulting from climate change and other man-made and natural modifications to on- and offsite environments. In many cases the causes of the changes to species distribution are unknown
  - **Water pollution:** There is uncertainty over water quality in the Estuary due to diffuse (including agricultural) or direct pollution (e.g. industrial, sewage treatment works, thermal, radioactive). There is a requirement for better understanding of water and sediment quality issues. The Severn River Basin Management Plan identifies that 17 % of the estuarine water bodies in the river basin district currently achieve good ecological status while the others are at moderate status. Macrophytobenthos (benthic macro algae) have been identified in localised hotspots and may be having adverse impacts on the invertebrate communities there. The extent of issues like this, the presence and mobilisation of a range of contaminants and reasons behind the moderate statuses need to be understood. This includes analysis of current data and consideration of potential issues with contaminants in sediment.

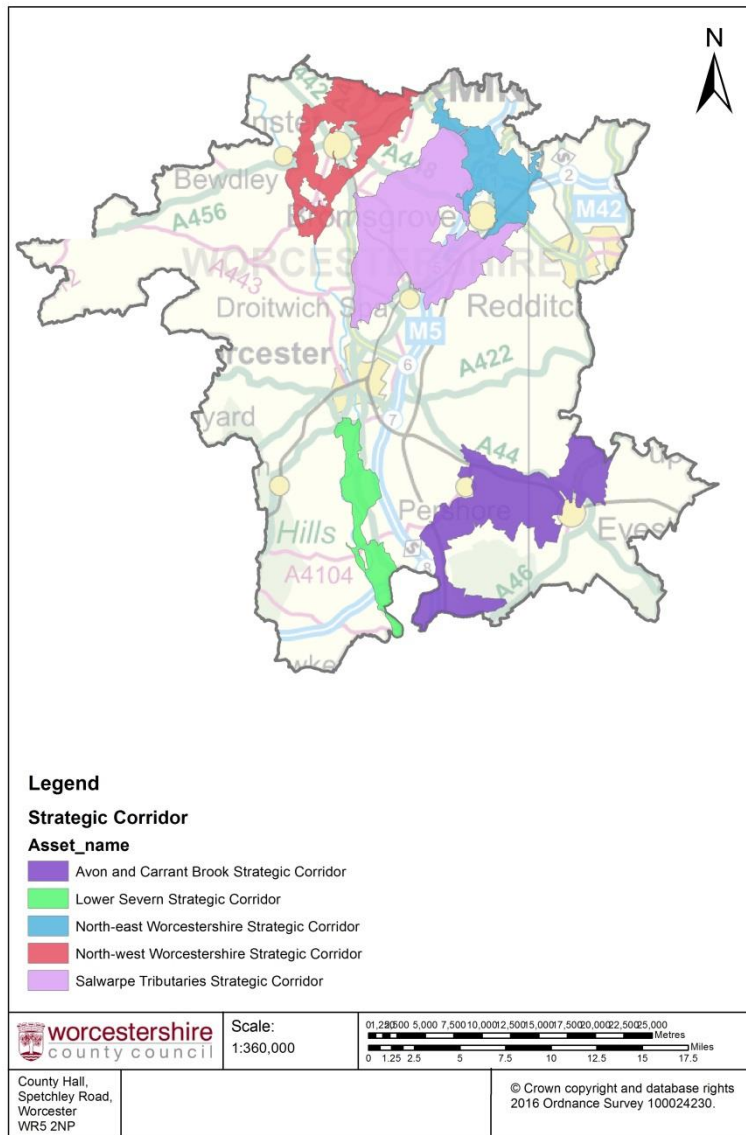
<sup>28</sup> Actions for tributary rivers which are designated as SACs will be detailed in Site Improvement Plans (England/cross-border) or Prioritised Improvement Plans (Wales).

## International Site

## Supplemental Evidence supporting Conservation Objectives,

- **Air pollution:** Activities around the Estuary include fertiliser application, potentially dairy and poultry production, road traffic, industry (including power stations), and shipping which are all sources of nitrogen pollution. Nitrogen deposition exceeds site relevant critical loads, with potential impacts on vegetation structure and diversity.
- **Marine consents and permits (minerals and waste):** The cumulative impacts of aggregate extraction, maintenance dredging and disposal can have adverse impacts on features. While most activity is regulated under marine licences, cumulative effects are not always fully considered.
- **Fisheries (Recreational marine and estuarine):** ACTION FOR ENGLISH PART OF SITE ONLY: Further information is required on the levels and location of activity and potential impact of recreational bait digging and recreational fishing/angling. There are unknown impacts in the vicinity of potentially sensitive roosting and feeding areas, and on intertidal reef habitats. This issue will be reviewed in consultation with the Devon & Severn IFCA in the future.
- **Fisheries (Commercial marine and estuarine):** ACTIONS FOR ENGLISH PART OF SITE ONLY: Dredges (inc. hydraulic), benthic trawls and seines are categorised as 'red' for the reef features (specifically the subfeature *Sabellaria* spp. reef) as part of Defra's revised approach to commercial fisheries management in European Marine Sites (EMS). A bye-law is now in place to address this and is being implemented by Devon & Severn IFCA (D&S IFCA). Commercial fishing activities categorised as 'amber or green' under Defra's revised approach to commercial fisheries in EMSs require assessment and (where appropriate) management. This assessment will be undertaken by D&SIFCA. For activities categorised as 'green', these assessments should take account of any in-combination effects of amber activities, and/or appropriate plans or projects, in the site.
- **Invasive species:** There are recent reports of marine invasive non-native species (the Australian barnacle *Austrominius modestus*, Mitten crab *Eriocheir sinensis*, and the Pacific Oyster *Crassostrea gigas*) in the Estuary (or the Bristol Channel). These could have an impact on native species and habitats but the abundance and impact in the Severn Estuary of these species is unclear.
- **Marine litter:** The marine environment is a sink for man-made litter which often originates from rivers. Impacts are not fully understood.
- **Marine pollution events:** Marine pollution incidents and responses to such incidents have the potential for significant negative impacts on the site and its features. Emergency planning and implementation (ensuring an estuary-wide plan is in place, with all necessary partners signed up) are key to avoiding/reducing such impacts.

## Appendix 3. Showing strategic corridors for Mineral Extraction



**Figure 17: Showing strategic corridors for mineral extraction within the County as defined in the Publication Version Worcestershire Minerals Local Plan.**

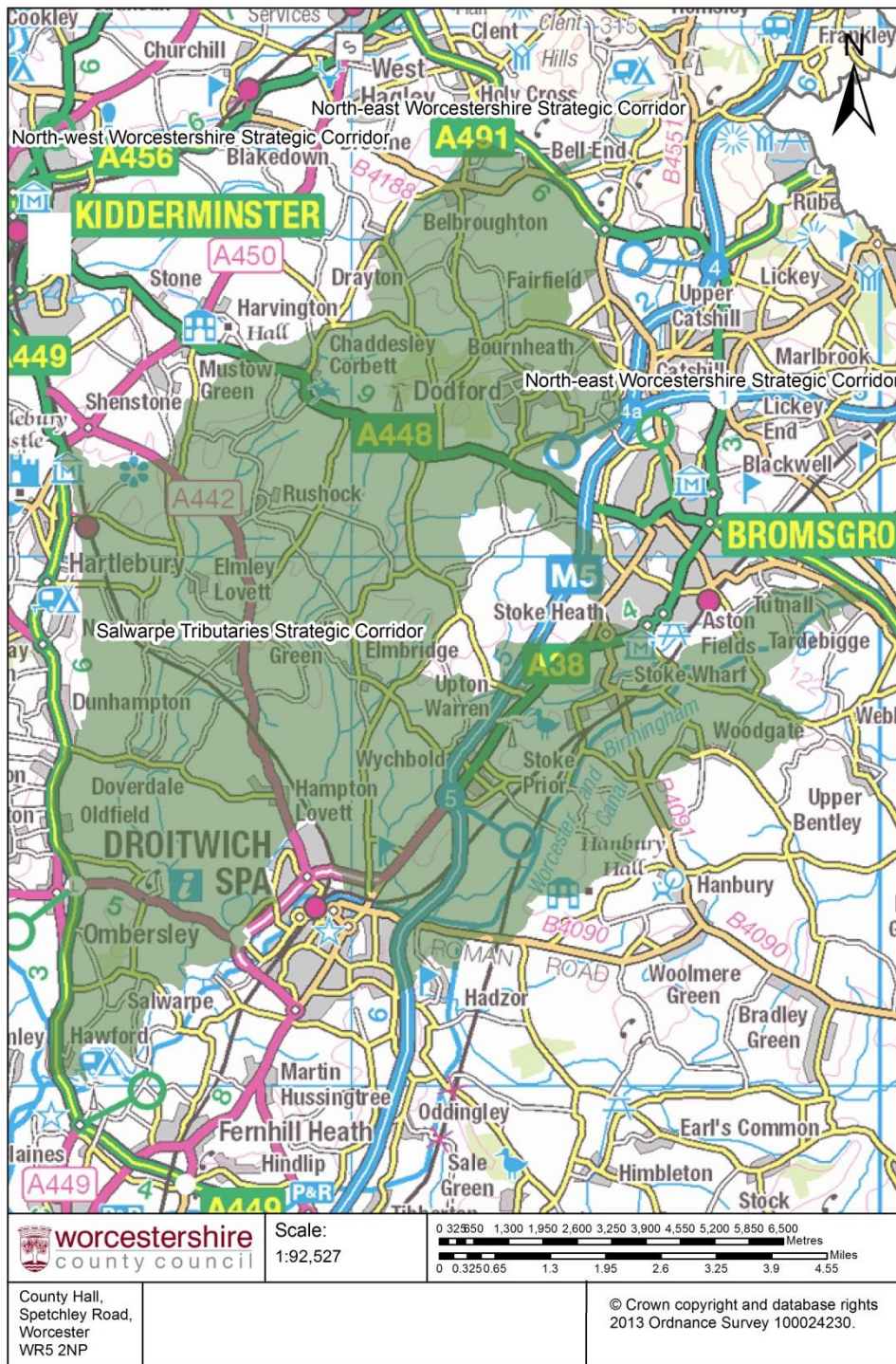


Figure 18: The Salwarpe Tributaries Strategic Corridor.



Figure 19: The North East Strategic Corridor



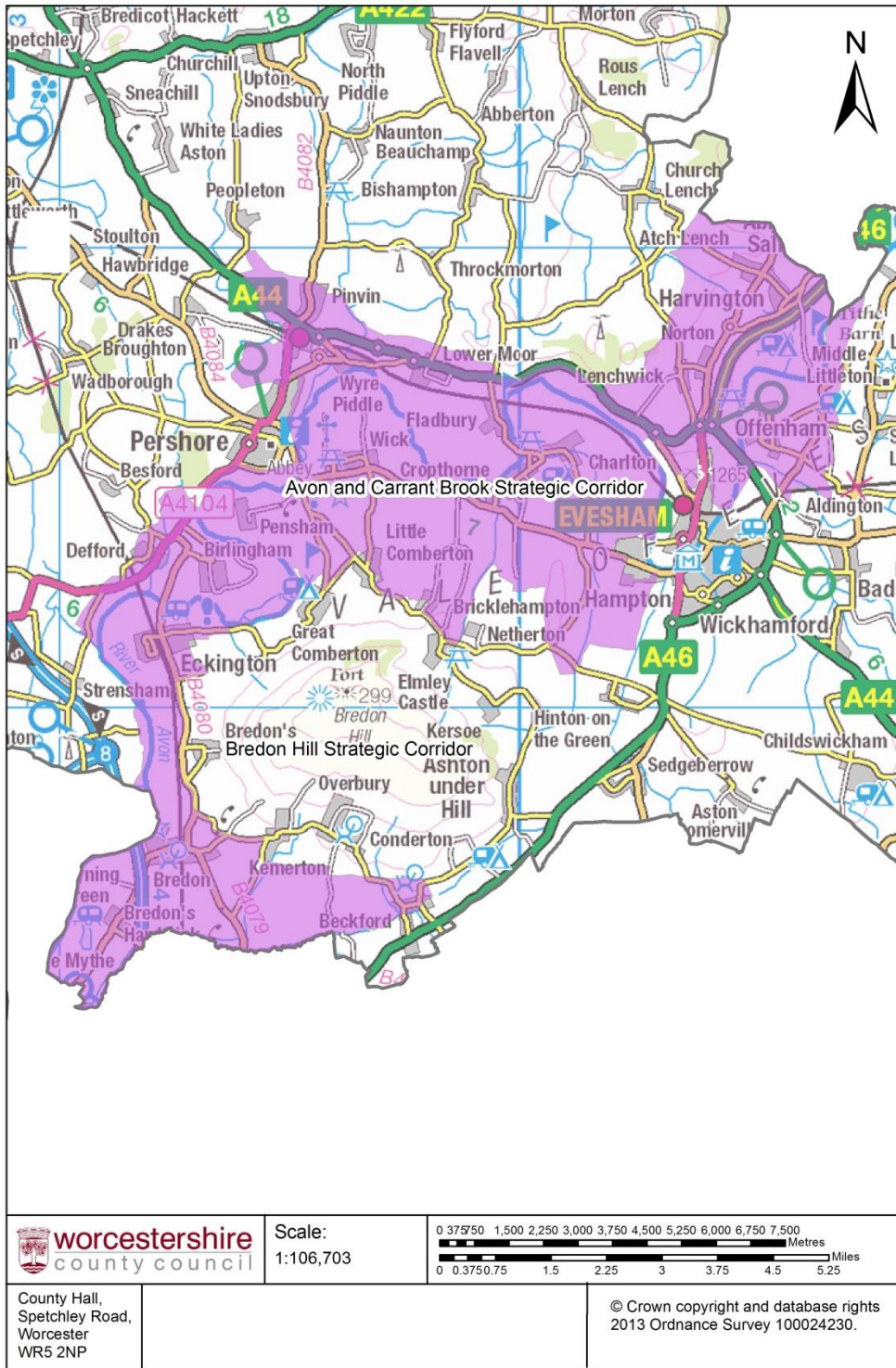


Figure 20: The Avon and Carrant Brook Strategic Corridor

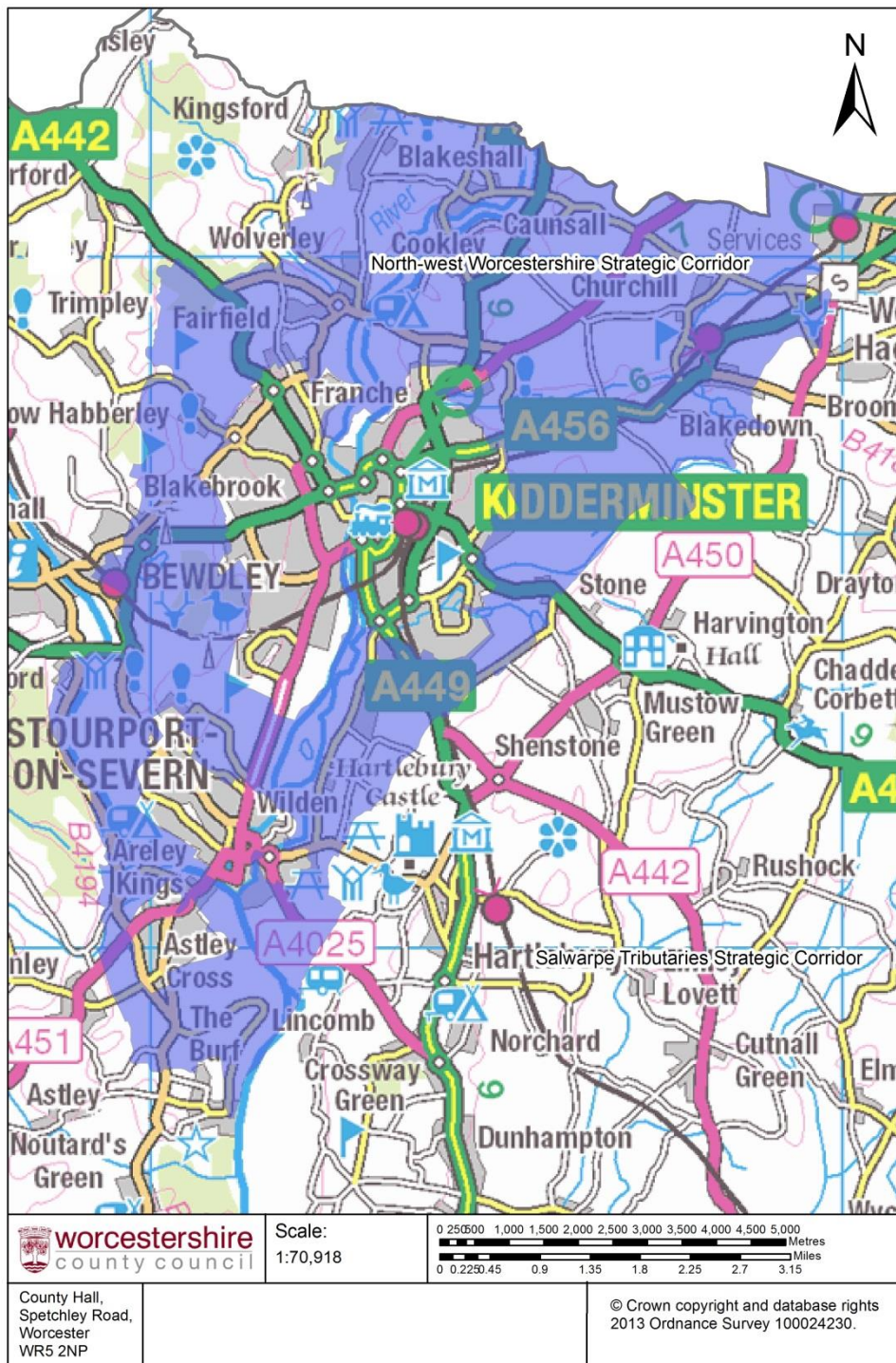


Figure 21: The North West Strategic Corridor

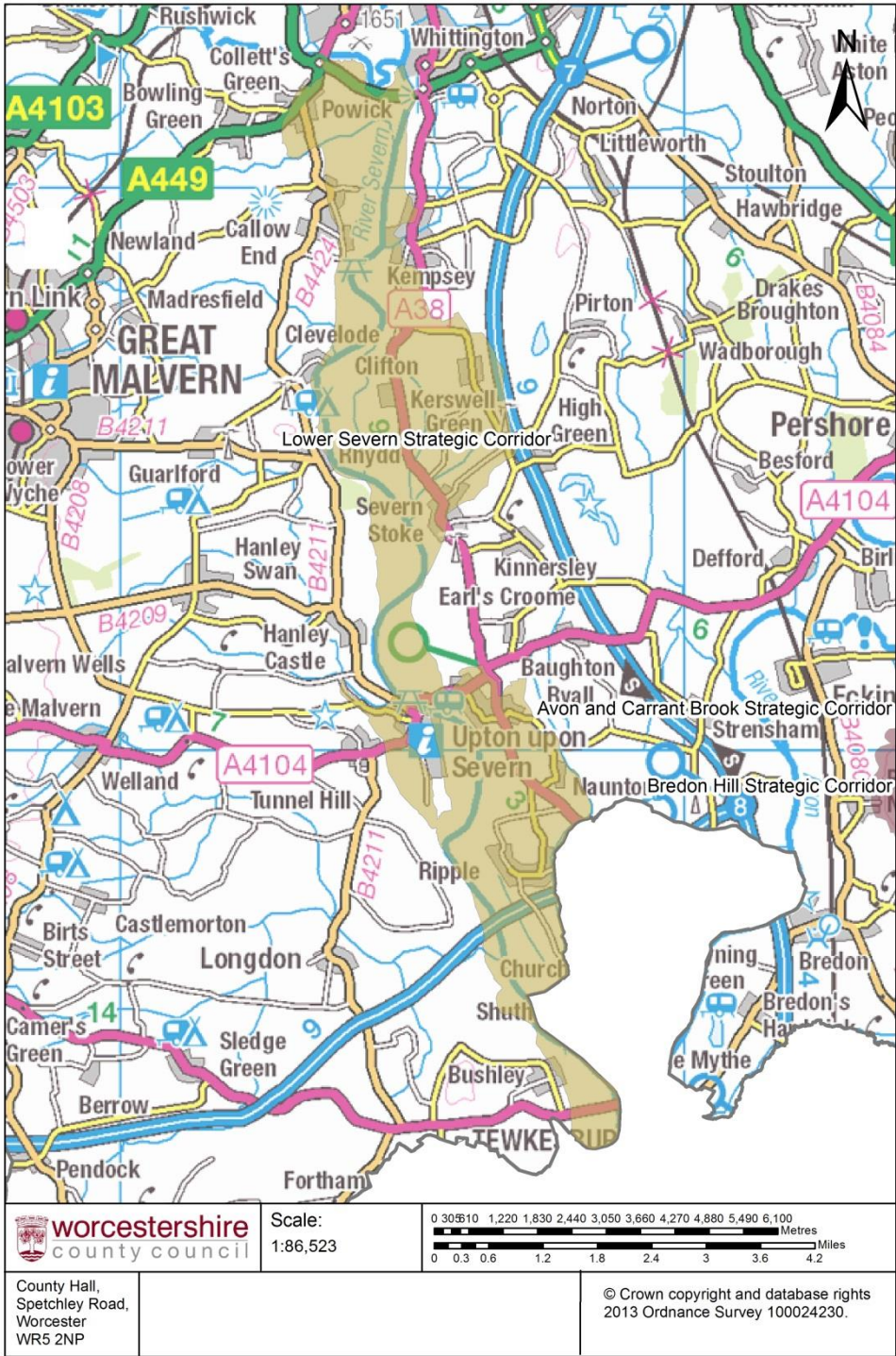


Figure 22: The Lower Severn Strategic Corridor

## Appendix 4. International Sites with illustrative proximity buffers

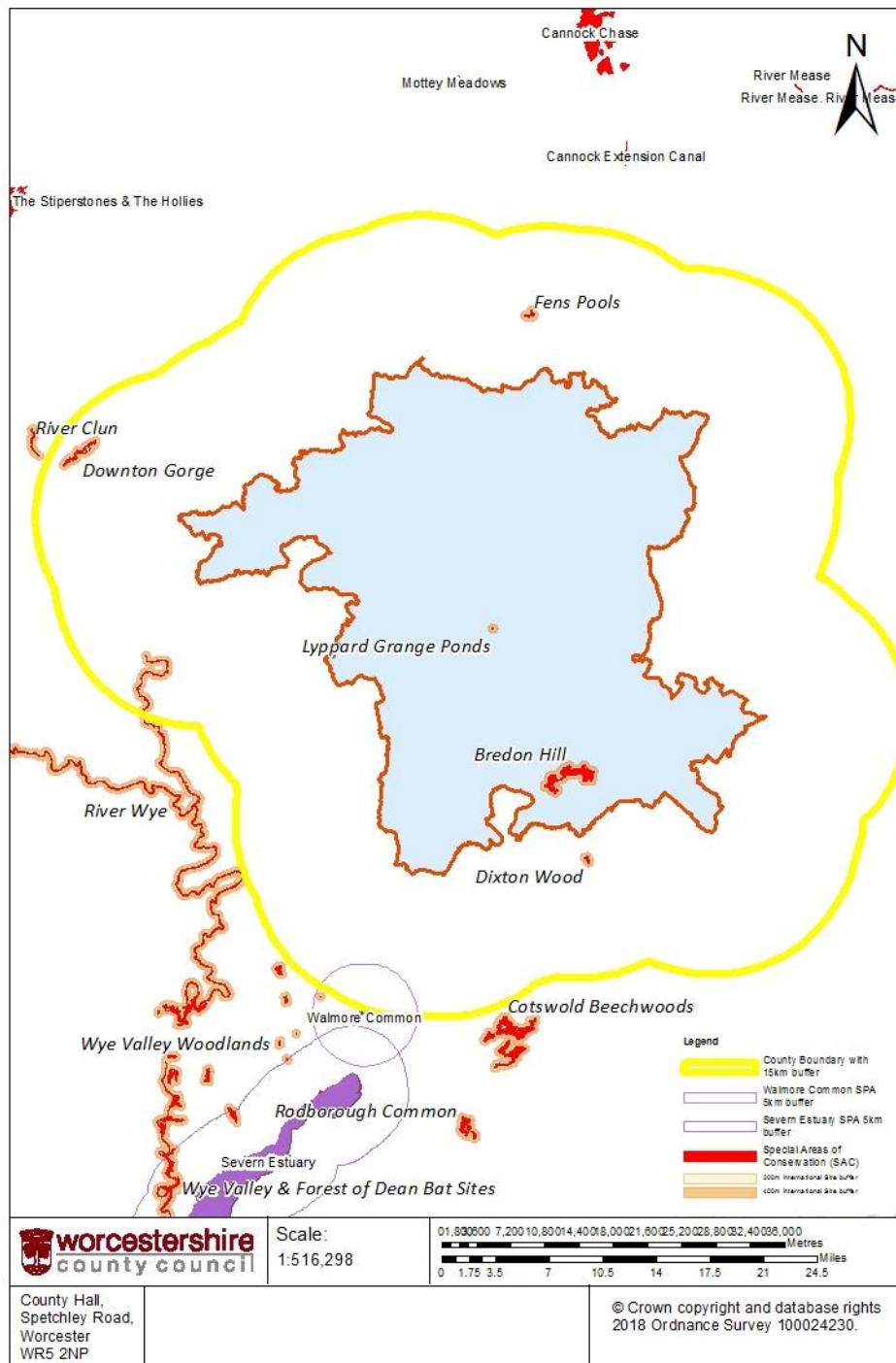


Figure 23: Showing International Sites overview with 200 and 400m buffers around SACs and 5000m buffers around SPAs highlighted.

## Appendix 5. Showing International Sites within Worcestershire and their interaction with the most proximate strategic corridors.

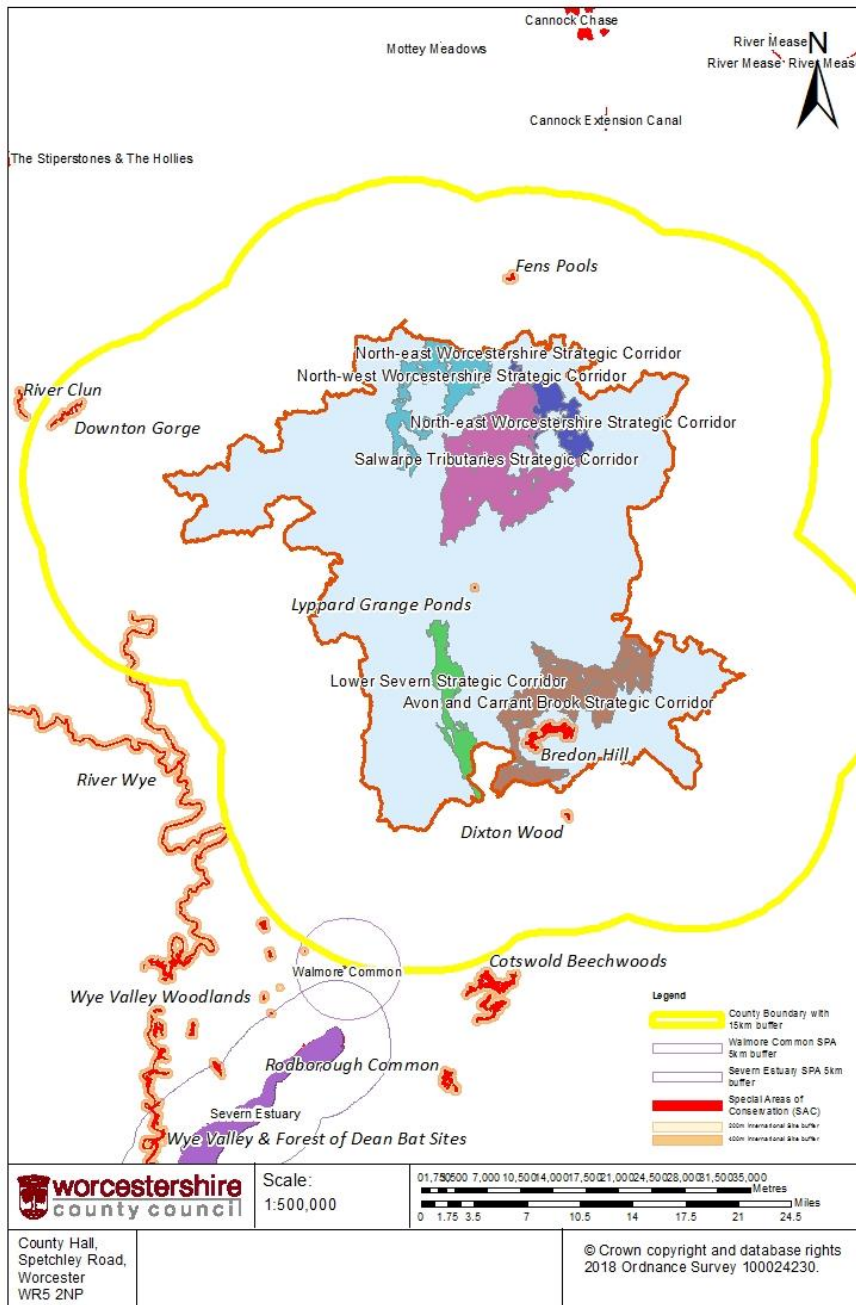
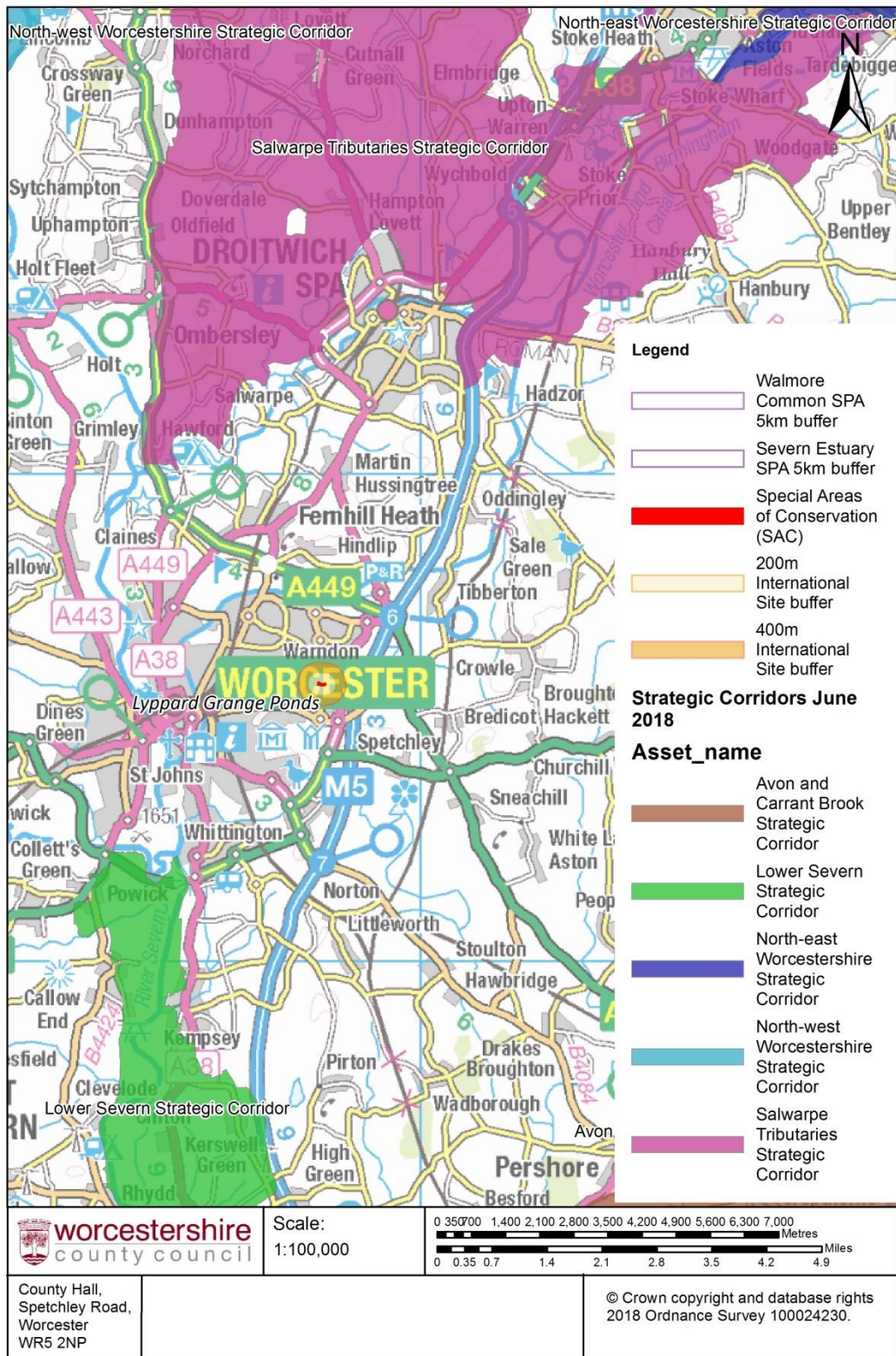
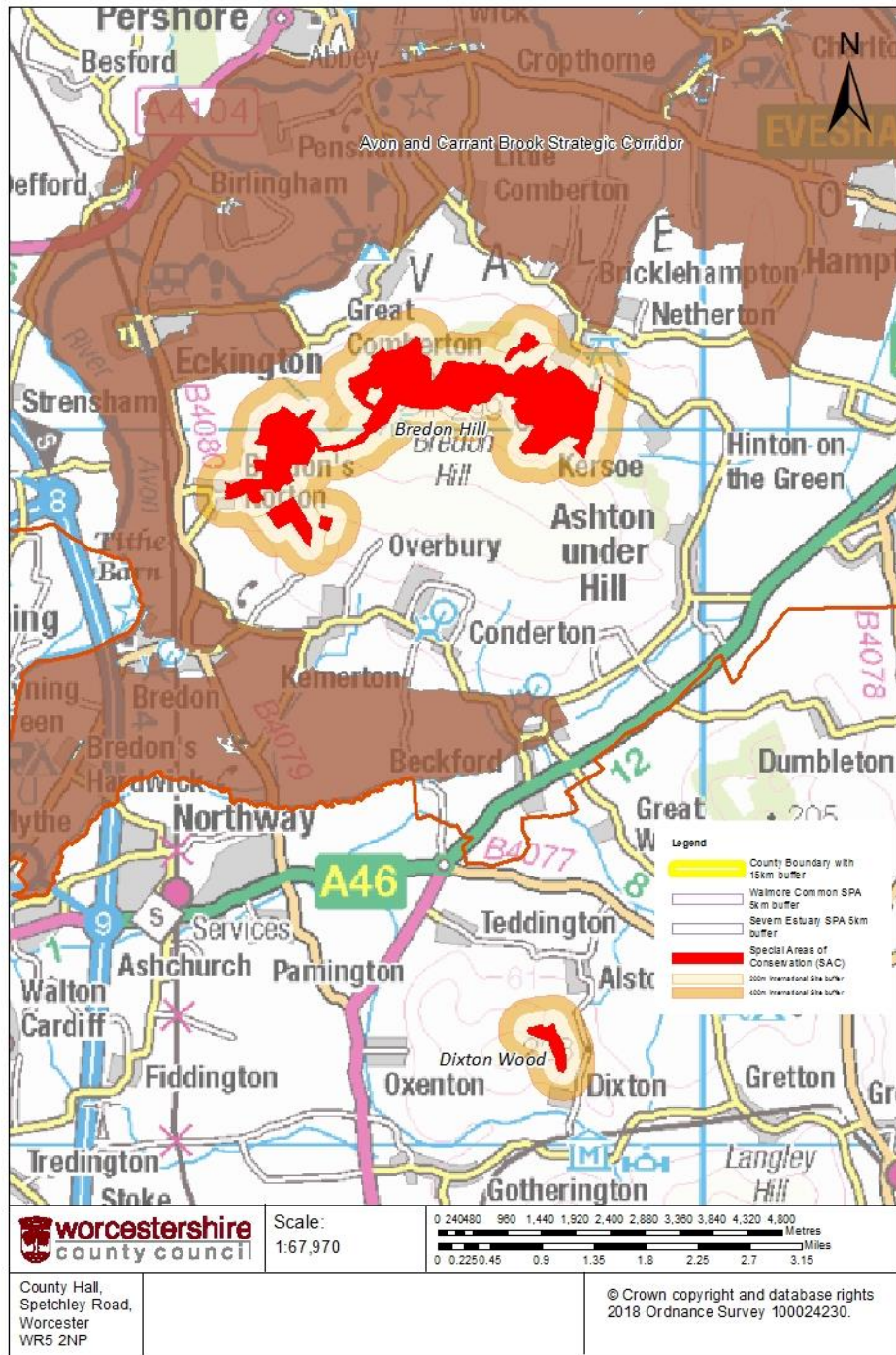


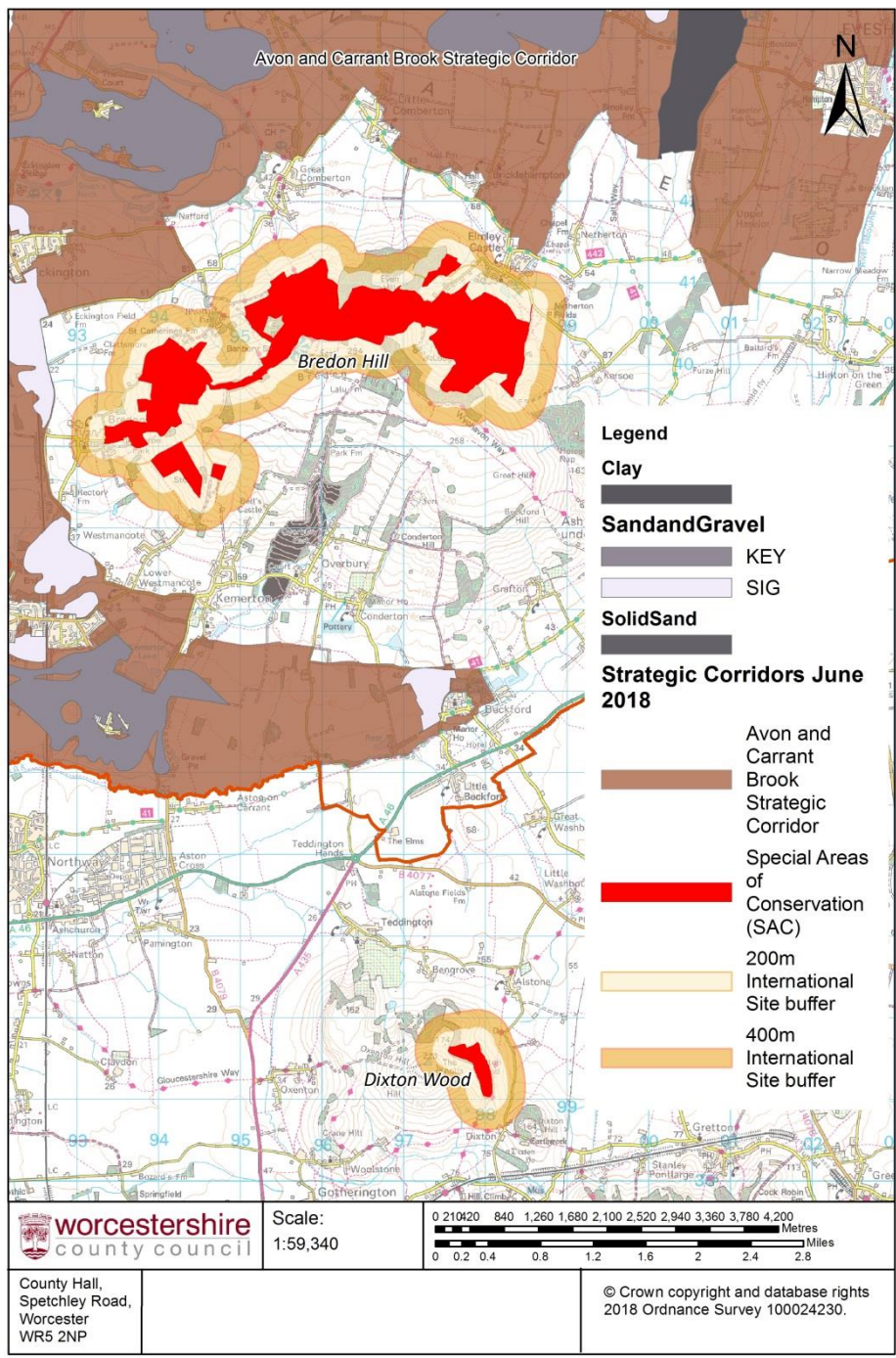
Figure 24: Showing International Sites with proximity buffers and distribution of mineral strategic corridors.



**Figure 25: Showing Lyppard Grange SAC with 200 and 400m buffers and the proximity to closest mineral strategic corridors.**



**Figure 26: Showing Bredon Hill and Dixon Wood SAC with 200 and 400m buffers and the proximity to the closest mineral Strategic Corridor 'Avon and Carrant Brook'.**



**Figure 27: Showing Bredon Hill and Dixon Wood SAC with 200 and 400m buffers, proximity to the closest mineral Strategic Corridor 'Avon and Carrant Brook' and the 'Key' and 'Significant' mineral resources identified within the Publication Version of the MLP (i.e. indicative of likely locations for winning minerals in relation to International Site).**



## Appendix 6. Natural England Comments on the HRA Screening Assessment

Second Stage Minerals Local Plan Consultation,  
2013(Natural England consultation received  
31/1/2014)

| Comment   | Response  |
|---|---|
| <p>Natural England does not support the application of a 15km buffer <i>alone</i> to rule International Sites in/out of consideration within the HRA. Whilst buffers can be a useful starting point, it should be recognised that impacts can occur over this distance. We therefore welcome the decision to scope in Walmore Common SPA/Ramsar site and the Severn Estuary SAC/SPA/Ramsar site.</p>  | <p>Noted.</p>   |
| <p>For your information, Natural England is mid-way through a project to make finalised Conservation Objectives for all International Sites available online. This is a phased process, with the first phase providing broad Conservation Objectives only and the second phase adding further site specific detail. At the present time, the Conservation Objectives provide broad information only.</p> <p>We recognise that these Conservation Objectives will be of limited use to Local Authorities completing their Habitats Regulations Assessment's. Therefore in the meantime we recommend referring to the SSSI Favourable Condition Tables to provide an additional level of detail required to inform the scope and nature of the HRA process. Care should be taken to ensure the correct referencing of both the Conservation Objectives and the Favourable Condition Tables within the HRA report.</p> <p>The Conservation Objectives are available on our website here (as already noted in your report).<br/>[<a href="http://publications.naturalengland.org.uk/category/5134123047845888">http://publications.naturalengland.org.uk/category/5134123047845888</a>]</p> <p>SSSI FCT's are available here.<br/>[<a href="https://designatedsites.naturalengland.org.uk/">https://designatedsites.naturalengland.org.uk/</a>]</p> <p>We welcome the through consideration of site sensitivities and likely impact pathways.</p> | <p>Noted.</p> <p>Where available at time of preparation, SAC Supplemental Advice Documents and Site Improvement Plans have been duly referenced within this report.</p> |
| <p>Soil compaction should be recognised as an environmental impact, and presumably could occur as a result of the</p>   | <p>Noted</p>  |

| <b>Comment</b>   | <b>Response</b>   |
|--|---|
| extraction of any of the materials.  | Discussed as a potential impact within context of Table 3   |
| The initial HRA has highlighted instances where further HRA may be required at the project stage (e.g. for sites hydrologically linked to International Sites). We advise that this requirement is written into the MLP. | <p>Noted</p> <p>A separate HRA will be undertaken of specific sites arising within the subsequent Mineral Site Allocations Development Plan Document in order to further evaluate the credibility of any such risk.</p> <p>The MLP currently requires an appropriate technical assessment of any projects with potential adverse impact to the environment and Policy MLP21 specifies this may include requirement for HRA.</p> |

### **Third Stage Minerals Local Plan Consultation, 2016 (Natural England consultation received 15/3/2017).**

| <b>Comment</b>  | <b>Response</b> |
|---|-----------------|
| No objections and no further comments offered on the HRA report which supported the Third Consultation draft of the MLP | N/A             |

### **Fourth Stage Minerals Local Plan Consultation, 2018 (Natural England consultation received 08/2/2019).**

| <b>Comment</b>   | <b>Response</b>  |
|--|--|
| Natural England would like to draw your attention to the emerging evidence base in relation to the Severn Estuary SPA. The final 'High tide roost report' for the estuary was completed last year and is now available on line <a href="http://publications.naturalengland.org.uk/publication/5655612985180160">http://publications.naturalengland.org.uk/publication/5655612985180160</a> We are now at a very early stage of evidence gathering in relation to the wintering bird populations and the location of their key roosting sites at times of, for example flooding and other extreme weather, when they search much further afield for food and shelter. | <p>Noted</p> <p>The Publication Version MLP does not identify specific sites for mineral development and therefore the Plan cannot directly pose an impact to land considered to be functionally linked to a population of wintering birds forming part of</p> |

| <b>Comment</b>  | <b>Response</b>   |
|---|---|
| <p>We are aware that SPA birds can travel across and up the Vale to the Cotswolds Scarp and as far north as Longdon Marsh. Such land is likely to form ‘functionally linked land’ (FLL) and as such influences planning with respect to the Habitat Regulations. Natural England wishes to continue the dialogue with Worcestershire County Council to ensure that you have access to (and contribute where relevant) to gathering relevant Mineral Local Plan evidence base data.</p> <p>We have reviewed the updated Habitats Regulations Assessment and agree with the conclusions provided.</p> <p>Notwithstanding the above, your authority should be aware of a Ruling made recently by the Court of Justice of the European Union (the CJEU) on the interpretation of the Habitats Directive in the case of People Over Wind and Sweetman vs Coillte Teoranta (ref: C-323/17 ). The case relates to the treatment of mitigation measures at the screening stage of a HRA when deciding whether an appropriate assessment of a plan/project is required. Competent authorities currently making HRAs should be mindful of this case and should seek their own legal advice on any implications of this recent ruling for their decisions.</p> | <p>the designation criteria for the Severn Estuary SPA/RAMSAR.</p> <p>However, the possibility of discovering key roosting sites of wintering bird populations within Worcestershire is acknowledged.</p> <p>The Publication Version of the MLP requires an appropriate technical assessment of any future project with potential to cause adverse environmental. Policy MLP21 specifies that this may include requirement for HRA. This policy can be relied on to ensure any proposals coming forward under Strategic Corridor Policies MLP4 – 8 will not undermine the conservation objectives of the Severn Estuary SAC/SPA/RAMSAR.</p> <p>In addition, and as a legal requirement, a separate HRA will also be undertaken of specific sites emerging within the proposed Mineral Site Allocations Development Plan Document in order to ensure Habitats Regulations compliance of any emerging proposals once sufficient information as to the nature, scope, location and timing is resolved.</p> |

## Appendix 7. Template for recording the conclusion of the Habitat Regulations Assessment

Extract from the HRA Handbook (accessed May 2019)

### OUTLINE OF A RECORD FOR A PLAN WHICH WOULD NOT BE LIKELY TO HAVE A SIGNIFICANT EFFECT ON ANY EUROPEAN SITE, EITHER ALONE OR IN COMBINATION WITH ANY OTHER PLAN OR PROJECT

The outcome could be recorded along the following lines.

#### Introduction and conclusion of the assessment

**[Title of the plan]** was considered in light of the assessment requirements of regulation 63 / 105 of the Conservation of Habitats and Species Regulations 2017 by **[the name of the plan-making body]** which is the plan-making / competent authority responsible for adopting the plan and any assessment of it required by the Regulations.

Having carried out a 'screening' assessment of the plan, the plan-making / competent authority has concluded that the plan would not be likely to have a significant effect on any European site, either alone or in combination with any other plans or projects (in light of the definition of these terms in the 'Waddenzee' ruling of the European Court of Justice Case C – 127/02) and an appropriate assessment is not therefore required.

The **[name of the statutory nature conservation body]** was consulted on this conclusion and has **[agreed / disagreed]** with it **[attach any written response to the record]**.

#### Information used for the assessment

A copy of the list used to scan for and select European sites potentially affected by the plan is given below.

**[This would be a scanning and site selection list based on that given as an example in Figure F.4.4 of the Handbook]**

A summary of the information gathered for the assessment is presented in the Information Required for Assessment table below.

**[This would be a table, schedule or spreadsheet based on that given as an example in Figure D.1.1 in Part D of the Handbook]**

#### The formal screening decision

A formal decision as to whether the plan would be likely to have a significant effect on a European site, either alone or in combination with other plans or projects, taking no account of the effects of any measures intended to avoid or reduce the harmful effects on a European site.

**[Based on the work and conclusions set out in F.7 of the Handbook]**

#### The pre-screening schedules, tables or matrices

The pre-screening schedules, tables, matrices or other outputs of the work which resulted from the pre-screening process described in section F.6, could be attached as supporting evidence to the formal screening decision and record

**Assumptions and limitations**

The screening conclusion necessarily relies on some assumptions and it was inevitably subject to some limitations. Most of the assumptions and limitations would not affect the conclusion but the following points are recorded in order to ensure that the basis of the assessment is clear.

***[List of assumptions and limitations that have the potential to affect the assessment conclusions if circumstances materially changed]***

**References and reports**

In reaching the conclusion of the assessment the plan-making / competent authority took the following documents into account:

***[List of references and / or links to any supporting documentation or reports (with dates)]***

Dated .....

Copy sent to Natural England / Natural Resources Wales / JNCC date .....

Extract from *The Habitats Regulations Assessment Handbook*, [www.dtapublications.co.uk](http://www.dtapublications.co.uk)  
© DTA Publications Limited (October 2018) all rights reserved  
This work is registered with the UK Copyright Service