Hanson Aggregates UK

# Westdown Quarry

## Report to Inform Habitats Regulations Assessment


Wood Group UK Limited – January 2021

## Report for

Ian Strachan
Strategic Development Manager – Aggregates UK
Hanson UK
Whatley Quarry
Frome
Somerset
BA11 3LF

## Main contributors

Katheryn Leggat
Kelly Jones

## Issued by

Claire Brown

## Approved by

pp 

Andy Brooks

## Wood Group UK Limited

Canon Court
Abbey Lawn
Abbey Foregate
Shrewsbury SY2 5DE
United Kingdom
Tel +44 (0) 1743 342 000

Doc Ref. 40380-WOOD-ZZ-XX-RP-OE-0001_S0_P01

h:\projects\40380 whatley quarry planning support\deliver stage\d design_technical\reports\westdown\7.hra aa\westdown rihra 190102021 for hanson review.docx

## Copyright and non-disclosure notice



## Third party disclaimer



## Management systems

This document has been produced by Wood Group UK Limited in full compliance with our management systems, which have been certified to ISO 9001, ISO 14001 and ISO 45001 by Lloyd's Register.

## Document revisions

| No. | Details | Date |
|---|---|---|
| 1 | Final | 21 January 2021 |
| | | |

# Contents

# 1. Introduction

## 1.1 Overview

1.1.1 This Report to Inform Habitats Regulations Assessment (RIHRA) Report has been prepared to accompany an Environmental Impact Assessment (EIA) and other necessary documentation to support an application to reopen Westdown Quarry near Frome in Somerset, extend operations into adjacent farmland, and restore the adjacent Asham Quarry void using materials from the farmland extension. It has been produced for the purpose of providing the competent authority (CA) with the information necessary to enable compliance with its duties under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

1.1.2 This RIHRA describes the methods used to define the scope of a screening assessment and identify potential effects on European sites associated with the proposed scheme individually, and in combination with other plans or projects (Stage 1: screening). Where a Likely Significant Effect (LSE) could not be ruled out at the screening stage the RIHRA goes on to present an appropriate assessment (AA) (Stage 2 Appropriate Assessment).

1.1.3 European sites include, due to protection through legislation, Special Areas of Conservation (SACs), candidate Special Areas of Conservation (cSACs) and Special Protection Areas (SPAs). As a matter of policy, the UK Government also considers possible SACs (pSACs), potential SPAs (pSPAs), Ramsar sites and, in England, proposed Ramsar sites as European sites.

## 1.2 Legislative Basis

1.2.1 Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive) provides, *inter alia*, a framework for the protection of European sites. The Habitats Directive is transposed into UK legislation by the Conservation of Habitats and Species Regulations 2017.

1.2.2 The Habitats Regulations define the process for the assessment of the implications of plans or projects on European sites. This process is termed the HRA and advice in completing it is outlined in *Guidance on the use of Habitats Regulations Assessment* (July 2019) published by the UK Government, with further relevant advice provided in the Planning Inspectorate's *Habitats Regulations Assessment relevant to National Significant Infrastructure Projects (Advice Note 10)* (Version 8)[1].

1.2.3 In exercising their duty, the competent authority must comply with Regulation 63(1) of the Conservation of Habitats and Species Regulations 2017, as follows:

> "*63 (1) A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for a plan or project which:*
>
> *(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and*
>
> *(b) is not directly connected with or necessary to the management of that site, must make an appropriate assessment of the implications for that site in view of that site's conservation objectives.*"

[1] Although this project is not a Nationally Significant Infrastructure Project (NSIP), as defined by the Planning Act 2008, the guidance provides useful information; including on the process, the evidence required and structures for presentation.

1.2.4 The HRA is a staged process that is described in Advice Note 10 as:

- Stage 1 - Screening: Screening for Likely Significant Effects (LSEs). If no LSEs are identified [and LSEs can be excluded on the basis of objective information], then an appropriate assessment will not be required;
- Stage 2 - Appropriate assessment: If Stage 1 identifies LSEs [or if LSEs cannot be excluded on the basis of objective information], it is necessary to determine if the project, either individually, or in combination with other plans or projects, will adversely affect any European sites (s), in view of the site(s') conservation objectives;
- Stage 3 - Assessment of alternatives: A consideration of alternative solutions is required if it cannot be concluded that there will be no adverse effect on the integrity[2] of the affected European site(s); and
- Stage 4 - Consideration of IROPI: If there are no alternative solutions, an Assessment of Imperative Reasons of Overriding Public Interest (IROPI) is required.

1.2.5 Stages 1 and 2 are covered by Regulation 63 (as stated above) and Stages 3 and 4 are covered by Regulation 64 of the Habitats Regulations. This report provides information to inform Stages 1 and 2 only.

1.2.6 The project promoters are required to provide the competent authority with such information as they reasonably require for the purpose of assessment or to enable it to determine whether an appropriate assessment is required.

1.2.7 The implementation period associated with the United Kingdom's withdrawal from the European Union came to an end as of 31 December 2020. On "Exit Day" the Conservation of Habitats and Species (Amendment (EU Exit) Regulations 2019 came into force. This amendment ensures that the Habitats Regulations retain the same effect as previously. On this basis the approach taken within this RIHRA Report follows guidance from both UK bodies and the European Commission, and case law issued by the Court of Justice of the European Union (CJEU).

## 1.3 Structure of this Report

1.3.1 This report provides the information necessary to enable the competent authority to undertake an appropriate assessment for the re-opening of Westdown Quarry and extension of quarrying operations into adjacent farmland. In order to fulfil the obligations of the applicant, the remainder of this report provides:

- the methods used for informing the screening of and appropriate assessment of the quarrying operations alone (**Section 2**);
- the methods used for informing the screening of and appropriate assessment of the quarrying operations in-combination with other plans and projects (**Section 2**);
- determination of whether the project is necessary for the management of any European site (**Section 3.1**);
- a description of the project (**Section 3.2**);

[2] Site integrity has been defined as being "*the coherence of its ecological structure and function across its whole area which enables it to sustain the habitats, complex of habitats and/or population levels of the species for which it was classified (or designated)*" (ODPM circular 06/2005).

- the identification of potential effects associated with the project, and the zones of influence within which they may operate (**Section 3.3**);
- an assessment to determine the presence of LSE (**Section 3.4**); and
- appropriate assessment of LSE identified at the screening stage (**Section 4**).

1.3.2 All figures are provided in **Appendix A** of this document; detailed information regarding the designation status and conservation objectives of European sites is provided in **Appendix B**; and information relating to projects considered as part of a cumulative assessment is provided in **Appendix C**.

# 2. Methods

## 2.1 Screening Process Outline

2.1.1 For Stage 1 screening, the project should be considered 'likely' to have a significant effect if the competent authority is unable (on the basis of objective information) to exclude the possibility that it could have significant effects on any European site, either alone or "in combination" with other plans or projects; an effect will be 'significant' if it could undermine the site's conservation objectives. The 'screening' stage or 'test of significance' is therefore a relatively low bar: 'significant effects' can generally be interpreted as any effects that are not negligible or inconsequential. If a significant effect is likely, or if this is uncertain, then 'Appropriate Assessment' is required; the scale and scope of such an assessment is not defined and will depend on the type of development and the effects that require assessment.

2.1.2 The scope of the HRA screening stage was documented within the decision for Waddenzee (C-127/02) "In the light of the precautionary principle, a risk of significant effects exists if it cannot be excluded on the basis of objective information that the plan or project will have significant effects on the conservation objectives of the site concerned; in case of doubt as to the absence of significant effects an appropriate assessment must be carried out. All aspects of the plan or project which can, either individually or in combination with other plans or projects, affect those objectives must be identified in the light of the best scientific knowledge in the field". Further to this the 'People over Wind' decision (Case C-323/17) makes it clear that proposed mitigation measures formulated to avoid or reduce effects on European sites are not to be taken into account within the screening process.

2.1.3 The HRA screening stage has been characterised by the European Commission in the guidance document Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC ('the European Commission Guidance3') as a four-step process. These steps are:

- "*determining whether the project or plan is directly connected with or necessary to the management of the site*;
- *describing the project or plan and the description and characterisation of other projects or plans that in combination have the potential for having significant effects on the Natura 2000 site*;
- *identifying the potential effects on the Natura 2000 site*;
- *assessing the significance of any effects on the Natura 2000 site*".

2.1.4 When each of these steps has been worked through there are three potential outcomes:

- the project or plan is directly connected with or necessary to the management of the site and therefore does not require appropriate assessment (Stage 2);
- one or more LSEs on designated features of European sites are identified and the project requires an appropriate assessment; or

[3] Also see European Commission (2018) *Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC*.

- no LSEs on designated features of European sites are identified as there is no pathway by which such effects could occur or they can be excluded on the basis of objective information and therefore there is no requirement for an appropriate assessment.

2.1.5 The originator of the plan or project must provide sufficient information to the competent authority to enable any LSEs to be identified, to determine if an appropriate assessment is required.

2.1.6 In order to determine whether a plan or project is capable of resulting in one or more LSEs on a European site(s) it is necessary to understand the activities associated with the construction, operation and maintenance of a project (for example the volume and type of material to be disposed of), the potential changes that may occur in the environment as a result and the effects that this may have on designated features of European sites (for example severance of commuting routes for bats resulting in increased energy expenditure and time to reach foraging habitat).

2.1.7 Through the use of this 'activity-change-effect' concept, it is possible to identify potential European sites (and their qualifying features) that may be subject to LSEs through the determination of a series of search parameters. These search parameters can then be extended to identify the other plans and projects that require consideration within the assessment of in combination effects.

## 2.2 Identification of European Sites that could be Affected

2.2.1 The European sites that should be considered within the screening process are those where, in light of the precautionary principle, a risk of significant effects exists for the project alone and/or in combination with other plans and projects.

2.2.2 Key to determining which European sites are included within this consideration is an understanding of the activities associated with a project, the geographical scale over which changes due to the different activities may be detectable and the types of receptors (in other words designated features) susceptible to them4. An effective and efficient way to determine these relationships in a structured and transparent way is through the use of an 'activity-change-effect' model.

2.2.3 Central to the identification of European sites for consideration within the HRA process is the ability to define evidence-based search parameters. In order to achieve this, the following steps are followed (see **Table 3.1** for further detail):

- identification of the project activities associated with the construction, operation and maintenance phases that have the potential to result in changes to background environmental parameters (for example damage to woodland);
- determination of the changes that could occur as a result of the activities identified;
- determination of the distance over which these changes may occur based on published literature, outputs from the ecological assessment process and/or professional judgement; and
- identification of the potential designated features (based on Annex II species listed on the Habitats Directive and Annex I birds listed on the Birds Directive, including functional habitat requirements) that may be affected by the identified changes.

2.2.4 The outcome of these steps is a series of search parameters based on potential pathways of effect that can then be used to determine both the European sites for inclusion within the HRA process,

[4] This includes habitats and species that are not designated features but help underpin the conservation objectives of a European site (for example habitats supporting designated features, such as foraging habitats supporting bats in an SAC). This is in line with recent case law – Case C-461/17 Holohan v An Bord Pleanála.

due to their physical proximity to the project site, and those linked by way of mobile fauna and associated functional habitat.

2.2.5 Information on European sites within the UK is gathered using the Joint Nature Conservation Committee website (www.jncc.gov.uk) and the Defra GIS mapping tool MAGIC (www.magic.defra.gov.uk).

## 2.3 Identification of In-combination Effects and Other Projects or Plans for Inclusion

2.3.1 Effects on European sites may result from a proposed development alone and/or in combination with other plans or projects; these potential cumulative effects are described as 'in combination effects' in the Habitats Regulations. Within the published literature the main references that provide relevant and current guidance are:

- The Planning Inspectorate (2019). *Advice Note 17: Cumulative Effects Assessment relevant to nationally significant infrastructure projects*;
- European Commission (2001). *Assessment of plans and projects significantly affecting Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*;
- European Commission (2018). *Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC*.

2.3.2 These sources have informed the methods used for the in-combination assessment in the case of the Project.

2.3.3 The identification of plans and projects to include within the in-combination assessment follows the same methodology as that outlined in **Section 2.2** for the identification of European sites relevant to the project. Key to the inclusion of other plans and projects within the assessment are the spatial and temporal overlaps that may occur due to the scale of potential changes (for example overlaps in the zones of disturbance caused by simultaneous construction/operational activity) or the areas over which potential receptors may travel (for example a bat may pass through several areas where development is proposed when moving between roosting and foraging grounds in or between designated sites). There are no existing quarrying operations in the area of the sites at which activities are proposed, as both Westdown Quarry and Asham Quarry are disused. The farmland extension area, however, is currently subject to commercial farming activities. This will continue until the start of operational Phase 4 in areas not subject to works in the earlier phases and is therefore considered to be part of the baseline situation for the first 10 years of the scheme. Thereafter they will all be part of the operational quarry.

2.3.4 Within the search areas the types of projects included within the assessment of in-combination effects are:

- projects that are under construction;
- permitted application(s) not yet implemented;
- submitted application(s) not yet determined;
- all refusals subject to appeal procedures not yet determined; and
- projects identified in the relevant development plan.

2.3.5 Following the identification of plans and projects within the search areas, an initial screening is then undertaken to filter out minor proposals (for example residential home extensions etc.) with no potential to cause LSEs in combination and those with no potential to overlap with a project due to differing timescales or geographies. Those that are to be included within the in-combination assessment are then considered with regard to the identified potential effects.

## 2.4 Determining Likely Significant Effects

2.4.1 The HRA screening process uses the threshold of LSE to determine whether effects on European sites should be the subject of further assessment. The Habitats Regulations do not define the term LSE. However, in the Waddenzee case (Case C-127/02) the European Court of Justice found that an LSE exists if it cannot be excluded on the basis of objective information that the plan or project will have significant effects on the conservation objectives of the site concerned, whether alone or in combination with any other project.

2.4.2 For the purposes of this screening stage, an LSE is defined as any identified effect that is capable of resulting in a challenge to the conservation objectives of one or more designated features of a European site after all aspects of the plan or project have been considered alone and in combination with other plans and projects.

2.4.3 This screening assessment does not consider any mitigation measures intended to avoid or reduce LSE on European sites. Embedded mitigation measures taken into account for the Proposed Scheme are outlined within the Environmental Statement undertaken for the quarrying operations (Wood, 2021).

2.4.4 Within this screening assessment, each potential effect is considered using best available scientific knowledge, and objective information, and specifically: information from surveys, published literature (where available), other available baseline data, the project design and professional judgement (informed by CIEEM, 2018). Where a potential effect has been identified but no LSE is predicted the evidence and reason for reaching this conclusion is provided (see **Table 3.2**).

## 2.5 Consultation

2.5.1 **Table 2.1** provides a summary of the questions put to Natural England through the Discretionary Advice Service (DAS), and the responses received in relation to issues affecting European sites and the scheme proposals.

Table 2.1 Consultation responses

| Issue raised by Wood | Natural England response |
|---|---|
| **Will the approach taken to data collection be sufficient to inform an HRA for the site proposals in respect of greater and lesser horseshoe bats?** | Natural England agrees that the approach taken will be sufficient to inform environmental assessment (EIA and HRA) for the site proposals. |
| **Does Natural England approve of survey types being split over 2019/2020 (i.e. segments of traditional activity surveys, static detector surveys and bat trapping surveys were postponed from 2019 to 2020 as a result of trespassing** | Natural England agrees that various survey types can be split over the two year period stated. Provided EIA/HRA takes account of this in interpretation of data and formulating conclusions there is no reason why the assessment outputs would not be robust. It was advised that to allow for comparison and consistency between the two partial years of survey the same locations for static and transect recording were used. |

| Issue raised by Wood | Natural England response |
|---|---|
| **incidents), and agree that data collected via this approach is suitable to inform HRA?** | |
| **Request for advice on the potential impacts on designated sites (i.e. Mells Valley SAC, Vallis Vale SSSI, Old Ironstone Works SSSI, Mendip Woodlands SAC, Asham Wood SSSI).**<br><br>**Request for confirmation that the botanical survey work outlined for Asham Wood is sufficient to inform the HRA, relative to the scheme information available.** | Mendip Woodland SAC and Asham Woods SSSI<br>Natural England agrees that the main impact pathway for SAC and SSSI features is likely to be dust arising from excavation, movement and deposition of material at Asham and Westdown quarries. NE noted that Wood has undertaken botanical surveys in a strip running adjacent and to the west of Asham Quarry, between 150 and 200m into the designated site. This should be sufficient for understanding the key characteristics of the core and fringe areas of the woodland, and will not only provide a good baseline for considering potential effects but also useful information for informing habitat creation at the Site<br><br>Mells Valley Bats SAC<br>Natural England support the approach being taken to bat surveys which is likely to significantly enhance understanding of how several bat species use the landscape in and around the quarries. The information will provide a strong basis for designing mitigation, compensation (in the context of any licensing needs) and habitat enhancements.<br><br>The application site is within the Mells Valley Bats SAC consultation zone – the guidance sets out the recommended survey requirements normally expected for development proposals in this location.<br><br>Review SAC Guidance with respect to lighting. If the quarry operations require lighting it will be essential that retained/enhanced habitats needed to mitigate the effects of the proposals are not compromised (made inaccessible) by an increase in light levels. |

# 3. Stage 1: Screening for Appropriate Assessment

## 3.1 Step 1: Management of European sites

3.1.1 Step 1 seeks to determine whether or not a plan or project is directly connected to or necessary for the management of a European site.

3.1.2 The European Commission Guidance (2001, 2018) states that, in order to conclude that a plan or project is directly connected or necessary for the management of a European site, it must relate solely to conservation actions and not be a direct or indirect consequence of other actions.

3.1.3 In this instance, the project is not connected to, or necessary for, the management of any European site.

## 3.2 Step 2: Overview of the Proposed Scheme

### The site and surroundings

3.2.1 Westdown Quarry is a dormant limestone quarry which has not been substantially worked since the late 1980s. The site is located approximately (~) 5km to the southwest of Frome, in Somerset (OS ST 719 661). In total, Westdown Quarry measures ~67.4 hectares (ha) and is at an elevation of 145m Above Ordnance Datum (AOD) along the southern boundary rising in a north-westerly direction to an elevation of ~160m AOD.

3.2.2 The site is effectively split into two parts – the main Westdown Quarry area and the Asham Wood Void area. These are separated by a small watercourse called Fordbury Water, which runs in a south-west to north-easterly direction through the site. Together, these two parts are covered by the following three existing minerals consents:

- Main Westdown Quarry:
- Interim Development Consent Order (IDO) permission reference IDO/M/1/A (original planning reference 70 - dated 1 November 1947) registered as an IDO on 23 October 1992. This covers the main Westdown Quarry area and extends across an area of ~54ha.
- Review of Old Minerals Planning Permission (ROMP) reference 016248/005 for the winning and working of limestone - Approval of Schedule of Conditions dated 4 November 1998. This permission consolidates two separate parcels of land to the north-east of IDO/M/1/A and an area within the south-west of IDO/M/1/A, collectively covering an area of~14ha.
- Asham Wood:
- IDO permission reference IDO/M/4/A (original planning reference 1492 - dated 28 June 1948) registered as an IDO on 27 October 1992. This permission covers the Asham Wood Void area and extends across an area of~32.3ha.

3.2.3 Although the existing permissions do not expire until 21 February 2042, legislation requires that no further quarrying can commence until there is a determination of conditions pursuant to the Planning and Compensation Act 1991 in respect of the IDO permissions and determination of a full working and reclamation scheme (pursuant to condition 3) of the ROMP permission (in accordance with the Environment Act 1995).

3.2.4 Wide scale extraction has already taken place in the Asham Wood Void area and in the north-western part of the main Westdown Quarry area and while there are no remaining consented reserves left in Asham Wood Void, Westdown Quarry contains ~160 million tonnes (mt) of unworked Mendip limestone.

3.2.5 Those parts of the site that have not been previously disturbed by quarrying activity are either under agricultural tenancy or woodland.

3.2.6 The site itself is bounded to the north by the Bulls Green Link Road – a quarry link road constructed in the 1990s which provides access to the nearby Halecombe Quarry (Tarmac) – and by the A361 to the south. To the west of the site is Asham Wood and to the east are agricultural fields and the Coleman's Quarry complex (Aggregate Industries). There are other quarries in the surrounding area including Hanson's flagship, rail-linked quarry – Whatley Quarry – which is located ~1.5km north of the site and Aggregates Industries' Torr Works quarry which is located ~0.5km from the south-western boundary of the Westdown site.

3.2.7 Access to Westdown Quarry is via the Bulls Green Link Road, to the north of the site. At present, there are two access points into the quarry – the first of these is located ~150m west of the junction with Stony Lane. This access point is however, presently blocked with some large boulders. The second access point, located in the valley bottom, is ~500m west of the first access point and forms the existing site entrance.

3.2.8 The site location is shown in **Figure 3.1** and the boundaries of the existing consents are shown in **Figure 3.2**.

## Description of the mineral development

### Background

3.2.9 It is proposed to recommence mineral extraction at Westdown Quarry and extract ~2.0mt per annum of aggregate grade limestone from the quarry, with operations lasting ~21 years, until 2042. The limestone will be extracted in a south-easterly and then northerly direction over a series of five separate development phases. The quarried mineral will be processed on site by a mobile primary crusher at the base of excavations before being processed further at secondary fixed plant and then stockpiled within the site, ready for onward transportation by road to local and regional markets.

### Development phases

#### *Overview*

3.2.10 The Westdown Quarry development proposals are split into five development phases, firstly concentrating on the western part of the existing Westdown Quarry, and over time, moving in a south-easterly and then northerly direction as illustrated in **Figures 3.3 – 3.7**. Output from the quarry would not exceed 2.0mt per annum. The phasing plans set out orderly working of the quarry.

3.2.11 Throughout the proposed phased workings, it is also proposed to retain and stand-off from a number of areas within the site (which form part of the extant consents) that contain good quality, established woodland. These areas are already existing important features in the landscape which offer valuable habitat to a range of flora and fauna and their retention will not only screen proposed workings from view but will also facilitate the ultimate reinstatement of the land back into the landscape.

3.2.12 It is proposed to extract the limestone through drilling and blasting techniques, with each blast designed to minimise vibration and air overpressure. The blasted rock would then be processed on site using a mobile primary crusher located near to the excavation faces, before quarry vehicles transport the limestone to a secondary and tertiary crusher and screening plant located in the central, northern area of the site. Once processed, the mineral would be exported to local and regional markets via lorry, using a proposed new site access onto the Bulls Green Link Road.

3.2.13 Any top and sub-soils or other materials which require removal will be placed in bunds no higher than 3m around the perimeter of the site and it is anticipated that overburden material (oolite) and inert quarry waste generated throughout the production process will be used as restoration fill material in the Asham Wood Void area of the site.

3.2.14 The groundwater 'rest' level across the site is at ~120m AOD, it is likely that the proposed workings will encounter only limited quantities of groundwater from Phases 1-3, but more substantial quantities in Phases 4 and 5. With this in mind, groundwater levels will be controlled by artificially by pumping accumulations from the base of the workings into a quarry sump (to be located in the north-western part of the Westdown Quarry void) and associated settlement system.

3.2.15 Surface water rainfall accumulating within the quarry workings will be managed in the same way as encountered groundwater. Surface water drainage from the fixed plant area / stocking yard and office area will however be managed in a different way. As the plant area will be a hard surface of compacted crushed aggregate or surfaced with asphalt laid to a fall, the runoff will be collected and channelled through an oil intercept prior to discharge to Fordbury Water.

3.2.16 Foul waters (sewerage) from mess and toilet facilities are be contained within a sealed cess pit and prevented from discharging to either surface water or groundwaters.

*Phase 1 – up to the end of year 3*

3.2.17 The first phase of mineral extraction would see extraction recommencing in the western part of the quarry, moving in a south-easterly direction, enlarging the footprint of the existing void in that direction. The limestone in this area would be worked in three benches with safe working heights up to 15m, the bottom face at a depth of 120m AOD and the top face at a height of 150m AOD.

3.2.18 For extraction to take place, there will be a requirement to remove ~17,200m³ of topsoil which will be used to establish two permanent perimeter screening bunds around the southern and south-western sides of the site. Totalling ~1,100m in length, these screening bunds will be 3m high, with a 1:4 outer slope and a 1:2 inner slope, a total footprint width of 21m, and have a 3m wide flat crest at the top to facilitate access for maintenance. Furthermore, they will be planted with native broadleaved trees and shrubs to increase their visual screening role and provide dormouse mitigation and enhanced corridors for bats.

3.2.19 There will also be a requirement to remove ~257,000m$^3$ of overburden material (known as oolite) from an area of ~7ha, which currently sits above the carboniferous limestone. This material will be removed in a staged manner during this first phase and will be transported to the southern area of the existing Asham Wood Void to be used as restoration fill material. This material, along with ~118,000m$^3$ of other unsaleable quarry, will be used to create a final restored landform in the southern part of Asham Wood Void – and forms part of a wider scheme to progressively restore the whole of the void area.

3.2.20 The extraction works themselves would be facilitated by two new access ramps to the quarry floor, which would link to an existing (historic) quarry haul road, before heading northwards to a processing (secondary and tertiary crushers), screening and stocking area. From here, road going vehicles would collect material, before travelling further north and east within the site to an

upgraded site access onto the Bulls Green Link Road. A new weighbridge, office area and vehicle parking would also be constructed in the northern part of the site, close to the site entrance.

3.2.21 All operations described above are illustrated on **Figure 3.3**.

*Phase 2 – up to the end of year 5*

3.2.22 The second phase of extraction will see operations moving in a south-easterly direction, further enlarging the footprint of the quarry void. As with the first phase, the limestone in this area would be worked in three benches with safe working heights up to 15m, the bottom face at a depth of 120m AOD and the top face at a height of 150m AOD.

3.2.23 This second phase will also see the completion of the perimeter screenbank with the creation of two further permanent perimeter screening bunds around the northern and eastern sides of the site, which will be created from the stripping a total of 21,400m$^3$of topsoil – ~10,000m$^3$of this stripped soil will go into the construction of these screening bunds, with the remainder being used in the restoration of the Asham Wood Void area. As with the screening bunds constructed during Phase 1, these screening bunds will be 3m high, with a 1:4 outer slope and a 1:2 inner slope, a total footprint width of 21m, and have a 3m wide flat crest at the top to facilitate access for maintenance. Furthermore, they will be planted with broadleaved trees and shrubs to increase their visual screening role and provide dormouse mitigation and enhanced corridors for bats.

3.2.24 In addition to this, at this stage of the proposed development, it is expected that the screening bunds formed under the Phase 1 operations would represent fully restored parts of the site.

3.2.25 To facilitate this phase of the operations, there will also be a requirement to remove ~424,000m$^3$ of oolite from an area extending to ~9ha. This material will be removed in a staged manner from the beginning of this second phase and will be transported to the northern area of the existing Asham Wood Void to be used as restoration fill material. This material, along with ~70,000m$^3$ of quarry production waste, will be used to create a final restored landform in the northern part of Asham Wood Void – and forms part of a wider scheme to progressively restore the whole of the void area.

3.2.26 All operations described above are illustrated on **Figure 3.4**.

*Phase 3 – up to the end of year 10*

3.2.27 The third phase of extraction will see operations moving in a northerly direction, further enlarging the footprint of the quarry void. As with the first two phases, the limestone in this area would be worked in three benches with safe working heights up to 15m, the bottom face at a depth of 120m AOD and the top face at a height of 150m AOD.

3.2.28 Approximately 30,000m$^3$ of topsoil would be stripped at the beginning of Phase 3 with around 7,500m$^3$ being transported to the Asham Wood Void area to complete the restoration of overburden and other materials placed in Phase 2. The remainder of the stripped soils will be used to create a further long-term topsoil storage bund in an area to the north-west of the main Westdown Quarry void. Furthermore, as this third phase will require the relocation of an existing historic soil and overburden store within the site in addition to the in-situ soils and overburden, it is proposed to create three further material storage bunds using this displaced material. These are planned to be located in an area on the 135m level, south of the processing and stocking area and adjacent to the proposed new topsoil storage bund; up against existing faces in an area to the east of the proposed stocking; and beside the redundant historic north west perimeter haul road at the 145m level.

3.2.29 This phase of the site operations will also require the removal of ~759,000m$^3$ of oolite from an area extending to ~12ha. As with previous phases, this material will be removed in a staged manner

from the beginning of this third phase. The majority of this material will be transported to the eastern area of the existing Asham Wood Void to be used as restoration fill material. This material, along with ~182,000m$^3$ of other unsaleable quarry material will be used to create a final restored landform in the northern part of Asham Wood Void – and forms part of a wider scheme to progressively restore the whole of the void area. The remainder will be placed on the 120m level in the North West corner of the Westdown void as long term storage for use in final reclamation.

3.2.30 It is anticipated that the overburden removal and quarry waste generated during this third phase will be sufficient to complete the permeant landforms required for the restoration of Asham Wood Void. Indeed, not all the overburden and quarry waste generated during this phase can be accommodated in the Asham Wood Void area and as such, it is during this phase that a temporary tip area will be created in the western part of the Westdown Quarry void.

3.2.31 All operations described above are illustrated on **Figure 3.5**.

*Phase 4 – up to the end of year 15*

3.2.32 The fourth phase of extraction will see operations moving in a south-easterly direction, further enlarging the footprint of the quarry void. This phase will also see the worked area deepen to 90m AOD, through the introduction of a fourth working bench. The top bench will remain at a height of 150m AOD.

3.2.33 Approximately 7,000m$^3$ of topsoil and 1,000m$^3$ of subsoil would be stripped at the beginning of Phase 4, with all of this soil being transported to Asham Void to complete the restoration of overburden and other materials placed in Phase 3. There will however, be a shortfall of ~23,500 m$^3$ of soils to complete the restoration of Asham Void which will need to be taken from the long linear mound of relocated soils and overburden located along the southern edge of the area to the southeast of the proposed stocking area.

3.2.34 It is not anticipated that this phase will require the removal of any substantial quantities of overburden material. There will however be ~195,00m$^3$ of quarry production waste, which will be placed in the temporary tip area created in the south-western part of the Westdown Quarry void.

3.2.35 All operations described above are illustrated on **Figure 3.6**.

*Phase 5 – up to the end of year 20*

3.2.36 The fifth and final phase of extraction will see operations moving in a south-easterly direction, taking the footprint of the quarry void to its maximum extent. This phase will also see the removal / demolition of the existing (vacant) Westdown Farmhouse and associated out buildings. Limestone will continue to be worked in four benches with safe working heights up to 15m, the bottom face at a depth of 90m AOD and the top face at a height of 150m AOD.

3.2.37 Approximately 19,500m$^3$of topsoil and 7,000m$^3$of subsoil would be stripped at the beginning of Phase 5, all of which would to be stored on site for use in the final restoration at the end of Phase 5. In this regard, a further, small subsoil bund will also be created in the central part of the site, to the north-west of the Westdown Quarry void (and adjacent to the topsoil and relocated materials bunds established during Phase 3).

3.2.38 This final phase of the site operations will require the removal of ~63,000m$^3$ of oolite from an area extending to ~8ha. As with previous phases, this material will be removed in a staged manner from the beginning of this fifth phase and will be transported to the temporary tip area in the western part of the Westdown Quarry void. Additionally, this phase will generate ~235,000m$^3$ of quarry production waste, which will also be placed in the temporary tip area located in the western part of the main quarry void.

3.2.39 All operations described above are illustrated on **Figure 3.7.**

### Interactions with operations at Whatley Quarry

3.2.40 Westdown Quarry will be operated as an independent unit, with its own access and processing plant. It is envisaged that no materials, either aggregate or restoration materials, will be transferred from Westdown to Whatley, or vice versa. Westdown will be linked to Whatley Quarry, however, in relation to traffic movements.

3.2.41 The existing planning permission at Whatley Quarry (reference 109/22/002, July 1995) states at condition (30) that no more than 4 million tonnes of the total output from the site in any one calendar year shall be transported by road. As the resumption of working at Westdown Quarry would be to complement existing operations at Whatley Quarry, and allow the latter to focus on the despatch of aggregates by the on-site rail head facility, it can be confirmed that in future Whatley and Westdown combined would operate within the limits of the existing condition (30), i.e. no more than 4 million tonnes per annum would be transported from the sites via road.

### Access, weighbridge, wheel wash and site offices

3.2.42 All traffic to and from Westdown Quarry will utilise a newly constructed site access onto the Bulls Green Link Road. From the quarry, it is envisaged that vehicles would travel eastwards along a stretch of the Bulls Green Link Road for ~1km, before travelling in a southerly direction along Whatley Road to the A361. Traffic turning onto and off the Bulls Green Link Road would come from a route that is already used by the permitted Whatley traffic.

3.2.43 A weighbridge, wheel wash and site offices would be established on previously disturbed former hardstanding in the northern part of the site. A new wheel wash similar in design to that in operation at Whatley Quarry would be installed. Modular portacabin type offices would be installed at the site, again similar to those at Whatley Quarry.

### Site security and lighting

3.2.44 The perimeter of the site will be enclosed with as a minimum a ~1.0m high, post and wire stock proof fencing. Any existing fencing / hedges will remain in-situ if they are fit for purpose. The fencing will also include warning signs at ~50m intervals highlighting dangers associated with entering the quarry.

3.2.45 The site's security and utility lighting design will be based on the appropriate use of lighting to provide safe working conditions in all areas of the site, whilst minimising light pollution and the visual impact on the local environment.

## Description of restoration and aftercare scheme

3.2.46 The proposed restoration masterplan is illustrated in **Figure 3.8**.

### Progressive restoration

3.2.47 Progressive restoration would occur across the site with opportunities concentrated within the following areas:

- The progressive restoration of Asham Wood Void during Phases 1-4 (including final soil placement and planting);
- The formation and planting of the perimeter screenbanks in Phases 1 and 2, which would remain in place as part of the final restoration of Westdown Quarry; and

- The progressive restoration of benches, quarry backfill tips and lake margins as the quarry is expanded and deepened.

### *Asham Wood Void*

3.2.48 A combination of oolitic overburden material and quarry production waste would be used as restoration fill material within the Asham Wood Void and would be placed during Phases 1 to 3. This would create a new landform within the former quarry void commencing in the south, before moving to the north in Phase 2 and completing the landform between the two areas in Phase 3. The southern end of the landform seeks to recreate the natural side-valley of the Tunscombe Valley. Soils stripped in each subsequent phase (i.e. Phases 2 to 4) would be used to create a suitable soil profile across which a range of habitat creation would take place as part of the progressive restoration of Asham Wood Void. Opportunities would also be taken to maximise the beneficial use of historic soils and soil-forming materials stripped from previously disturbed areas, to make optimum use of the diverse woodland and grassland seed bank that has developed over many decades since original quarry workings. Some small sections of landform would also be retained as bare rubble/rock screes to enhance habitat diversity.

3.2.49 The landform created would merge with the surrounding existing landform and would form a flatter profile across the upper northern and western areas with steeper south facing slopes along the southern edge. The slopes would be restored to woodland thereby reflecting the key characteristics of the Mendip Landscape Character Area (LCA) A10.4: Whatley Bottom (Including Asham Woods) of "*steep sided deep valley section*" and "*heavily wooded*"[5]. The wooded slopes would also serve as linear landscape features to act as bat navigation routes along the created slopes (and also within the in the flatter upper area) and thereby replicate the bands of vegetation that follow the existing faces within the Asham Wood Void and creating connectivity between existing areas of woodland and providing foraging and connective habitat for species such as bats and dormice. The addition of embedded pipe roosting features within in the tip slopes would enhance the bat focussed restoration of the Asham Wood Void.

3.2.50 Beyond the proposed wooded areas, a combination of open calcareous grassland and patches of scrub planting would increase both landscape and habitat diversity. Settlement lagoons installed during the operational phases would remain in place to provide enhanced bat foraging habitat with any artificial retaining embankments softened with soils where required. The detailed scheme would be developed in collaboration with local bat groups to ensure that bat focussed, and ecology led restoration is delivered.

### *Westdown Quarry*

3.2.51 Perimeter screenbanks would be created along the south-western and southern (A361) boundary of the main quarry in Phase 1 and subsequently extended along the eastern and northern boundaries of the site in Phase 2. These 3m high mounds would be initially seeded and subsequently planted (in the first available planting season following completion) with a native broadleaved tree and shrub planting mix to increase their long-term screening role and provide enhanced wildlife corridors alongside existing (retained) hedgerows. The perimeter screenbanks would remain in place as part of the final restoration of Westdown Quarry. There are opportunities to install a viewing platform on the crest of the eastern screenbank (similar to one at Whatley Quarry), accessed via bridleway FR 12/43. This would provide an opportunity for members of the public to view the operational workings and subsequent restored void with information boards provided.

[5] Macgregor Smith Landscape Architects. (2020). *Mendip Landscape Character Assessment.* [online]. Available at: https://www.mendip.gov.uk/evidencebaselandscape

3.2.52 To ensure that safe access is available to enable the restoration of quarry benches, soil placement and seeding/planting would take place progressively as soon as each bench has been worked and preferably while there is still a full width of rock in front of the soiled bench/rock trap profile. Benches would be restored to a combination of calcareous grassland with scrub and tree planting to soften the faces and increase the mosaic of habitats and connectivity. Short sections of south facing quarry bench would remain unvegetated (or sparsely vegetated) for the benefit of invertebrates.

#### Final restoration

3.2.53 A wide range of new habitats would be created across the whole of the Proposed Development site as part of the restoration scheme shown in **Figure 3.8**. These include new woodland, scrub and calcareous grassland, with exposed quarry faces and areas of water body and marginal habitat also contributing to a diverse landscape within the site boundary. Native mixed broadleaved woodland and scrub mixes would be based on those set out in the detailed landscaping and planting mitigation strategy, which would be agreed prior to the recommencement of workings.

### Programme and timescales

3.2.54 The proposed development is expected to commence in 2022 and comprise five operational phases lasting for 20 years, followed by site restoration.

## 3.3 Steps 3 & 4: Identification of Potential Effects on European Sites and Assessment of Likely Significant Effects

3.3.1 In Step 3 the European sites that could be affected by the construction and operation of the project either alone or in-combination with other plans or projects are identified. To determine which European sites require consideration within the HRA Screening for the project, it is necessary to understand:

- What types of activities may be associated with the construction, operation and maintenance, or restoration of the project;
- The designated features (and associated habitats where applicable) that may be affected by the potential effects identified (based on Annex I habitats and Annex II species listed on the Habitats Directive and Annex I birds listed on the Birds Directive and regularly occurring migratory species); and
- The geographic extent over which the potential effects could manifest.

3.3.2 Based on the existing nature of the site and the proposed development, a geographic extent of 10km has been selected. This is the distance up to which LSEs on bats should be considered in line with guidance from Collins (2016).

3.3.3 A search for sites within 10km was undertaken using the Joint Nature Conservation Committee website (www.jncc.gov.uk) and the Defra GIS mapping tool MAGIC (www.magic.defra.gov.uk). The list of European sites that fall within this 10km geographic extent comprises:

- Mells Valley SAC; and
- Mendip Woodland SAC.

3.3.4 Detailed information regarding the designation status and conservation objectives of European sites is provided in **Appendix B**.

3.3.5 **Table 3.1** presents the project activities, potential changes and effects and the geographic extent over which an effect may occur in respect of designated features.

Table 3.1 Identification of search parameters for HRA screening of the project

| Ref. no. | Activity | Potential change | Potential effect | Geographic extent / initial assessment |
|---|---|---|---|---|
| | **Operational Phases 1 to 5** | | | |
| **1** | Construction and installation of associated infrastructure; removal of top and sub soils to facilitate quarrying operations; and creation of temporary and permanent screening bunds | Land-take/land cover change | Direct loss of habitat.<br><br>Reduction of resource available for faunal species (e.g. for shelter, foraging and commuting).<br><br>Severance of habitat linkages resulting in loss of further functional habitat (i.e. of importance to the integrity of a European site) and barrier effects on species' populations.<br><br>Physical removal of habitat and features leading to injury and mortality of fauna. | Within operational area.<br><br>Although the geographic extent of the habitat change is localised, the mobile designated features of European sites may interact with it when remote from the relevant European site. |
| **2** | Limestone extraction through drilling and blasting techniques and on-site processing | Dust deposition | Changes to vegetation communities leading to habitat loss/degradation | Within and up to ~400m from the operational area and restoration area.<br><br>Based on Institute of Air Quality Management (AIQM) guidance (2016). |
| **3** | Limestone extraction through drilling and blasting techniques and on-site processing | Increase in noise levels, vibrations and visual activity | Disturbance to faunal species altering behaviour and affecting breeding/ foraging/ overwintering success. | ~ Within and up to ~250m from the operational area and restoration area.<br><br>Based on a precautionary approach for the likely disturbance distance for breeding birds, following a review of Ruddock & Whitfield (2007).<br><br>Although the geographic extent of the habitat change is localised, the mobile designated features of European sites may |

| Ref. no. | Activity | Potential change | Potential effect | Geographic extent / initial assessment |
|---|---|---|---|---|
| | | | | interact with it when remote from the relevant European site. |
| **4** | Installation of artificial lighting for operational activities and security purposes | Artificial increase in lighting levels | Indirect habitat loss/degradation resulting in a reduction of resource available for faunal species (i.e. for shelter, foraging, commuting).<br><br>Severance of habitat linkages resulting in loss of further functional habitat (i.e. of importance to the integrity of a European site) and barrier effects on species' populations. | Within and up to ~100m from the operational area and restoration area. Lights, including those from vehicles, may typically spill to a distance of ~100m.<br><br>Although the geographic extent of the habitat change is localised, the mobile designated features of European sites may interact with it when remote from the relevant European site. |
| **5** | Transportation of mineral via HGV | Increase in vehicle movements for the duration of operations | Increased vehicular collision leading to injury and mortality of fauna.<br><br>Increase in air pollution caused by exhaust emissions resulting in degradation of habitat. | Within operational area, on the Bulls Green Link Road, and up to a 100m radius.<br><br>The Traffic and Transport chapter of the ES (Chapter 12, Wood 2021) indicates the operational area and Bulls Link Road are the only areas that will experience a 25% or more increase in traffic during the operational phases. The 100m radius included here is based on a study by Bignal *et al.* (2007), who reported that the effects of nitrogen oxide extended up to 100m from a road.<br><br>Although the geographic extent of the habitat change is localised, the mobile designated features of European sites may interact with it when remote from the relevant European site. |
| **6** | Discharge of surface water runoff into Fordbury Water | Water pollution | Degradation of habitat. | Within operational and restoration area, and up to ~2km downstream. |

| Ref. no. | Activity | Potential change | Potential effect | Geographic extent / initial assessment |
|---|---|---|---|---|
| | | | | Based on a precautionary approach following review of the Water Environment assessment reported in the ES (Chapter 10, Wood 2021). |
| **7** | Quarry excavation and dewatering | Decline in river flow and associated water quality | Degradation of habitat. | Up to ~2km from the operational area and restoration area.<br><br>Based on a precautionary approach following review of the Water Environment assessment reported in the ES (Chapter 10, Wood 2021). |
| | **Progressive and final restoration activities** | | | |
| **8** | Restoration of Asham Wood Void | Permanent land-take/land cover change | Direct loss of habitat.<br><br>Reduction of resource available for faunal species (e.g. for shelter, foraging and commuting).<br><br>Physical alteration of habitat and features leading to injury and mortality of fauna. | Within restoration area.<br><br>Although the geographic extent of the habitat change is localised, the mobile designated features of European sites may interact with it when remote from the relevant European site. |
| **9** | Restoration of Asham Wood Void and Westdown Quarry | Leaching of contaminants from backfill material leading to a decline in water quality | Degradation of habitat. | Up to ~2km from the restoration area.<br><br>Based on a precautionary approach following review of the Water Environment assessment reported in the ES (Chapter 10, Wood 2021). |

## 3.4 Summary of Likely Significant Effects

3.4.1 **Table 3.2** lists the European sites and, the individual designated features potentially affected based on the geographic search parameters laid out in **Table 3.1**. In addition, **Table 3.2** identifies the potential effects on each European site as a result of the quarrying operations and outlines the results of the LSEs assessment.

3.4.2 If no LSE on a European site is identified, consideration is then given to the effect of the Westdown Quarry extension project in-combination with any other plans or projects (see **Appendix C** for a list of plans and projects considered). If no LSE on a European site is identified, then the conclusion is reached that the project will have a 'de minimis' effect both alone and in combination with other plans or projects.

Table 3.2 Potential effects of the project

| Site name | Distance (km) | Designated features* | Potential effects of the project | LSE for the project alone | LSE for the project when in combination with other plans and projects |
|---|---|---|---|---|---|
| **Mells Valley SAC** | The SAC comprises three component sites, made up of separate SSSIs, at the following distances from the Site:<br><br>~3.1km north-east<br>~4.1km north-east<br>~4.1km north-west | Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites).<br><br>Caves not open to the public.<br><br>**Greater horseshoe bat.** | Habitat loss.<br><br>Habitat degradation.<br><br>Severance of habitat linkages.<br><br>Injury and mortality of fauna.<br><br>Disturbance to faunal species. | **LSE identified in relation to operational activities.**<br><br>Of the designated features listed, only greater horseshoe bat has the potential to be affected by the proposed scheme. The core sustenance zone for this species is reported by Collins (2016) as being a radius of 3km around the maternity roost site, however, it is recommended that this be extended for this species in recognition of the value of the wider landscape, outside of the core sustenance zone, for the greater horseshoe bat population. North Somerset Council (Burrows, 2018) advise that development proposals up to 8km from a maternity roost should consider effects on the Mells Valley SAC greater horseshoe bat population.<br><br>As such, land-take/land cover changes during the operational phase have the potential to reduce the roosting, foraging and commuting resource available to the greater horseshoe bat population for which the Mells Valley SAC is designated.<br><br>The increase in noise and vibrations during the operational phases may lead to disturbance of any greater horseshoe bats using the operational area for daytime roosting (including maternity roosts and hibernation roosts), which may affect the breeding or overwintering success of the population. | **No LSE in-combination with other plans and projects**<br><br>None of the potential effects for the project alone are considered likely to affect the fitness of the designated features of the European sites or the wider populations of these species. They are of a scale (both spatially and temporally) that additive effects (i.e. in-combination) will not occur. |

| Site name | Distance (km) | Designated features* | Potential effects of the project | LSE for the project alone | LSE for the project when in combination with other plans and projects |
|---|---|---|---|---|---|
| | | | | The introduction of artificial lighting during the operational phase will reduce the value of and may exclude bats from using affected habitats within the Site. This has the potential to reduce the foraging resource available and may also sever commuting routes such that bats are not able to access important habitats in the wider landscape. This loss of functional habitat required to support the greater horseshoe bat population for which the Mells Valley SAC is designated has the potential to lead to LSEs on the integrity of the SAC.<br><br>Operational activities with the potential to result in injury and mortality of greater horseshoe bats that form part of the SAC population have the potential to lead to LSEs. There is the potential for this effect to occur as a result of direct land take activities as well as increase vehicular movements during the period between sunset and sunrise.<br><br>**LSE identified in relation to progressive and final restoration activities.**<br><br>The restoration plan is ultimately designed to create ecologically valuable habitats and will, in the long-term, provide an enhanced foraging resource for greater horseshoe bats. In the short term, however, there will be a loss of foraging and commuting resource until habitats mature. | |
| **Mendip Woodlands SAC** | ~12ha of the SAC falls within the south-western part of the site, adjacent | **Tilio-Acerion forests of slopes, screes and ravines.** | Habitat loss.<br><br>Habitat degradation. | **LSE identified in relation to operational activities.**<br><br>Although ~12ha of the operational site overlaps with the Mendip Woodlands SAC, this area is | **No LSE in-combination with other plans and projects**<br><br>None of the potential effects for the project alone are |

| Site name | Distance (km) | Designated features* | Potential effects of the project | LSE for the project alone | LSE for the project when in combination with other plans and projects |
|---|---|---|---|---|---|
| | to Asham Quarry void | | | included only because it lies within the extant permission boundary. There is no intention to work this area and there will be no direct effect in respect of land-take/land cover change.<br><br>The proposed quarrying operations have the potential to generate dust through drilling and blasting, as well as through the processing of material. Increased vehicular movements within the site and on Bulls Green Link Road also have the potential to generate dust, as well as increasing air pollution through exhaust emissions. This has the potential to cause LSEs by reducing air quality and altering the vegetative communities within the Mendip Woodlands SAC.<br><br>Fordbury Water runs through the SAC, however, the SAC is upstream of the Site and, as such, the SAC habitats do not fall within the geographic extent in which an LSE could occur from the discharge of surface water runoff into the watercourse.<br><br>Changes to the hydrological regime caused by quarry excavation and dewatering has the potential to degrade habitats within the SAC and cause LSEs.<br><br>**LSE identified in relation to progressive and final restoration activities.**<br><br>Although ~12ha of the operational site overlaps with the Mendip Woodlands SAC, this area is included only because it lies within the extant permission boundary. There is no intention to carry out restoration work in this area and there will be | considered likely to affect the fitness of the designated features of the European sites or the wider populations of these species. They are of a scale (both spatially and temporally) that additive effects (i.e. in-combination) will not occur. |

| Site name | Distance (km) | Designated features* | Potential effects of the project | LSE for the project alone | LSE for the project when in combination with other plans and projects |
|---|---|---|---|---|---|
| | | | | no direct effect in respect of land-take/land cover change.<br><br>The SAC is upgradient of restoration activities and as such the SAC habitats do not fall within the geographic extent in which an LSE could occur from the leaching of contaminants. | |

*Designated features in **bold** are those within the zones of influence (i.e. those features that could be subject to an effect as a result of the proposed scheme).

## 3.5 Screening Outcome

3.5.1 Based on objective information, LSEs cannot be fully ruled out for two European Sites: Mells Valley SAC (~3.1km north-east) and Mendip Woodlands SAC (overlapping with the site boundary).

3.5.2 For Mells Valley SAC the following LSEs have been identified:

- Direct loss of habitat due to land-take at the operational and restoration phases, leading to a reduction in resource available (e.g. for roosting and foraging) and severance of habitat linkages (e.g. for commuting) for greater horseshoe bats;
- Indirect loss and degradation of habitat due to the introduction of artificial lighting during the operational phase, leading to a reduction in resource available (e.g. for sheltering and foraging) and severance of habitat linkages (e.g. for commuting) for greater horseshoe bats;
- Disturbance to roosting greater horseshoe bats as a result of increased levels of noise and vibration; and
- Injury and mortality of greater horseshoe bats through land take (i.e. destruction of roosts) at the operational and restoration phases, and increased vehicular movements at the operational phase leading to traffic collisions.

3.5.3 For Mendip Woodlands SAC the following LSEs have been identified:

- Habitat degradation at the operational phase caused by changes to vegetation communities as a result of dust deposition and increased vehicular exhaust emissions during the operational phase; and
- Habitat degradation at the operational phase caused by changes to the hydrological regime as a result of quarry excavation and dewatering.

3.5.4 No further LSEs have been identified for any other European sites. This result is driven by the type of project, typically leading to only localised effects.

# 4. Stage 2: Appropriate Assessment

## 4.1 Summary of Screening Outcome

4.1.1 LSEs cannot be fully ruled out for two European Sites: Mells Valley SAC (~3.1km north-east) and Mendip Woodlands SAC (overlapping with the site boundary). For Mells Valley SAC the following LSEs have been identified:

- Direct loss of habitat due to land-take at the operational and restoration phases, leading to a reduction in resource available (e.g. for roosting and foraging) and severance of habitat linkages (e.g. for commuting) for greater horseshoe bats;
- Indirect loss and degradation of habitat due to the introduction of artificial lighting during the operational phase, leading to a reduction in resource available (e.g. for sheltering and foraging) and severance of habitat linkages (e.g. for commuting) for greater horseshoe bats;
- Disturbance to roosting greater horseshoe bats as a result of increased levels of noise and vibration; and
- Injury and mortality of greater horseshoe bats through land take (i.e. destruction of roosts) at the operational and restoration phases, and increased vehicular movements at the operational phase leading to traffic collisions.

4.1.2 For Mendip Woodlands SAC the following LSEs have been identified:

- Habitat degradation at the operational phase caused by changes to vegetation communities as a result of dust deposition and increased vehicular exhaust emissions during the operational phase;
- Habitat degradation at the operational phase caused by changes to the hydrological regime as a result of quarry excavation and dewatering.

## 4.2 Description of the Proposed Scheme

4.2.1 The proposed scheme is described in **Section 3.2** and therefore not repeated here.

## 4.3 Description of Receiving Environment

### Overview of Site Baseline

4.3.1 The majority of the site is comprised of the dormant Westdown Quarry and Asham Quarry Void, which lie to the north of Holwell Hill (A361) and south of Bulls Green Link Road. To the west of the site is Asham Wood and to the east are agricultural fields and the Coleman's Quarry complex (Aggregate Industries). There are other quarries in the surrounding area including Hanson's flagship, rail-linked quarry, Whatley Quarry (~1.5km north of the Site) and Aggregate Industries' Torr Works Quarry (~0.5km from the south-western boundary of Westdown Quarry).

4.3.2 Dominant habitats types include bare cliff faces with exposed rock and bare ground with extensive areas of scattered scrub and ephemeral growth, with dense continuous scrub and semi-natural broadleaved woodland surrounds. Asham Wood Void is located principally to the south of Asham Wood and is separated from Westdown Quarry by Fordbury Water, a small watercourse which runs

through the centre of the site, from north-east to the south west. Land to the south of Westdown Quarry is dominated by arable fields and their associated boundary features. The characteristics of the habitats and botanic interest within the site are described in full in the '*Westdown Quarry Ecological Baseline Report*' (Wood, 2021b) following surveys completed between 2018 and 2020 inclusive.

4.3.3 The wider landscape surrounding the site is dominated by agricultural land and their associated boundary features and farm building complexes, with the nearest groupings of residential properties located in the hamlets of Chantry and Cloford, which are ~1km north and south of the site, respectively. The village of Nunney is located ~1.5km east of the site. In addition to these groupings of properties, there are some isolated properties located ~0.5 to 0.75km north of the existing and proposed site access, on the southern side of the hamlet of Chantry. There is also a farmhouse located ~0.75km west of the site and west of Asham Wood, off Tunscombe Lane.

## Connectivity and Potential Impacts on European Sites

4.3.4 The site boundary incorporates ~12ha of the Mendip Woodlands SAC, to the south-west of Asham Quarry Void. The closest component of the Mells Valley SAC is ~3.1km north-east of the site. Direct effects on these sites have been ruled out, however, indirect effects of pollution on habitats within the Mendip Woodlands SAC have been identified. In addition, the mobile species (greater horseshoe bat) associated with the Mells Valley SAC has the potential to utilise un-designated "functionally linked habitat" that supports the designated features for some part of their life cycle. As such, indirect effects on the Mells Valley SAC, through direct and indirect effects on the greater horseshoe bat population outside of the SAC, have been identified.

4.3.5 A description of the designated features associated with these two European sites is presented in **Appendix B**.

## Greater Horseshoe Bats

4.3.6 Bat survey work was completed at the site during 2019 and 2020 and included the following.

- Desk study:
  - Search for designated site information using the Multi Agency Geographical Information for the Countryside (MAGIC);
  - Search for greater horseshoe bat records within 6km of the site from Somerset Environmental Records Centre (SERC) in 2018; and
  - Review of reports from previous bat related studies carried out in the local area, including a radio tracking study of greater horseshoe bats from the Mells Valley SAC (Billington, 2000) and a Natural England licence application prepared by First Ecology on behalf of Hanson in 2019 (reference: 2019-40428-SCI-SCI).
- Field survey:
  - Manual transect survey – two transect routes walked monthly at dusk between April and October, with an additional visit before sunrise in July, during which surveyors recorded all greater horseshoe bat activity using full spectrum bat detectors;
  - Automated monitoring – three full spectrum automated bat detectors were deployed to monitor and record greater horseshoe bat activity from sunset to sunrise for five nights per month from April to October;

- Preliminary ground level roost assessment – a walkover survey was completed to identify potential greater horseshoe bat roost locations on the site;
- Building inspection – an internal inspection of Westdown Farm buildings was completed to search for evidence of roosting greater horseshoe bats;
- Emergence and re-entry surveys of structures – surveyors monitored potential roost exit points in the Westdown Farmhouse (on-site) and Asham conveyor Tunnel (off-site) using infrared cameras and aural bat detectors at sunset and sunrise on three occasions between July and early-September;
- Hibernation automated monitoring – a well located inside an outbuilding at Westdown Farm was monitored using an automated bat detector for two weeks per month from October to February to record bat activity;
- Hibernation inspection – the well at Westdown Farm was inspected using an infrared camera lowered into the shaft in early-March to facilitate a partial inspection of the structure; and
- Advanced Licence Bat Survey Techniques (ALBST) – incorporating a programme of trapping, ringing, tagging and radio-tracking greater horseshoe bats in order to gather data relating to the age, sex and breeding status of bats, and to identify roost sites and habitats of importance for foraging and commuting.

4.3.7 Full details of survey results are presented in the '*Westdown Quarry Baseline Bat Survey Report*' (Wood, 2021c). **Table 4.1** provides a summary of the findings in relation to greater horseshoe bats.

Table 4.1 Summary of baseline conditions in relation to greater horseshoe bats on the site

| Species | Contextual and Desk Study Information | Summary of Activity Recorded | Roosting Status* |
|---|---|---|---|
| **Greater horseshoe bat** | **Nationally rare** and considered **'uncommon' in Somerset** and a large area of the South West of England (Somerset Bat Group, no date).<br><br>Mells Valley SAC (and the SSSIs that underpin the site) lies 3.1km from the Site. The primary reason for designation of this SAC is the exceptional breeding population of greater horseshoe bat that it supports.<br><br>SERC identified 38 records of greater horseshoe bats from within 6km, including records from the Mells Valley SAC and at least two roost locations outside of the Mells Valley SAC boundary, ~6km west of the site at Balch Cave and Fairy Cave.<br><br>Radio-tracked individuals from the SAC used habitats within the Survey Area for foraging in 1999, and a maternity roost was confirmed to be present within the Asham Conveyor Tunnel on the Site Survey Area. Peak count recorded in the maternity colony was 73 adult bats (juveniles were also recorded, on separate occasion).<br><br>A licence was granted in 2019 to facilitate the enhancement of Asham Conveyor Tunnel. Several years of survey data collected showed varied use of the roost, with a peak of 40 individuals in May/June 2003. 2018/19 data indicates that the roost is no longer used for breeding purposes, but continues to be used by a small number of greater horseshoe bats in the active and the hibernation periods. | Activity survey work recorded a relatively **low level of activity** for this species within the Site. Activity was predominantly within densely vegetated corridors with the Fordbury Water corridor in particular providing a commuting route.<br><br>A total of 12 greater horseshoe bat recordings were made along two manual transect routes incorporating the range of habitat types present within the site. Nine were recorded along the Fordbury Water corridor, two were recorded in scrubby woodland between Westdown Quarry void and the Farmland Extension area, one in a woodland belt at the eastern boundary of the Farmland Extension area, with the remaining record in Asham Quarry Void, a short distance from the Fordbury Water corridor. The maximum number of greater horseshoe bats recorded in one night was five, in June. All recordings were made in dark and densely vegetated corridors, with no activity recorded in open habitats within the survey area.<br><br>There was a total of 375 greater horseshoe bat passes recorded throughout the automated monitoring period at all three locations. Of these, the majority (60%) were recorded on the Fordbury Water corridor. The number of passes of greater horseshoe bats recorded at other locations was generally low.<br><br>The total number of occasions on which greater horseshoe were captured is 63 (which could include re-captures of individuals which were not ringed). Fifty-five individuals were ringed, comprising 25 adult males, 25 adult females, two unsexed adults, two juvenile males and one juvenile female. All of the captured adult females were in breeding stages and two females were tagged and radio tracked back to the same maternity roost at Wadbury House, the location of the maternity roost used by the Mells Valley SAC colony of greater horseshoe bat. It is considered likely that all females captured at the site are linked to the Wadbury House roost. | Five buildings located at Westdown Farm and two structures (Asham Conveyor Tunnel and a well) were assessed as providing potential to support roosting bats. Subsequent inspections, emergence/re-entry surveys and hibernation monitoring confirmed two roosts of **medium** conservation significance:<br>• a single bat emerged from the farmhouse at Westdown Farm in September; and<br>• four bats emerged from Asham Conveyor Tunnel in August.<br><br>The desk study information also confirmed evidence of two greater horseshoe bats hibernating in the Asham Conveyor Tunnel in December 2018, which represents a roost of **medium** conservation significance. |

*The conservation significance of bat roosts identified within the Site has been assessed in line with the approach set out in the Bat Mitigation Guidelines (2004).

4.3.8 Activity survey work recorded a relatively low and infrequent level of activity for greater horseshoe bat within the site. Activity was predominantly within densely vegetated corridors and Fordbury Water, in particular, provided a commuting route for individuals moving around the landscape. The baseline survey work did confirm that breeding females from the maternity roost within the SAC use habitats on the site, however, it should be noted that not all of the greater horseshoe bats recorded at the site will necessarily be linked with or attributed to the Mells Valley SAC.

4.3.9 Although of medium conservation significance, as greater horseshoe roosts, the roosts in both Westdown Farm and off-site in the Asham Conveyor Tunnel support only small numbers of individuals, occasionally. Asham Conveyor Tunnel has historically supported breeding greater horseshoe bats from the Mells Valley SAC colony, however, survey work in recent years has found no evidence of breeding individuals, nor of numbers exceeding five bats.

### Composition of Asham Wood Communities

4.3.10 A National Vegetation Classification (NVC) survey carried out at the Asham Wood component of the Mendip Woodlands SAC (detailed fully in Wood, 2021b) NVC surveys carried out at Asham Wood SSSI (described in Appendix 11A) identified that Ancient semi-natural woodland on the plateau and slopes of the SSSI are an example of *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland (W8), which is a characteristic woodland community over the Carboniferous Limestone in the Mendip Hills. It was quite variable and discrete stands of any of the seven published W8 sub-communities could not be mapped. However, relatively dry tracts of woodland had affinities to the *Hedera helix* sub-community (W8d), moving into the *Allium ursinum* sub-community (W8f) locally where soils were wet.

4.3.11 The main NVC types conforming to the Annex I habitat Tilio-Acerion forests are the 'western' forms (sub-communities d-g) of W8 woodland, and the equivalent north-western community W9 *Fraxinus excelsior – Sorbus aucuparia – Mercurialis perennis* woodland.

4.3.12 Mature ash (*Fraxinus excelsior*) dominated the canopy in a range of treatment forms, including the low pollards and coppiced stools that are characteristic of the SSSI. Pedunculate oak was a frequent canopy associate, with mature wych elm also occurring rarely.

4.3.13 The understorey was often quite open as a result of deer browsing. It was generally characterised by formerly coppiced hazel below a sub-canopy of wych elm and field maple. Along tracks and in other formerly disturbed places at the woodland edge the woodland community was modified and silver birch and goat willow partially replaced other woody species.

4.3.14 The ground flora also varied considerably according to soil type, dampness and aspect but as a whole the SSSI woodland supported a very diverse community characterised by numerous ancient woodland indicators. Natural rock exposures were infrequent but sloping ground was often characterised by moss-covered rocks and boulders. In drier areas dog's mercury, bluebell and primrose were common. Yellow archangel, wood speedwell, herb-Paris and wood anemone preferred heavier ground and ramsons was locally dominant on heavy wet clay. Populations of uncommon species indicative of old woodland included wood vetch and meadow saffron). At the edges of the wood (especially along tracks) the ground flora was marked by a shift to a suite of light-demanding species including false brome, wild strawberry, rough meadow-grass and bramble.

4.3.15 Traditional woodland management clearly ceased in some areas of Asham Wood many decades ago and this has resulted in widespread canopy closure. However, where managed Hanson implements a coppice with standards regime in line with their approved Woodland Management Plan. Dead wood had generally been left to decay naturally and is likely to provide an important ecological resource. Signs of deer browsing were common across the survey area and numbers are likely to be high. The woodland edge near Dead Woman's Bottom showed signs of recent

disturbance from off-road motorcyclists and its structure has been degraded in these areas by path development.

4.3.16 Mosses and liverworts were abundant and often formed carpets covering much of the ground, rocks and fallen wood. Above, many of the trees and understory shrubs supported luxuriant populations of epiphytes. *Thamnobryum alopecurum* and *Eurhynchium striatum* were very common on the woodland floor, whilst large calcicoles such as *Anomodon viticulosus, Homalothecium sericeum* and *Neckera complanata* were found on rocks and trees. Asham Wood is also interesting in the way that some bryophytes that are normally saxicolous (i.e. grow on rocks) are able to behave as epiphytes. Hence, *Neckera crispa* and *Schistidium crassipilum* were seen quite frequently on trees and shrubs. This is likely to be as a result of the deposition of limestone dust from the air onto the boughs and trunks of trees and understory shrubs and it is a phenomenon that is not uncommon near large active limestone quarries in the Mendips.

## 4.4 Impact Prediction

### Impact on European Sites – Mells Valley SAC

4.4.1 The LSEs identified in the screening process have the potential to directly, and indirectly, impact the mobile designated feature (greater horseshoe bat) when remote from the relevant Mells Valley SAC using un-designated 'functionally linked habitat'.

4.4.2 Greater horseshoe bats are considered nationally rare, and 'uncommon' in Somerset, although trends indicate the population size is increasing in England (Froidevaux *et al.*, 2017). Surveys carried out have shown that greater horseshoe bats of the Mells Valley SAC colony utilise habitats on-site for foraging, albeit at a low level. The Fordbury Water corridor is of particular importance for commuting greater horseshoe bats, and two small occasionally used day roosts occur on or close to the site.

Direct loss of habitat due to land-take at the operational and restoration phases, leading to a reduction in resource available (e.g. for foraging) and severance of habitat linkages (e.g. for commuting) for greater horseshoe bats

4.4.3 During the operational Phases 1 to 5 ~67.4ha of land take is required, including woodland, scrub and linear vegetated features within and to the south-east of Westdown Quarry. This will be carried out using a staged approach (as described in **Table 4.2**), with the creation of a planted, screening bund around the perimeter. Westdown Quarry and adjacent farmland areas will be restored progressively throughout the Phases, completing in 20 of the project.

Table 4.2 Direct loss of habitat due to land-take at the operational and restoration phases

| | **Foraging and commuting habitat to be lost** | **Foraging and commuting habitat to be restored/created** |
|---|---|---|
| ***Phase 1 upto the end of year 3*** | 12.3ha scrub<br>0.73ha grassland<br>1.23ha semi-natural broadleaved woodland<br>369m of hedgerow | - |
| ***Phase2 upto the end of year 5*** | 1.6ha scrub<br>0.17ha grassland<br>0.21ha semi-natural broadleaved woodland<br>882m of hedgerow | 27.3ha of mixed scrub, calcareous grassland and deciduous woodland. |

| | Foraging and commuting habitat to be lost | Foraging and commuting habitat to be restored/created |
|---|---|---|
| ***Phase 3 upto the end of year 10*** | 2ha scrub<br>0.19ha grassland<br>0.1ha tall ruderal<br>0.81ha semi-natural broadleaved woodland<br>No hedgerow lost | 4ha of mixed scrub, calcareous grassland and deciduous woodland. |
| ***Phase 4 upto the end of year 15*** | 115m of hedgerow | 5.8ha of mixed scrub, calcareous grassland and deciduous woodland. |
| ***Phase 5 upto the end of year 20*** | 0.33ha scrub<br>0.12ha grassland<br>0.04ha tall ruderal<br>0.38ha parkland and scattered trees<br>555m of hedgerow | - |
| **Final restoration** | No additional loss | 110.6ha of predominantly mixed scrub, calcareous grassland and deciduous woodland of which a total of ~69ha will be newly created terrestrial and aquatic habitat. |

4.4.4 In the long-term, the progressive and final restoration of both Asham Quarry and Westdown Quarry, will provide an enhanced resource for foraging and commuting greater horseshoe bats. Despite this, as a result of the operational activities described and the time it takes for habitats to mature and become valuable to bats, there will be a reduction in the foraging and commuting resource available to greater horseshoe population for at least the duration of the project.

4.4.5 Throughout all phases of operation and restoration, important habitat features, including the Fordbury Water corridor and extensive areas of mature deciduous woodland within and around the site will be retained in their current condition and remain accessible to bats. This ensures that the most critical habitats for the greater horseshoe population will not be compromised at any stage of the project, and the overall connectivity of functionally linked habitats with the wider landscape will be maintained. The habitats that will lost were shown by survey work to support only low levels of infrequent greater horseshoe bat activity, these all fall beyond the Core Sustenance Zone for the SAC maternity roost (reported to be 3km based on Collins, 2016), and the loss of these areas would have **no adverse effect on the conservation status of the Mells Valley SAC greater horseshoe bat population**.

Direct loss of habitat due to land-take at the operational phases, leading to a reduction in resource available (e.g. for roosting)

4.4.6 New bat roosting structures will be installed on site in advance of the demolition of Westdown Farmhouse to ensure that there is no net loss in the overall potential roosting resource provided on the site. Although categorised as being of medium conservation significance as a greater horseshoe roost, the roost in Westdown Farm was shown to support only a single bat, infrequently. As a single transitional/day roost, over 3km from the SAC, this roost does not provide a critical resource for the conservation of the SAC greater horseshoe bat population. The loss of the roost in phase 5 of operations will, therefore, have **no adverse effect on the conservation status of the Mells Valley SAC greater horseshoe bat population**.

Indirect loss and degradation of habitat due to the introduction of artificial lighting during the operational phase, leading to a reduction in resource available (e.g. for sheltering and foraging) and severance of habitat linkages (e.g. for commuting) for greater horseshoe bats

4.4.7 Overnight lighting at the site has the potential to exclude greater horseshoes from habitats being retained, restored or created. Where this results in the severance of habitat linkages it may impact the ability of bats to move around the wider landscape and prevent movement between foraging and roosting locations; thus, adversely affecting the integrity of the SAC.

4.4.8 Operations at the site are broadly restricted to daylight hours during the main bat active season, albeit operational lighting will be required between late-August and May: when the sun rises after operations commence at 0600, and/or sets before operations finish at 20:00. Bats do remain active and will be at risk in the months of April, September and October and, to a lesser extent, throughout the winter period when greater horseshoes bats will rouse from torpor to forage on occasion (although this activity is typically focussed in the immediate surrounds of the hibernaculum).

4.4.9 Lights will predominantly be switched off via movement sensors when the quarry is not in active use, with a limited number of safety and security lights remaining switched on throughout the night. That said, switching operational lighting off during the core night-time period, while remaining switched on when bats are commuting immediately after sunset and before sunrise is unlikely to mitigate against the potential for severance of the commuting route. Studies have shown that part-night lighting, for example, fails to avoid the adverse effect on greater horseshoe bats where they do not provide darkness during the key commuting time periods (Day *et al*., 2015).

4.4.10 The lighting scheme for the site will therefore be designed to minimise light spill and provide minimum intensity lighting only where essential for safe working. Lighting will be directional and avoid spillage on retained habitat, with no lighting proposed within the Fordbury Water corridor. Although headlights from vehicles crossing Fordbury Water may cast light to a distance of ~100m, this effect would be very short-term as vehicles pass any given point, with the main source of lighting on the site coming from fixed illuminators.

4.4.11 Given the dark baseline conditions (as reported in Appendix 11F of the Biodiversity ES chapter (Wood, 2021a) and strong aversion that greater horseshoe bats show to even low levels of light, any introduction of artificial lighting will result in an adverse effect on the population. The sensitive design of the lighting and retention of Fordbury Water as a completely dark corridor will, however, ensure that the magnitude of the effect on the SAC bat population is very low, and the overall connectivity of functionally linked habitats with the wider landscape will be maintained. The proposed operational lighting will, therefore, have **no adverse effect on the conservation status of the Mells Valley SAC greater horseshoe bat population**.

Disturbance to roosting greater horseshoe bats as a result of increased levels of noise and vibration

4.4.12 The greater horseshoe bat roost at the Conveyor Tunnel in Asham Wood is ~100m from the nearest working area of the quarry and ~350m from the nearest point of blasting and areas of significant excavation. The Conveyor Tunnel is also situated at an elevated position and is surrounded by dense mature woodland which extends to the entire 100m between the roost site and the nearest working area. It is considered that the roost at the Conveyor Tunnel would be sufficiently shielded from noise and vibration at working areas by distance and dense woodland.

4.4.13 The excavation of topsoil, and the blasting and excavation of minerals at the site across all operational phases has the potential to result in the disturbance of bats roosting at Westdown Farm, however, once operations are occurring below ground such disturbance effects are likely to become dampened by the ground between the source and any receptors such that the effects will only be temporary.

4.4.14 New bat roosting structures will be installed on site in advance of the major noise-causing activities, to provide alternative roosting opportunities during any periods of disturbance. Furthermore, although categorised as being of medium conservation significance, the greater horseshoe bat roosts in both Westdown Farm and the Asham Conveyor Tunnel support only small numbers of individuals occasionally. The roosts are over 3km from the SAC, and do not provide a critical resource for the conservation of the SAC greater horseshoe bat population. Disturbance resulting from the scheme will therefore have **no adverse effect on the conservation status of the Mells Valley SAC greater horseshoe bat population**.

Injury and mortality of greater horseshoe bats through land take (i.e. destruction of roosts) at the operational and restoration phases, and increased vehicular movements at the operational phase leading to traffic collisions

4.4.15 Road traffic may result in direct mortality of bats as a result of bats colliding with vehicles when flying across roads. Greater horseshoe bats may be at higher risk of this than some other bat species as they tend to fly low and close to the ground when crossing open spaces.

4.4.16 The Bulls Green Link Road, while already subject to vehicular movements, will experience an increase in traffic volume of greater than 25% during the operational phases. The key greater horseshoe bat commuting route through the site, the Fordbury Water corridor, will be retained in its current condition throughout the operation of the proposed scheme. The disused road that crosses the corridor, however, will be reinstated for site traffic.

4.4.17 Operations at the site are broadly restricted to daylight hours during the main bat active season. As such, the risk of collisions is low. There does, however, remain a small risk of individual greater horseshoe bats being injured or killed by vehicles between late-August and May, when the sun rises after operations commence at 0600, and/or sets before operations finish at 20:00. Bats do remain active and will be at risk in the months of April, September and October and, to a lesser extent, throughout the winter period when greater horseshoes bats will rouse from torpor to forage on occasion.

4.4.18 Given that the Bulls Link Road is already in use, and the increase in traffic will predominantly be during daylight hours, there is likely to be negligible effect from collision with greater horseshoe bats. Although identified as a key commuting route, survey work indicates that Fordbury Water supports only a low level of greater horseshoe activity. Furthermore, during the hours of darkness, headlights will temporarily light the route in advance of the vehicle reaching the corridor. Given that vehicles crossing the corridor will be travelling slowly, following standard industry good practice and therefore this is expected to provide sufficient time for bats to move out of the path before a collision occurs.

4.4.19 While a very low number of individual bats may still be at risk of traffic collisions, this potential is low and would not be sufficient to affect the status of the SAC greater horseshoe bat population. Therefore there will be **no adverse effect on the conservation status of the Mells Valley SAC greater horseshoe bat population**.

## Impact on European Sites – Mendip Woodlands SAC

4.4.20 The LSEs identified in the screening process have the potential to indirectly impact the habitat features for which the Mendip Woodlands SAC is designated.

4.4.21 The Asham Wood SSSI units have all been assessed as being in 'favourable condition' (Natural England, 2021). An NVC survey carried out at Asham Wood in 2019, identified ancient semi-natural woodland on the plateau and slopes, representing *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland (W8), which is a characteristic woodland community over the Carboniferous

Limestone in the Mendip Hills, and the designated feature of the SAC. A high species and soil diversity were recorded, with abundant growth of mosses, liverworts and epiphytic species, including saxicolous (i.e. grow on rocks) species which are able to behave as epiphytes. Structural degradation as a result of off-road motorcyclists creating paths was recorded.

### Habitat degradation at the operational phase caused by changes to vegetation communities as a result of dust deposition and increased vehicular exhaust emissions during the operational phase

4.4.22 The proposed quarrying operations have the potential to generate dust through drilling and blasting, as well as through the processing, movement and deposition of material. There will also be increased exhaust emissions from vehicle movements during the operational phases. In addition to traffic on the site, the Bulls Green Link Road, already subject to vehicular movements, will experience an increase in traffic volume of greater than 25% during the operational phases. The woodland habitat within the Mendip Woodlands SAC is sensitive to the effects of dust and airborne nitrogen deposition. As such, these activities have the potential to cause LSEs by reducing air quality and altering the vegetative communities that form the designated habitat.

4.4.23 While the Mendip Woodlands SAC is located immediately adjacent to, and partly within, the site boundary, the European site lies more than 400m away from all operational (quarrying) activities, in all phases. The SAC is however within the 400m zone of influence only for restoration activities within Asham Quarry Void. To minimise potential for effect during operation and restoration activities a Dust Management Plan (DMP) will be implemented throughout the lifetime of the project to minimise the potential for effect from dust deposition on all receptors. The DMP will include, for example, details of:

- effective site management practices, including an auditing procedure;
- training provision to site personnel on dust mitigation and 'emergency preparedness plans' to react quickly in case of any failure of the planned dust mitigation;
- implementation of an appropriate monitoring scheme;
- planning of certain activities only during favourable weather conditions (e.g. particularly dusty activities will be avoided during extended periods of dry and windy conditions);
- standard good practices for site haulage (including appropriate site speed limits, heavy plant being fitted with upswept exhausts, regular clearing/ grading/ maintenance of haul routes, regular application of water by bowser or fixed sprays in dry conditions);
- additional transportation measures to avoid trackout, such as use of wheel wash;
- minimising mineral handling and drop heights; and
- mineral processing practices, including dampening material prior to crushing.

4.4.24 Many of the measures set out in the DMP, including speed limits and good vehicle maintenance, will also minimise effects of exhaust emissions. Furthermore, although the site and Bulls Green Link Road will experience an increased volume of traffic, the quantity of vehicle movements proposed will not result in cumulative $NO_2$ concentrations exceeding the Air Quality Standards (AQS) of 40ug/$m^3$.

4.4.25 Further details of the Air Quality assessment and DMP are presented in the Air Quality assessment (Chapter 9) of the ES (Wood, 2021a). As a result of the distance between the SAC and the activities generating highest levels of dust, as well as the measures set out in the DMP, there **no adverse effect on the conservation status of the Mendip Woodland SAC woodland interest feature** from dust deposition or exhaust emissions.

### Habitat degradation at the operational phase caused by changes to the hydrological regime as a result of quarry excavation and dewatering

4.4.26 The proposed activities have the potential to cause habitat changes and degradation within the SAC as a result of quarry dewatering, which may lead to a decline in surface water flows and groundwater levels, as well as a decline in water quality (through reduced dilution).

4.4.27 Proposed excavations will be below the water table, and dewatering will be required to facilitate dry working and safe site conditions. The project design includes a quarry water management and monitoring scheme, as follows:

- direct rainfall and intercepted groundwater would be collected in a lagoon in the base of the quarry in the first instance, and the dewatering sumps/ settlement lagoons will also be sized to collect all surface water runoff from the void for settlement;
- there will be a number of other settlement lagoons or catchment pits situated alongside the haul route and the processing plant to capture store and attenuate surface water runoff;
- following appropriate treatment any excess waters will be pumped and discharged to Fordbury Water in accordance with the terms of a discharge consent;
- appropriate consideration of drainage routes would be given to ensure all runoff flows are captured by the site water management system and routed to the excavation void and settlement/storage lagoons;
- the exchange between the Fordbury Water via leakages to the Carboniferous Limestone aquifer will also help serve to address any temporary losses of groundwater from quarry dewatering, so as to minimise reductions in groundwater levels within the aquifer;
- areas that are used for fuel storage and plant operation and refuelling, which will be surfaced with fully impermeable materials to prevent any infiltration of contaminated runoff;
- bunding associated with the compound would allow for appropriate pipes at low points to preserve natural flow paths;
- drainage from the compound area will be designed in accordance with Sustainable Drainage Systems (SuDS) principles and pre-development rates in accordance with the West of England SuDS guidance; and
- Hanson would maintain the on-site settlement/storage lagoons SuDS and undertake silt management for the operational lifetime of the relevant element of quarry operations – should the existing settlement lagoons have insufficient capacity, an additional silt storage lagoon can be placed.

4.4.28 A Monitoring and Mitigation Strategy (MMS) would be implemented for the lifetime of the project, in order to identify changes in the groundwater regime due to quarrying. This would also monitor changes to water quality and surface water flow.

4.4.29 Full details of the assessment of potential effect and embedded mitigation measures are set out in the Water Environment chapter of the ES (Wood, 2021a). The anticipated effectiveness of the embedded environmental measures means that the magnitude of effect on the aquifer with respect to the quarry dewatering (groundwater levels and water quality) is negligible to low. On this basis, there will be **no adverse effect on the conservation status of the Mendip Woodlands SAC habitat.**

## 4.5 Potential for Adverse Effects on Site Integrity

### Mells Valley SAC

4.5.1 The undesignated habitat on the Westdown and Asham Quarry sites only support a low level of greater horseshoe bat activity, and a single small transitional/day roost. Surveys confirmed that bats using the site were part of the SAC breeding population, however, there was no evidence that the on-site habitats provide an important foraging or roosting resource for the maintenance of the population. The most valuable feature on the site for greater horseshoe bats was the Fordbury Water corridor, which was used for commuting, albeit still at a relatively low level. The corridor provides an important link to connect habitats in the context of the wider landscape.

4.5.2 Given the status of greater horseshoe bats on the site and as a result of the availability of other suitable and comparable habitat in the wider area, and the measures that have been built into the scheme design to retain important features and minimise potential for adverse effects on the species, none of the assessed effects are predicted to result in an adverse effect on the conservation status of the Mells Valley SAC bat population. Therefore it is concluded that there is **no potential for adverse effects on the integrity of Mells Valley SAC, as the site's conservation objectives will not be challenged by the proposed scheme**.

### Mendip Woodlands SAC

4.5.3 Survey work in 2019 identified ancient semi-natural woodland on the plateau and slopes, representing *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland (W8), which is a characteristic woodland community over the Carboniferous Limestone in the Mendip Hills, and the designated feature of the SAC. A high species and soil diversity were recorded, with abundant growth of mosses, liverworts and epiphytic species, including saxicolous (i.e. grow on rocks) species which are able to behave as epiphytes. Structural degradation as a result of off-road motorcyclists creating paths was recorded.

4.5.4 As a result of the proposed measures and careful management and monitoring of activities on the site to minimise potential for adverse effects on habitat within the Mendip Woodlands SAC, none are predicted to result in an adverse effect on the conservation status of the Mendip Woodland SAC woodland habitat. Therefore it is concluded that there is **no potential for adverse effects the integrity of Mendip Woodlands SAC, as the site's conservation objectives will not be challenged by the proposed scheme**.

# Bibliography

Billington, G. (2000). *Radio tracking study of greater horseshoe bats at Mells, Near Frome, Somerset. English Nature Research Report No. 403*.

Bignal, K.L., Ashmore, M.R. Headley, A.D., Stewart, K. and Weigert, K. (2007). Ecological impacts of air pollution from road transport on local vegetation. *Applied Geochemistry*, **22**:1265–1271.

Burrows, L. (2018). *North Somerset and Mendip Bats Special Area of Conservation (SAC) Guidance on Development: Supplementary Planning Document. Adopted January 2018*. [Online] Available from: https://www.n-somerset.gov.uk/sites/default/files/2020-03/North%20Somerset%20and%20Mendip%20Bats%20SAC%20guidance%20supplementary%20planning%20document.pdf (Accessed 7 January 2021).

Chartered Institute of Ecology and Environmental Management (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*. [Online] Available from: https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1Update.pdf (Accessed 12 January 2021).

Collins, J. (ed.). (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd Edition*. Bat Conservation Trust, London.

Day, J., Baker, J., Schofield, H., Mathews, F., Gaston, K. (2015). Part-night lighting: implications for bat conservation. *Animal Conservation*, **18**:512–516.

Dietz, C., von Helversen, O. and Nill, D. (2009). *Bats of Britain, Europe & Northwest Africa*. A & C Black, London.

European Commission (2001). *Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*. [Online]. Available at: https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf (Accessed 12 January 2021).

European Commission (2018). *Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC*. [Online]. Available at: https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/EN_art_6_guide_jun_2019.pdf (Accessed 12 January 2021).

Froidevaux, J.S.P., Boughey, K.L., Barlow, K.E. and Jones, G. (2017). Factors driving population recovery of the greater horseshoe bat (*Rhinolophus ferrumequinum*) in the UK: implications for conservation. *Biodiversity and Conservation*, **26**:1601-1621.

Institute of Air Quality Management (2016). Guidance on the Assessment of Mineral Dust Impacts for Planning. Version 1.1. [Online] Available from: http://www.iaqm.co.uk/text/guidance/mineralsguidance_2016.pdf (Accessed 12 January 2021).

Joint Nature Conservation Committee (2020). *Special Areas of Conservation – overview*. [Online] Available from: https://jncc.gov.uk/our-work/special-areas-of-conservation-overview/ (Accessed 12 January 2021).

Mitchell-Jones, A.J. (2004). *Bat Mitigation Guidelines*. Natural England, Peterborough.

Natural England (2013). *Multi Agency Geographic Information for the Countryside (MAGIC)*. [Online] Available from: https://magic.defra.gov.uk/home.htm (Accessed 12 January 2021).

Natural England (2014). *European Site Conservation Objectives for Mendip Woodlands SAC (UK0030048)*. [Online] Available from: http://publications.naturalengland.org.uk/publication/6243663101296640?category=5374002071601152 (Accessed 13/01/2021).

Natural England (2021). Designated Sites View: Condition of SSSI Units for Site Asham Wood SSSI. [Online] Available from: https://designatedsites.naturalengland.org.uk/ReportUnitCondition.aspx?SiteCode=S1003657&ReportTitle=Asham%%2020Wood%20SSSI (Accessed 15 January 2021).

Office of the Deputy Prime Minister (2005). *Government circular: biodiversity and geological conservation – statutory obligations and their impact within the planning system. (ODPM Circular 06/2005)*. [Online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf (accessed 12 January 2021).

Planning Inspectorate (2017). *Advice Note 10 Habitats Regulations Assessment relevant to nationally significant infrastructure projects*. [Online] Available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/06/Advice-note-10v4.pdf (accessed 12 January 2021).

Planning Inspectorate (2019). *Advice Note 17 Cumulative Effects Assessment relevant to nationally significant infrastructure projects*. [Online] Available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf (accessed 12 January 2021).

Ruddock, M and Whitfield, D.P. (2007). *A Review of Disturbance Distances in Selected Bird Species. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage.*

Somerset Bat Group (no date). *Most Common and rarest bat species in Somerset.* [Online] Available at: https://somersetbat.group/bats/somerset/ (accessed 7 January 2021).

Wood (2021a). *Westdown Quarry: Environmental Statement*.

Wood (2021b). *Westdown Quarry: Ecological Baseline Report*.

Wood (2021c). *Westdown Quarry: Baseline Bat Survey Report*.

# Appendix A
# Figures

370000
371000
372000
146000
145000
Hill
Limekiln Lane
Leigh Road
Green Lane
Old Wells Road
Bulls Green Link Road
Stony Lane
Stony Lane
Burgomans Lane
Westdown Farm
C2533 / Whatley Road
A361

Key

Westdown consolidating planning submission area

0 100 200 300 400 500 600 m

Scale at A3: 1:10,000



Westdown Quarry Consolidating Planning Submission
Report to Inform Habitats Regulations Assessment

**Figure 3.1**
**Site boundary**

April 2021

wood.

H:\Projects\40380 Whatley Quarry Planning Support\Deliver Stage\D Design_Technical\Drawings\ArcGIS\40380-WOOD-XX-XX-FG-MD-0014_S2_P02.mxd Originator: jacqui.parkin

H:\Projects\40380 Whatley Quarry Planning Support\Deliver Stage\D Design_Technical\Drawings\ArcGIS\40380-WOOD-XX-XX-FG-MD-0015_S2_P02.mxd Originator: jacqui.parkin

370500 371000 371500 372000

146000 145500 145000 144500

N

Stony Lane

185m 154m 154m 169m 184m 149m 151m 162m 172m

A361

Key

- Westdown consolidating planning submission area
- Westdown IDO Permission - IDO/M/1/A (covering 15343, 24765, and 24765/A)
- Asham Wood IDO Permission - IDO/M/4/A
- Westdown ROMP (016248/005)

0 100 200 300 400 m

Scale at A3: 1:7,500

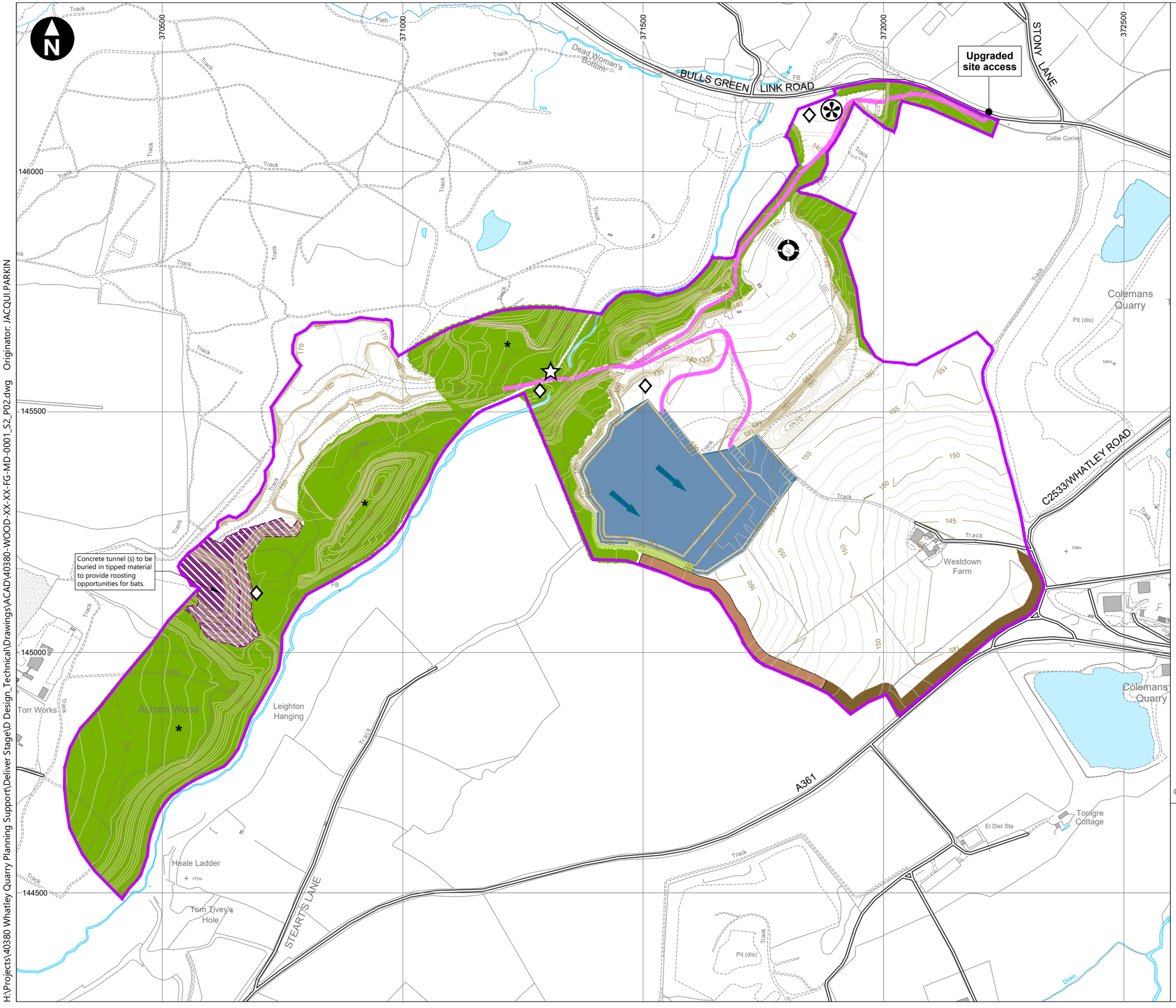


Westdown Quarry Consolidating Planning Submission
Report to Inform Habitats Regulation Assessment

**Figure 3.2**
**Existing planning consent boundaries**

April 2021

wood.




Key

- Westdown consolidating planning submission area
- Contour (1m interval)
  * OS Terrain 5 contours at 2m intervals are shown in the absence of detailed 1m contour topographical data
- Limestone extraction and direction of working
- Haul road
- Existing woodland/vegetated areas to be retained
- Overburden and soil bund
- Topsoil bund
- Restoration of Asham Void using oolitic overburden and other unsaleable rock materials - working area
- Progressive restoration
- Weighbridge, offices, wheelwash and vehicle parking (indicative location)
- Stocking area and location of secondary and tertiary crushers and screens
- Electronically controlled crossing point for bridleway
- Indicative location for settlement and/or attenuation drainage infrastructure

0 m — 400 m

Scale 1:7500 @ A3



Westdown Quarry Consolidating Planning Submission
Report to Inform Habitats Regulations Assessment

**Figure 3.3**
**Phase 1 (End of Year 3)**

April 2021

wood.

H:\Projects\40380 Whatley Quarry Planning Support\Deliver Stage\D Design_Technical\Drawings\ACAD\40380-WOOD-XX-XX-FG-MD-0002_S2_P02.dwg Originator: JACQUI.PARKIN

Upgraded site access

Concrete tunnel (s) to be buried in tipped material to provide roosting opportunities for bats.

Perimeter mounds to be planted with woodland and shrub species to provide enhanced visual and ecological mitigation

BULLS GREEN LINK ROAD

STONY LANE

C2533/WHATLEY ROAD

A361

STEART'S LANE

Dead Woman's Bottom

Ashem Wood

Leighton Hanging

Heale Ladder

Tom Tivey's Hole

Torr Works

Westdown Farm

Colemans Quarry

Collie Corner

Topgre Cottage

El Dist Sta

Key

- Westdown consolidating planning submission area
- Contour (1m interval)
  * OS Terrain 5 contours at 2m intervals are shown in the absence of detailed 1m contour topographical data
- Limestone extraction and direction of working
- Haul road
- Existing woodland/vegetated areas to be retained
- Overburden and soil bund
- Topsoil bund
- Restoration of Asham Void using oolitic overburden and other unsaleable rock materials - working area
- Progressive restoration
- Weighbridge, offices, wheelwash and vehicle parking (indicative location)
- Stocking area and location of secondary and tertiary crushers and screens
- Electronically controlled crossing point for bridleway
- Indicative location for settlement and/or attenuation drainage infrastructure

0 m 400 m

Scale 1:7500 @ A3

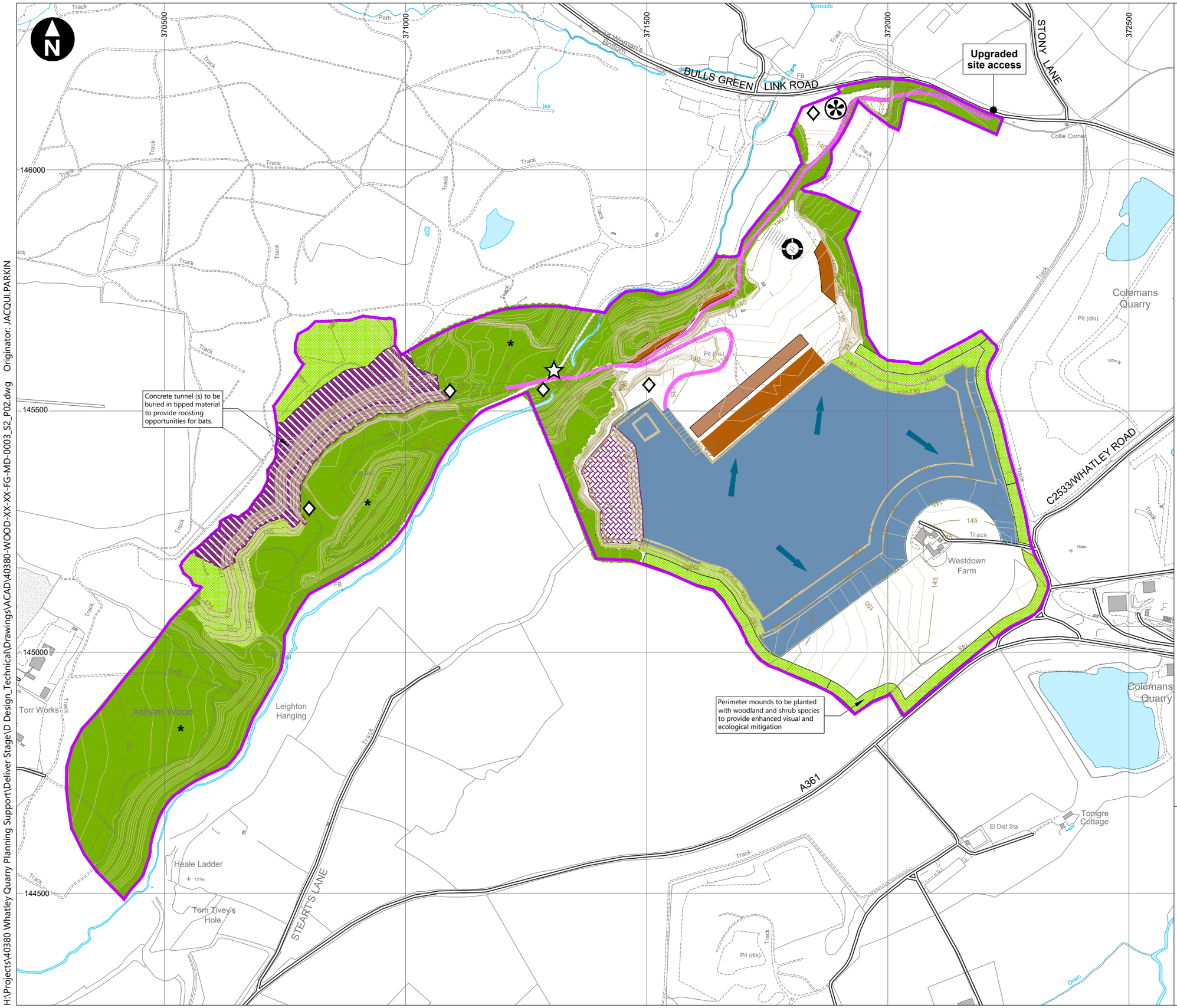


Westdown Quarry Consolidating Planning Submission
Report to Inform Habitats Regulations Assessment

**Figure 3.4**
**Phase 2 (End of Year 5)**

April 2021

wood.




Key

- Westdown consolidating planning submission area
- Contour (1m interval)
  * OS Terrain 5 contours at 2m intervals are shown in the absence of detailed 1m contour topographical data
- Limestone extraction and direction of working
- Haul road
- Existing woodland/vegetated areas to be retained
- Topsoil bund
- Material from relocated soil store
- Restoration of Asham Void using oolitic overburden and other unsaleable rock materials - working area
- Progressive restoration
- Temporary oolite and other unsaleable rock storage
- Weighbridge, offices, wheelwash and vehicle parking (indicative location)
- Stocking area and location of secondary and tertiary crushers and screens
- Electronically controlled crossing point for bridleway
- Indicative location for settlement and/or attenuation drainage infrastructure

0 m — 400 m

Scale 1:7500 @ A3



Westdown Quarry Consolidating Planning Submission
Report to Inform Habitats Regulations Assessment

**Figure 3.5**
**Phase 3 (End of Year 10)**

April 2021

wood.



H:\Projects\40380 Whatley Quarry Planning Support\Deliver Stage\D Design_Technical\Drawings\ACAD\40380-WOOD-XX-XX-FG-MD-0003_S2_P02.dwg Originator: JACQUI.PARKIN

Upgraded site access

Perimeter mounds to be planted with woodland and shrub species to provide enhanced visual and ecological mitigation

Key

- Westdown consolidating planning submission area
- Contour (1m interval)
  * OS Terrain 5 contours at 2m intervals are shown in the absence of detailed 1m contour topographical data
- Limestone extraction and direction of working
- Haul road
- Existing woodland/vegetated areas to be retained
- Topsoil bund
- Material from relocated soil store
- Progressive restoration
- Temporary oolite and other unsaleable rock storage
- Weighbridge, offices, wheelwash and vehicle parking (indicative location)
- Stocking area and location of secondary and tertiary crushers and screens
- Electronically controlled crossing point for bridleway
- Indicative location for settlement and/or attenuation drainage infrastructure

0 m 400 m

Scale 1:7500 @ A3



Westdown Quarry Consolidating Planning Submission
Report to Inform Habitats Regulations Assessment

**Figure 3.6**
**Phase 4 (End of Year 15)**

April 2021

wood.

H:\Projects\40380 Whatley Quarry Planning Support\Deliver Stage\D Design_Technical\Drawings\ACAD\40380-WOOD-XX-XX-FG-MD-0005_S2_P02.dwg Originator: JACQUI.PARKIN

Upgraded site access

Perimeter mounds to be planted with woodland and shrub species to provide enhanced visual and ecological mitigation

BULLS GREEN LINK ROAD

STONY LANE

C2533/WHATLEY ROAD

A361

STEARTS LANE

Dead Woman's Bottom

Ashorn Wood

Leighton Hanging

Heale Ladder

Tom Tivey's Hole

Torr Works

Colemans Quarry

Pit (dis)

Tonigre Cottage

El Dist Sta

Collie Corner

370500 371000 371500 372000 372500

146000 145500 145000 144500

Key

- Westdown consolidating planning submission area
- Contour (1m interval)
  * OS Terrain 5 contours at 2m intervals are shown in the absence of detailed 1m contour topographical data
- Limestone extraction and direction of working
- Haul road
- Existing woodland/vegetated areas to be retained
- Topsoil bund
- Subsoil bund
- Material from relocated soil store
- Progressive restoration
- Temporary oolite and other unsaleable rock storage
- Weighbridge, offices, wheelwash and vehicle parking (indicative location)
- Stocking area and location of secondary and tertiary crushers and screens
- Electronically controlled crossing point for bridleway
- Indicative location for settlement and/or attenuation drainage infrastructure

0 m 400 m

Scale 1:7500 @ A3



Westdown Quarry Consolidating Planning Submission
Report to Inform Habitats Regulations Assessment

**Figure 3.7**
**Phase 5 (End of Year 20)**

April 2021

wood.

Asham Wood Void restored to wooded slopes linking existing areas of woodland and providing bat navigational routes. Scrub, calcareous grassland and bare rubble/rock screes enhance habitat diversity.

Woodland planting on upper slopes provides increased habitat connectivity between Asham Wood and the perimeter of the quarry and wider landscape.

The southern end of the proposed landform seeks to recreate the natural side-valley of the Tunscombe Valley.

Lakeside grassland across the 120m AOD level to include occasional scrapes and small pools for the benefit of invertebrates, reptiles and amphibians as well as native trees and shrubs.

Perimeter screenbank planting (mixed native trees and shrubs) to be implemented during Phases 1 and 2.

Opportunities for enhanced public access with circular walking routes connecting to the existing bridleway and provision of a viewing area.

1:2 to 1:3 slopes create shallows for marginal planting around the eastern, southern and south-western edges of the waterbody.

Provision of a viewing platform and information board(s) accessed via bridleway FR 12/43

Quarry benches restored to calcareous grassland, trees and scrub to provide a mosaic of habitats. Short sections of south facing quarry bench to remain unvegetated (or sparsley vegetated) for the benefit of invertebrates.

Assumed water level 120m AOD

BULLS GREEN LINK ROAD

BRIDLEWAY SM 8/9

FOOTPATH SM 8/11

A361

Asham Wood

Leighton Hanging

Torr Works

Heale Ladder

Tom Tivey's Hole

Colemans Quarry

Tonigre Cottage

* contours within these areas are as shown on OS Terrain 5 (at 10m contour intervals) in the absence of any detailed topographical survey data

Key

- Westdown consolidating planning submission area
- Existing trees and shrubs
- Existing grassland
- Existing Public Right of Way
- Proposed trees / woodland
- Proposed scrub
- Proposed calcareous grassland
- Proposed lakeside grassland
- Proposed marginal planting and shallow water (<3m deep)
- Proposed water (3-10m deep)
- Proposed water (10m+ deep)
- Contour (5m interval)
- Quarry faces
- Access track (emergency and maintenance access only)
- Proposed permissive footpath
- Proposed viewpoint location

0 m 400 m

Scale 1:7500 @ A3



Westdown Quarry Consolidating Planning Submission
Report to Inform Habitats Regulations Assessment

**Figure 3.8**
**Restoration plan**

April 2021

wood.

40380-WOOD-XX-XX-FG-MD-0006_S2_P02

H:\Projects\40380 Whatley Quarry Planning Support\Deliver Stage\D Design_Technical\Drawings\ACAD\40380-WOOD-XX-XX-FG-MD-0006_S2_P02.dwg Originator: JACQUI.PARKIN

# Appendix B
# Designation information and conservation objectives of relevant European sites

| Site name | Description* | Conservation objectives** |
|---|---|---|
| **Mells Valley SAC** | The site covers an area of 28.77ha and component sites are:<br>• Vallis Vale SSSI<br>• Old Ironstone Works SSSI<br>• St. Dunstan's Well Catchment SSSI<br><br>The Annex I habitats for the primary designation of this site are, semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*), and caves that are not open to the public.<br><br>Semi-natural dry grassland and scrubland facies are found in the St. Dunstan's Well component site. These grasslands are found on thin, well-drained, lime-rich soils associated with chalk and limestone. They occur predominantly at low to moderate altitudes in England and Wales, extending locally into upland areas in northern England, Scotland and Northern Ireland. Most of these calcareous grasslands are maintained by grazing, although where grazing levels are reduced, such as at this site, swards typically become dominated by coarse grasses and plants of smaller stature become correspondingly scarcer. Caves are located on the St Dunstan's Well catchment and Vallis Vale component sites and qualify as features due to their importance as hibernation sites for greater horseshoe bats.<br><br>The Annex II species, greater horseshoe bat, is a primary reason for selection of this site. At the time of designation, it had an exceptional breeding population and supported a maternity roost site representing 12% of the UK population. A proportion of the population also hibernates at the site, in addition to utilising hibernacula through the Mendips to Cheddar, of which Fairy Cave is one of the main sites. Greater Horseshoe bat populations are sustained by a foraging habitat which consists primarily of permanently-grazed pastures interspersed with blocks or strips of deciduous woodland, or substantial hedgerows which support abundant prey species. Hedgerows are required for commuting as well as foraging by greater horseshoe bats, particularly those which are tall and wide, providing darkness when light levels are still relatively high. | The natural habitats and/or species for which the site has been designated (the 'Qualifying Features'), are subject to natural change. The main object is to maintain the integrity of the site or restore it as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:<br>1. The extent and distribution of qualifying natural habitats and habitats of qualifying species.<br>2. The structure and function (including typical species) of qualifying natural habitats.<br>3. The structure and function of the habitats of qualifying species.<br>4. The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely.<br>5. The populations of qualifying species.<br>The distribution of qualifying species within the site. |
| **Mendip Woodlands SAC** | This site covers an area of 251.39ha. The Annex I habitat that is the primary reason for selection, is Tilio-Acerion* forests of slopes, screes and ravines on limestone and nutrient-rich soils. It is a cluster of | The natural habitats and/or species for which the site has been designated, are subject to natural change. The objective is to ensure that the integrity of the site is maintained or restored as appropriate, and ensure |

| Site name | Description* | Conservation objectives** |
|---|---|---|
| | three ash-dominated woods on Carboniferous limestone.<br><br>In addition to ash, it supports a rich variety of tree and shrub species, with woodland types supporting elm, pedunculate oak, yew, hazel, alder, maple, wych elm and, locally, small-leaved lime on acid or calcareous soils.<br><br>Asham Wood is the largest and most diverse of the ancient semi-natural woods in the Mendips. Despite recent partial destruction due to quarrying it remains one of the most important. Unlike other Mendip ancient woods, the soils include a full range from excessively drained skeletal soils on the limestone outcrops to permanently wet conditions along the streamside. | that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:<br>1. The extent and distribution of qualifying natural habitats.<br>2. The structure and function (including typical species) of qualifying natural habitats.<br>The supporting processes on which qualifying natural habitats rely. |

*Details sourced from JNCC (2020) in relation to Habitat 9180.
**Details sourced from Natural England (2014).

# Appendix C
# Assessment of project-wide and wider cumulative effects

| Project | Scope | Assessment | Conclusion |
|---|---|---|---|
| **1. Application for the amendment to planning conditions for Whatley Quarry**<br><br>Permission for quarrying activities was granted in 1948, for continued mineral extraction under the Town and Country (General Interim Development) Order. A revised application (ref. 109122/002) for a smaller western extension was submitted and subsequently approved in 1996 and forms the principal consent for Whatley Quarry.<br><br>The site provides high quality crushed limestone which is supplied to both national and regional markets, as well as asphalt and ready mixed concrete as added value products which are supplied to local and regional markets. Annual output is currently limited by the extant planning consent to a maximum of 24 million tonnes over a 3-year period.<br><br>The extraction of consented reserves is complicated by the fact that there are conditions which affect the rate at which the quarry can be worked. These conditions effectively mean that given where current consented, remaining reserves are located within the quarry, the site's ability to supply its approved output rate is becoming increasingly compromised.<br><br>Hanson UK is seeking to vary the current planning conditions to amend the site's | For the purposes of this assessment, it is assumed that activities associated with this project will result in the continued production of dust, noise and vibration. The operational activities are not, however, expected to result in any new potential effects on ecological receptors compared to current operations (which form the baseline for this assessment), given that the geographical extent of the application is restricted to the existing working quarry site. | Given that the baseline conditions used to underpin the current assessment is based on Whatley Quarry being an existing operational quarry, the continuation of activities results in no additional effects when considered in-combination with the proposed scheme. | No likely significant in-combination effects. |

| Project | Scope | Assessment | Conclusion |
|---|---|---|---|
| working method and to deepen the quarry. Existing, permitted output levels would remain unchanged.<br><br>This project is at the scoping phase. | | | |
| **2. Application to extend the current licence for Halecombe Quarry**<br><br>Consent was approved in March 2019 for the deepening of Halecombe Quarry by the extraction of limestone, the replacement of the existing asphalt plant with a new one, and associated facilities, and the reopening of the access road to Rookery Farm with relinquishment of the existing permission. The consent also approved an extension of the end date for the entire quarry and all quarrying activities to 31 December 2044 with restoration to be completed by December 2046 (reference: 2017/1022/CNT). | For the purposes of this assessment, it is assumed that activities associated with this project will result in the continued production of dust, noise and vibration. The operational activities are not, however, expected to result in any new potential effects on ecological receptors compared to current operations (which form the baseline for this assessment), given that the geographical extent of the application is restricted to the existing working quarry site. | Given that the baseline conditions used to underpin the current assessment is based on Halecombe Quarry being an existing operational quarry, the continuation of activities to 2044 and replacement of existing infrastructure on-site results in no additional effects when considered in-combination with the proposed scheme. | No likely significant in-combination effects. |
| **3. Application to enable extraction at Bartlett's Quarry, as a modification of the Torr Works S106 agreement**<br><br>Torr Works, which adjoins Leighton Quarry has permission to extract carboniferous limestone to 3m AOD (under consent reference: 2010/0984) until the end of December 2040. Approved restoration of the site is water based.<br><br>An application was made in August 2020 under S106A of the Town and Country Planning Act 1990 for the modification of the Torr Works Section 106 Agreement to enable the recommencement of Carboniferous limestone extraction at Bartlett's Quarry, Nunney. Consent was refused on 14 January 2021 (reference: SCC/3748/2020). | For the purposes of this assessment, it is assumed that the activities associated with this project will result in the loss of grassland and scrub that may provide foraging habitat for the Mells Valley SAC greater horseshoe bat population.<br><br>The proposed operations lie 820m from the Mendip Woodlands SAC, which is beyond the distance at which LSEs would occur on the designated habitats. | Leighton and Torr Quarry lie immediately south of the proposed scheme and Bartlett's Quarry immediately east. They lie 3km south of the closest component of the Mells Valley SAC.<br><br>The habitats to be lost to the proposals were reported in the associated HRA to be sparse and unlikely to be a significant contributor of greater horseshoe bat prey in the context of the wider locale. The proposed operation was concluded to result in no risk to known greater horseshoe bat flight lines.<br><br>Due to the lack of adverse effects likely to arise from this application, there can be no additional effects when considered in-combination with the proposed scheme. | No significant in-combination effects. |

| Project | Scope | Assessment | Conclusion |
|---|---|---|---|
| **4. Coleman's Quarry Complex (including Holwell and Bartlett Quarry) application for the permitted reopening and Extension of Permission until 2042**<br><br>Bartlett's Quarry (part of the Coleman's Quarry complex) is a limestone quarry near Nunney, Somerset which was mothballed in 2007. In 2019, Aggregate Industries took the decision that it was necessary to re-open the quarry to support production at its nearby Torr Works Quarry. The quarry contains permitted reserves of carboniferous limestone with a planning end date of February 2041 (reference: 2016/0025/CNT). The on-site asphalt plant has continued to operate since the quarry was mothballed with all aggregate currently imported to the plant. Access and egress from the quarry is via the A361, part of Somerset's strategic road network.<br><br>An application was made in August 2020 to remove condition 2 of Schedule B of planning permission 2016/0025/CNT to enable extraction of Carboniferous limestone to recommence within Bartlett's Quarry prior to the permanent cessation of extraction at Torr Works Quarry. Consent was refused on 14 January 2021 (reference: SCC/3742/2020) | For the purposes of this assessment, it is assumed that the activities associated with this project will result in the loss of grassland and scrub that may provide foraging habitat for the Mells Valley SAC greater horseshoe bat population.<br><br>The proposed operations lie 820m from the Mendip Woodlands SAC, which is beyond the distance at which LSEs would occur on the designated habitats. | Leighton and Torr Quarry lie immediately south of the proposed scheme and Bartlett's Quarry immediately east. They lie 3km south of the closest component of the Mells Valley SAC.<br><br>The habitats to be lost to the proposals were reported in the associated HRA to be sparse and unlikely to be a significant contributor of greater horseshoe bat prey in the context of the wider locale. The proposed operation was concluded to result in no risk to known greater horseshoe bat flight lines.<br><br>Due to the lack of adverse effects likely to arise from this application, there can be no additional effects when considered in-combination with the proposed scheme. | No likely significant in-combination effects. |
| **4. Western Skip Hire waste facility**<br><br>Construction/ inert waste transfer station with an annual throughput capacity of ~75,000 tonnes. In December 2019 approval was given for a variation of Condition 1 of 2015/0746/CNT to allow continued operation of Waste Transfer Station until 30/03/2025 (reference: SCC/3677/2019). | For the purposes of this assessment, it is assumed that activities associated with this project will result in the continued production of noise. The operational activities are not, however, expected to result in any new potential effects on ecological receptors compared to current operations (which form the baseline for this assessment), given that the geographical extent of the application is restricted to the existing skip hire facility. | Given that the current baseline conditions used to underpin the current assessment is based on Western Skip Hire being an existing operational facility, the continuation of activities until 2025 results in no additional effects when considered in-combination with the proposed scheme. | No likely significant in-combination effects. |

| Project | Scope | Assessment | Conclusion |
|---|---|---|---|
| **5. Marston Pond Holiday Accommodation**<br><br>Two applications for the development of a holiday home complex at this site were registered in November 2017:<br><br>2017/2814/FUL: Restoration and change of use of 31 hectares (77 acres) of Grade II Listed Park and Garden including Marston Pond, Thickthorn Wood, Orrery Wood to leisure and tourism use; to include the restoration and use of the Keeper's Cottage and Boat House as holiday accommodation; the erection of 20 holiday Lodges, Reception and Hub building (housing a cafe, bar and restaurant, meeting rooms, spa and gym).<br><br>2017/2815/FUL: Restoration works to the Keeper's Cottage and Boat House and use for holiday accommodation in association with planning application 2017/2814/FUL. (Additional information and revisions - see agent cover letter dated 11 October 2019 for details).<br><br>A decision on both of these applications remains pending by Mendip District Council. | For the purposes of this assessment, it is assumed that the activities associated with this project may result in:<br>• the direct loss of habitat that may be used for foraging and commuting by the Mells Valley SAC greater horseshoe bat population; and<br>• indirect loss and degradation of habitat due to the introduction of artificial lighting, leading to a reduction in resource available (e.g. for sheltering and foraging) and severance of habitat linkages (e.g. for commuting) for greater horseshoe bats.<br><br>There are no pathways via which the proposed activities would lead to LSEs on Mendip Woodlands SAC. | The Shadow HRA for the application reports that the site is used by small numbers of greater horseshoe bats, but that it is not functionally linked to the Mells Valley SAC. Despite this, application proposals include for the creation and long-term management of greater horseshoe bat foraging habitat, and ultimately may lead to a net enhancement in the potential foraging resource provided.<br><br>A lighting strategy and light spill modelling has been produced to accompany the application. This concludes that the proposed artificial lighting will be minimal and contained within a small spatial area. No lighting is proposed on the exterior of buildings, and internal lighting will be recessed to avoid external spill.<br><br>On this basis, combined with the location of the application site (which falls beyond the core sustenance zone for the known SAC maternity roosts) there will be no more than minor adverse effects on the Mells Valley SAC bat population. The magnitude of the effects are insufficient to be raised to 'significant' in-combination with the proposed Westdown scheme. | No likely significant in-combination effects. |
| **Green Pit Lane Housing Development, Nunney Catch**<br><br>An application was submitted in January 2020 and approved in January 2021 as follows:<br><br>2020/0158/FUL - Erection of 82 no. residential dwelling houses with associated infrastructure including landscaping, open space, drainage and highway access and parking. Discharge of conditions submissions were made in | For the purposes of this assessment, it is assumed that the activities associated with this project may result in:<br>• the direct loss of habitat that may be used for foraging and commuting by the Mells Valley SAC greater horseshoe bat population; and<br>• indirect loss and degradation of habitat due to the introduction of artificial lighting, leading to a reduction in resource available (e.g. for sheltering and foraging) | The application proposals include for the creation and enhancement of greater horseshoe bat foraging habitat, and ultimately may lead to a small gain in the potential foraging resource available. The retention of important flight lines for greater horseshoe bat is also secured by the proposals.<br><br>The introduction of artificial lighting will exclude greater horseshoe bats from much of the landscaped areas within the application site, however, this is additional to the habitat | No likely significant in-combination effects. |

| Project | Scope | Assessment | Conclusion |
|---|---|---|---|
| December 2020 and remain with Mendip District Council for determination. | and severance of habitat linkages (e.g. for commuting) for greater horseshoe bats.<br><br>There are no pathways via which the proposed activities would lead to LSEs on Mendip Woodlands SAC. | creation and retention for the bat population, and it is reported (in the HRA for the scheme) that light levels will not exceed 0.5 lux within habitat enhancement areas. On this basis, combined with the location of the application site (which falls beyond the core sustenance zone for the known maternity roosts) there will be only minor adverse effects on the Mells Valley SAC bat population. The magnitude of the effects is insufficient to be raised to 'significant' in-combination with the proposed Westdown scheme. | |