Environmental Statement Addendum
Volume 1: Written Statement

Moneystone Park
Moneystone Quarry, Staffordshire

On behalf of Laver Leisure (Oakamoor) Limited
August 2024

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1 INTRODUCTION

Introduction

1.1 This Environmental Statement (ES) Addendum has been prepared on behalf of Laver Leisure (Oakamoor) Limited (the Appellant), in respect of a proposed leisure development at Moneystone Quarry, Oakamoor, Staffordshire, referred to at Moneystone Park. The site is situated within the administrative area of Staffordshire Moorlands District Council (SMDC).

1.2 The ES Addendum relates specifically to a 'Phase 1' Reserved Matters Application (RMA) (hereafter referred to as the 'Phase 1 RMA'), that is now the subject of an appeal (ref: APP/B3438/W/24/3344014) and follows a request for 'Further Information' pursuant to Regulation 25 of the Town and Country Planning Environmental Impact Assessment (EIA) Regulations (as amended)[1]. The Phase 1 RMA (planning application ref: SMD/2019/0646) seeks permission for the following development:

"*Reserved matters application proposing details for the appearance, scale, layout and landscaping for phase 1 of the leisure development comprising 190 lodges; erection of a new central hub building (providing farm shop, gym, swimming pool, spa, restaurant, cafe, games room, visitor centre, hub management and plant areas): reuse and external alterations to the existing office building to provide housekeeping and maintenance accommodation (including meeting rooms, offices, storage, staff areas and workshop); children's play areas; multi use games area; quarry park; car parking; refuse and lighting arrangements; and managed footpaths, cycleways and bridleways set in attractive hard and soft landscaping.*"

1.3 The RMA was determined by SMDC's Planning Applications Committee at its meeting on 26th October 2023, and was refused by Members against Officer's recommendation. SMDC published the Decision Notice refusing planning permission on 14th November 2023. This decision is now the subject of the appeal (APP/B3438/W/24/3344014).

1.4 There is an extensive planning history associated with the proposed development outlined below, which is of direct relevance to this ES Addendum:

- SMD/2016/0378 – June 2016 Outline Planning Application – Approved 26/10/2016:

[1] **Town and Country Planning (Environmental Impact Assessment) Regulations 2017 SI 571**

"*Outline application with some matters reserved for the erection of a high quality leisure development comprising holiday lodges; a new central hub building (providing swimming pool, restaurant, bowling alley, spa, gym, informal screen/cinema room, children's soft play area, cafe, shop and sports hall); cafe; visitor centre with farm shop; administration building; maintenance building; archery centre; watersports centra; equipped play areas; multi-sports area; ropewalks; car parking; and managed footpaths, cycleways and bridleways set in attractive landscaping and ecological enhancements (re-submission of Planning Application SMD/2014/0682).*"

Application supported by an Environmental Statement.

- SMD/2022/0014 – Surface Water Outfall Application – Approved 28/11/2023:

"*Proposed construction of a revised surface water outfall associated with Moneystone Park leisure development and engineering operations to infill the existing outfall structure.*"

Application supported by an Environmental Statement Addendum.

- SMD/2023/0532 – October Phase 2 2023 Reserved Matters Application – Awaiting Determination:

"*Reserved matters application proposing details for the appearance, layout, scale and landscaping for Phase 2 of the leisure development comprising 60 lodges, archery centre and watersports centre, internal roads and car parking and hard and soft landscaping.*"

Application supported by an Environmental Statement of Conformity.

1.5 Relevant Planning and associated EIA history is outlined in **Chapter 2: Approach** of this ES Addendum.

1.6 National Planning Practice Guidance (PPG) sets out procedures for pursuing 'multi-stage consents' such as outline planning applications followed by reserved matters in the context of Environmental Assessment. The PPG states that, *"Where a consent procedure involves more than one stage (termed a 'multi-stage consent'), for example, a first stage involving a principal decision (such as an outline planning permission) and the other an implementing decision (such as reserved matters), the likely significant effects of a project on the environment should be identified and assessed at the time of the procedure relating to the principal decision. However, if those effects are not identified or identifiable at the time of the principle decision, an assessment must be undertaken at the subsequent stage."* (PPG paragraph 056, ID:4-056-20170728)

1.7 In terms of multi-state consents, the EIA Regulations provide the following definitions:

"subsequent application" means an application for approval of a matter where the approval—

(a) is required by or under a condition to which a planning permission is subject; and

(b) must be obtained before all or part of the development permitted by the planning permission may be begun;

"subsequent consent" means consent granted pursuant to a subsequent application"

1.8 The EIA Regulations state that a Local Authority, Secretary of State or Inspector must take into consideration the environmental information before them in making a decision for subsequent applications. Regulation 3 of the EIA Regulations is clear that:

The relevant planning authority, the Secretary of State or an inspector must not grant planning permission or subsequent consent for EIA development unless an EIA has been carried out in respect of that development.

1.9 An EIA has been undertaken in respect of the principal decision (i.e the June 2016 ES). This August 2024 ES Addendum, prepared by Asteer Planning, represents an addendum report to the June 2016 ES and subsequent Addendum and should be read in conjunction with this previous statements.

1.10 It should be noted that the June 2016 ES was prepared under 'The Town and Country Planning (Environmental Impact Assessment) Regulations 2011' which have now been superseded. Therefore, for robustness, this ES Addendum has been prepared in accordance with 'The Town and Country Planning (Environmental Impact Assessment) Regulations 2017'.

Need for an ES Addendum

1.11 Regulation 25(1) of the 2017 EIA Regulations states:

"If a relevant planning authority, the Secretary of State or an inspector is dealing with an application or appeal, as the case may be, in relation to which the applicant or appellant has submitted an environmental statement, and are of the opinion that, in order to satisfy the requirements of regulation 18(2) and (3), it is necessary for the statement to be supplemented with additional information which is directly relevant to reaching a reasoned conclusion on the likely significant effects of the development described in the application in order to be an environmental statement, the relevant planning authority, Secretary of State or inspector as the case may be must notify the applicant or appellant in writing accordingly,

and the applicant or appellant must provide that additional information; and such information provided by the applicant or appellant is referred to in these Regulations as "further information".

1.12 The Appellant received a Regulation 25 request from the Planning Inspectorate (PINS) in relation to the Phase 1 RMA on 17th July 2024 (refer to **Appendix 1.1**). This states;

"In view of the time that has elapsed since the preparation of the 2016 Environmental Statement it is considered that the supporting EIA topic chapters within the Environmental Statement should be updated to take account of any changes in the baseline. Additional information to the ES should be provided as an addendum to the ES setting out any changes affecting the conclusions of the ES. Where there is no change then this should be fully justified with a statement to that effect".

1.13 This ES Addendum has therefore been prepared to respond directly to this request for further information. Therefore, this ES Addendum has been prepared and is submitted in accordance with Regulation 25 'Further information and evidence respecting environmental statements' of the 2017 EIA Regulations. It has been prepared to provide sufficient information to enable an informed decision on whether to grant planning permission. Refer to **Chapter 2: Approach**, regarding the assessment approach.

The EIA Consultant Team

1.14 The consultants who have contributed to the preparation of this ES Addendum are referenced in the competency statement, along with information demonstrating their "*expertise to ensure the completeness and quality of the ES*" in accordance with the EIA Regulations, see **Appendix 1.2**.

ES Addendum Availability

1.15 This ES Addendum can be viewed online on SMDC's website (https://www.staffsmoorlands.gov.uk/article/568/Search-and-track-planning-applications) and at their offices; Staffordshire Moorlands District Council, Moorlands House, Stockwell Street, Leek, Staffordshire, ST13 6HQ.

1.16 Additional copies of the ES Addendum (£125 plus postage) are available from Asteer Planning, Mynshulls House, 14 Cateaton Street, Manchester, M3 1SQ.

1.17 The complete ES Addendum can also be obtained in USB format for £10 from the same address.

1.18 Comments on the Addendum should be sent to The Planning Inspectorate; Environmental Services, Operations Group 3, Temple Quay House, 2 The Square, Bristol, BS1 6PN.

Structure of the ES Addendum

1.19 This ES Addendum comprises studies on each of the aspects of the environment identified as likely to be significantly affected by the proposed development (the 'technical chapters'), which are supported with figures and technical appendices where appropriate. The scope of the ES Addendum reflects the agreed scope of the June 2016 ES, however consideration has been given to the updated 2017 EIA Regulations, refer to **Chapter 2: Approach** for further details.

1.20 The ES Addendum is structured as follows:

Volume 1: Chapters and Figures

- Chapter 1: Introduction
- Chapter 2: Approach
- Chapter 3: Site Description
- Chapter 4: Alternatives
- Chapter 5: The Proposed Development
- Chapter 6: Planning Policy Context
- Chapter 7: Socio-Economic
- Chapter 8: Landscape and Visual
- Chapter 9: Ecology
- Chapter 10: Archaeology and Heritage
- Chapter 11: Ground Conditions
- Chapter 12: Drainage and Flood Risk
- Chapter 13: Transport and Access
- Chapter 14: Air Quality
- Chapter 15: Noise and Vibration

- Chapter 16: Waste
- Chapter 17: Climate Change
- Chapter 18: Cumulative Effects
- Chapter 19: Summary
- Chapter 20: Glossary

1.21 For continuity, figures (where provided) are arranged and presented using the same reference numbers as the chapters (with plan references as appropriate) as a means of providing supportive background and technical information. Associated technical appendices are contained in Volume 2 or this ES Addendum.

Volume 2: Technical Appendices

- Appendix 1.1: Regulation 25 Request for Further Information
- Appendix 1.2: Statement of Competence
- Appendix 2.1: June 2016 ES Non Technical Summary
- Appendix 2.2: May 2020 EIA Statement of Conformity
- Appendix 2.3: December 2021 ES Addendum NTS Surface Water Outfall
- Appendix 2.4: October 2023 EIA Statement of Conformity
- Appendix 3.1: Site Location Plan
- Appendix 5.1: Thursday 26th October 2023 Planning Application Committee Report
- Appendix 5.2: 2016 Outline Decision Notice
- Appendix 8.1: Views and Photomontages
- Appendix 9.1: Ecological Surveys 2024 Report
- Appendix 11.1: Bi-Annual report (418040MM/3); dated May 2017
- Appendix 11.2: Biennial Monitoring Report; dated April 2019
- Appendix 11.3: Biennial Monitoring Report (418040MM/5); dated April 2021

- Appendix 11.4: Biennial Monitoring Report (418040MM/6); dated September 2023
- Appendix 13.1: Transport Technical Note
- Appendix 14.1: Construction Phase Dust Assessment
- Appendix 14.2: Wind Rose
- Appendix 14.3: Model Verification
- Appendix 15.1: Noise and Vibration Guidance
- Appendix 15.2: Updated Baseline Sound Measurements
- Appendix 17.1: Greenhouse Gas Calculation Inputs
- Appendix 17.2: Climate Change Resilience Risk Assessment

1.22 A separate Non-Technical Summary (NTS) will be submitted alongside the ES Addendum as a standalone document which provides a concise summary of the ES Addendum identifying the likely significant environmental effects and the measures proposed to mitigate, or to avoid the adverse effects of the proposals.

2 APPROACH

2.1 The ES Addendum has been prepared to respond to a request from the Planning Inspectorate (PINS) for 'Further Information' pursuant to Regulation 25 of the 2017 EIA regulations, dated 17th July 2024 (refer to **Appendix 1.1**). The Regulation 25 request from PINS, requested the ES Addendum to consider whether the baseline data which informed the June 2016 ES requires an update to ensure there have been no material changes, since the June 2016 ES was undertaken. This ES Addendum directly responds to this request (as set out in further detail below).

2.2 The ES Addendum should be read in conjunction with, and as an addendum to, the previous ES submitted alongside the June 2016 Outline Planning Application and subsequent Addendum. Further details regarding the June 2016 Outline Planning Application and subsequent applications and their assessments are set out in **Table 2.1** in the context of the planning and EIA history associated with the site.

Table 2.1: Planning History

Application Reference	Description of Development	Decision	Date of Decision
SMD/2014/0682	Outline planning permission with all matters reserved except access for the erection of a high quality leisure development comprising holiday lodges; a new central hub building (providing swimming pool, restaurant, bowling alley, spa, gym, informal screen/cinema room, children's soft play area, café, climbing wall and shop); café; visitor centre; administration building; maintenance building; archery centre; water sports centre; equipped play and adventure play areas; multi-sports area; car parking, and managed footpaths and cycleways set in attractive landscaping and ecological enhancements.	Refused	02/12/2015
Environmental Statement (HOW Planning, dated 31/10/2014)			
Environmental Statement Addendum (HOW Planning, dated 08/06/2015)			
Environmental Statement Addendum (HOW Planning, dated 12/10/2015)			
SMD/2016/0378	Outline application with some matters	Approved	26/10/2016

	reserved for the erection of a high quality leisure development comprising holiday lodges; a new central hub building (providing swimming pool, restaurant, bowling alley, spa, gym, informal screen/cinema room, children's soft play area, cafe, shop and sports hall); cafe; visitor centre with farm shop; administration building; maintenance building; archery centre; watersports centra; equipped play areas; multi-sports area; ropewalks; car parking; and managed footpaths, cycleways and bridleways set in attractive landscaping and ecological enhancements (re-submission of Planning Application SMD/2014/0682)		
Environmental Statement (HOW Planning, dated 20/06/2016)			
SMD/2019/0646	Reserved matters application proposing details for the appearance, scale, layout and landscaping for phase 1 of the leisure development comprising 190 lodges; erection of a new central hub building (providing farm shop, gym, swimming pool, spa, restaurant, cafe, games room, visitor centre, hub management and plant areas): reuse and external alterations to the existing office building to provide housekeeping and maintenance accommodation (including meeting rooms, offices, storage, staff areas and workshop); children's play areas; multi use games area; quarry park; car parking; refuse and lighting arrangements; and managed footpaths, cycleways and bridleways set in attractive hard and soft landscaping.	Refused	14/11/2023
EIA Statement of Conformity (Avison Young, dated 15/05/2020)			
SMD/2020/0244	Screening request for surface water outfall	Withdrawn	N/A
EIA Screening Report (Avison Young, dated 02/07/2020)			
SMD/2020/0243	Screening request for Change of Use of Existing Buildings	Screening Opinion - EIA	04/01/2021

		Not Required	
EIA Screening Report (Avison Young, dated 13/05/ 2020)			
SMD/2022/0014	Proposed construction of a revised surface water outfall associated with Moneystone Park leisure development and engineering operations to infill the existing outfall structure.	Approved	28/11/2023
Environmental Statement Addendum (Avison Young, dated 13/01/2022)			
SMD/2023/0532	Reserved matters application proposing details for the appearance, layout, scale and landscaping for Phase 2 of the leisure development comprising 60 lodges, archery centre and watersports centre, internal roads and car parking and hard and soft landscaping.	Awaiting determination	TBC
EIA Statement of Conformity (Asteer Planning, dated 23/11/2023)			

2.3 For ease of reference, the following documents are appended to this ES Addendum:

- June 2016 ES Non Technical Summary (**Appendix 2.1**)
- May 2020 EIA Statement of Conformity (**Appendix 2.2**)
- December 2021 ES Addendum NTS Surface Water Outfall (**Appendix 2.3**)
- October 2023 EIA Statement of Conformity (**Appendix 2.4**)

2.4 The previous EIA reports (as noted in **Table 2.1**), including technical appendices and assessment plans are available to view online on the Council's website using the relevant application reference listed in the table above: http://publicaccess.staffsmoorlands.gov.uk/portal/servlets/ApplicationSearchServlet

Purpose of the ES Addendum

2.5 The purpose of this ES Addendum is to provide 'Further Information' pursuant to Regulation 25 of the 2017 EIA Regulations. A request for further information was received on 17th July 2024 which is contained within **Appendix 1.1**.

2.6 A summary of the request is provided within **Table 2.2** below.

Table 2.2: Summary of request for further information

Summary of Comments	Comments
In view of the time that has elapsed since the preparation of the 2016 Environmental Statement it is considered that the supporting EIA topic chapters within the Environmental Statement should be updated to take account of any changes in the baseline. Additional information to the ES should be provided as an addendum to the ES setting out any changes affecting the conclusions of the ES. Where there is no change then this should be fully justified with a statement to that effect.	ES Addendum Chapters 7 - 17
Subject to the outcomes above and where appropriate a revised non-technical summary (NTS) incorporating all of the elements referred to above.	ES Addendum Non-Technical Summary

Scope of the ES Addendum

2.7 As set out in **Table 2.1** above, an ES was prepared in October 2014 and an ES Addendum prepared in June 2015, where the associated planning application was refused. Subsequent to this, a new ES was prepared in June 2016 which superseded the early submissions and was granted permission in October 2016, which was prepared in accordance with the 2011 EIA Regulations. An ES Addendum was also prepared which supported the separate surface water outfall application. In addition, a EIA Statement of Conformity (SoC) were also produced for both RMAs.

2.8 Therefore, as outlined above, this ES Addendum considers the site's planning and environmental history. As noted above, it should be read in conjunction with, and as an addendum to the June 2016 ES submitted alongside the planning application (ref. SMD/2016/0378) and subsequent Addendum linked to the surface water outfall consent and subsequent SoC reports.

2.9 It is noted that the scope of the June 2016 ES included the following technical topics:

- Socio-Economic;

- Landscape and Visual;
- Ecology;
- Archaeology and Heritage;
- Ground Conditions;
- Drainage and Flood Risk;
- Transport and Access;
- Air Quality;
- Noise and Vibration; and
- Waste.

2.10 Schedule 4 of the 2017 EIA Regulations have been reviewed and an assessment of Climate Change has been scoped-in to this ES Addendum in order to accord with the requirements in the 2017 EIA Regulations. Refer to **Table 2.3** for further information. In accordance with Schedule 4 requirements, consideration has also been given to the topics of 'Population' and 'Human Health', and 'Major Accidents and Disasters'. However, they have been scoped-out of this assessment which is justified in **Table 2.3** below.

Table 2.3: EIA Topics considered against Schedule 4 of the EIA Regulations

EIA Topic (as outlined in Schedule 4 of the 2017 EIA Regulations)	Scoped In / Out	Scoping Justification
Population	Scoped In	Assessed within Chapter 7: Socio-economics.
Human Health	Scoped Out	No significant environmental effects considered likely for the purposes of EIA which are not already considered within the scope of the ES (i.e Air Quality).
Biodiversity (e.g Flora and Fauna)	Scoped In	Assessed within Chapter 9: Ecology.

Land (e.g Contamination)	Scoped In	Assessed within Chapter 11: Ground Conditions.
Soil Resource	Scoped Out	The site comprises previously developed land and as such no significant effects on soil resources is anticipated. This topic is therefore scoped-out.
Water	Scoped In	Assessed within Chapter 12: Drainage and Flood Risk.
Air and Noise	Scoped In	Assessed within Chapter 14: Air Quality and Chapter 15: Noise and Vibration.
Climate	Scoped In	It is acknowledged on July 10 2019, SMDC declared a climate emergency. An additional chapter has therefore been prepared to assess the proposed development in relation to climate change, which is assessed within Chapter 17: Climate Change.
Material Assets	Scoped Out	No significant environmental effects considered likely for the purposes of EIA, therefore it has been scoped out of the assessment.
Cultural Heritage	Scoped In	Assessed in Chapter 10: Archaeology and Heritage.
Landscape	Scoped In	Assessed in Chapter 8: Landscape and Visual Assessment.
Major Accidents and Disasters	Scoped Out	No significant environmental effects considered likely for the purposes of EIA which are not already proposed to be considered within the ES (i.e Chapter 11: Ground Conditions).

2.11 The technical chapters that are scoped-in to the EIA have been updated to consider whether there are any changes to the previously identified effects. In doing so, the assessment responds to the Regulation 25 request in terms of identifying *"any changes*

affecting the conclusions of the ES". The adopted approach is discussed further in the following sections.

2.12 It should be noted that the ES Addendum (December 2021) prepared for the surface water outfall application (which was subsequently approved in November 2023), included an assessment on Hydrology and Ecohydrology due to the requirement to assess the likely significant effects on the Whiston Eaves SSSI. As there is no change to the surface water outfall proposals, a separate chapter has not prepared as part of this ES Addendum. Notwithstanding and as noted above, ecology and hydrology are considered within technical chapters 9 and 12 respectively.

Assessment Years

2.13 Where relevant, the June 2016 ES chapter caried out an assessment of the environmental effects for the following scenarios:

- 2020 Base Traffic Flows; and
- 2020 Assessment Traffic Flows.

2.14 This assessment has been updated to take account of a 2025 opening year. The assessment of environmental effects, where relevant, have therefore been considered for the following scenarios:

- 2025 Base Traffic Flows; and
- 2025 Assessment Traffic Flows.

2.15 The assessment has also been updated to take account of a completion year of 2028. Therefore, where relevant to the assessment of likely significant effects takes account of an updated likely construction programme, with works commencing in early 2025, and final completion at the end of 2027. For the purpose of the assessment, it is anticipated that the proposed development will therefore become operational at the beginning of 2028.

The Approach to Determining Likely Significant Effects

2.16 The process of EIA identifies the likely 'significance' of environmental effects (beneficial or adverse) arising from a development project. Each technical chapter defines discipline specific 'likely significant effects' by the use of pre-determined assessment criteria. Individual disciplines stipulate the specific assessment criteria used within their own technical chapters; however in broad terms, environmental effects can be described as

adverse, beneficial or neutral on a sliding scale, for example, major-moderate-minor-negligible.

2.17 In many technical disciplines, significance reflects the relationship between two factors:

- The magnitude or severity of an effect (i.e. the actual change taking place to the environment); and
- The sensitivity, importance or value of the resource or receptor.

2.18 Each technical chapter will refer back to the methodology used within the June 2016 ES unless where there are updates required to the adopted methodology as a result of changes in policy or guidance since the 2016 assessment was prepared. Where there are updates in the methodology, this is clearly set out in the technical chapter. An assessment of Climate Change has been included as a new chapter since the June 2016 ES and the full methodology for this assessment is set out within **Chapter 17: Climate Change**.

2.19 Schedule 4 of the EIA Regulations states that "*The description of the likely significant effect… should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development"*.

2.20 It is noted that the recent Supreme Court judgement on the application of Finch (on behalf of the Weald Action Group) v Surrey County Council and others (judgement given on 20 June 2024) brought into focus the scope of both 'direct' and 'indirect' effects. In determining the 'direct' or 'indirect' effects, consideration is given to the degree of connection that is required between the development and such effects. The EIA Directive and EIA Regulations 2017 require an assessment of "likely" effects. In this case, it was not only likely, but "inevitable". Where there has been a change to the assessment of likely significant effects as described, these are identified in this Addendum in light of the Finch judgement.

Structure of Each Technical Chapter

2.21 Each technical Chapter is set out as follows:

- Introduction setting out which topic is being assessed;
- Legislative and Policy Framework identifying any updates relevant to the technical chapter in relation to legislation, policy and guidance;

- Assessment Approach outlines if there are any updates to the original methodology adopted within the June 2016 ES;
- Baseline Conditions sets out any changes in the baseline from the June 2016 ES;
- Confirmation of likely significant effects which remain valid as set out in the June 2016 ES and any additional effects identified;
- Mitigation, Enhancement and Residual Effects provides the original mitigation and enhancement set out in the June 2016 ES and any additional residual effects identified; and
- Summary provides a conclusion on any changes in significant effects from the original June 2016 ES.

Approach to Mitigation

2.22 Schedule 4, Part 7 of the EIA Regulations states that an ES should include:

"a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases".

2.23 Mitigation measures to reduce and avoid likely significant effects were identified within the June 2016 ES and subsequent Addendum and secured to the outline consent by way of planning conditions or planning obligation. This ES Addendum has considered whether these mitigation measures remain valid or whether any subsequent measures are required. Consideration is also given to a number of draft conditions proposed in relation to the Phase 1 RMA (as set out in the Officer's report to Committee – refer to **Appendix 5.1**) and those secured to the surface water outfall consent (ref: SMD/2022/0014), where relevant.

Cumulative Effects

2.24 An updated cumulative site search was conducted which did not identify any additional schemes which needed to be assessed. For further information on cumulative effects, refer to **Chapter 18: Cumulative**.

Limitations and Assumptions

2.25 Any additional Limitations and Assumptions in the preparation of this ES Addendum are set out clearly within each technical chapter.

3 SITE DESCRIPTION

3.1 There have been no material changes to the Application Site description as described in the June 2016 ES.

3.2 The application site comprises the former Moneystone Quarry located between the villages of Whiston and Oakamoor, Staffordshire. For ease of reference the Site Location Plan is contained in **Appendix 3.1**.

3.3 The site lies within the Churnet Valley in the administrative boundary of SMDC and lies between the parishes of Kingsley and Oakamoor. It is located approximately 1.6km south east of Whiston, 2km north-west of Oakamoor, and 11km south of Leek. The site is accessible via the A52 which links the M6 to the M1.

3.4 The topography of the area is particularly distinctive with considerable level changes. The low-lying river valley cuts through the area on a roughly northwest / south-east axis. Ground levels rise sharply away from the river to the northeast. The quarry lies at relatively low/intermediate levels in the wider topographic context.

3.5 A full planning application (Ref: SMD/2015/0220) for the development of a Solar Farm on land directly adjacent to the appeal site was formally approved by SMDC in October 2015. This development was considered as a cumulative site within the June 2016 ES, however as the development has been delivered and is now operational, it forms part of the baseline within this ES Addendum.

3.6 Refer to Chapter 3 of the June 2016 ES for the Site History and Site Description.

4 ALTERNATIVES

4.1 The EIA Regulations (Schedule 4, paragraph 2) require for inclusion in an ES:

"*A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects*"

4.2 The 'reasonable alternatives' considered in the June 2016 ES included:

- Alternative Sites;
- No Development Option; and
- Alternative Layouts and Designs.

4.3 Refer to Chapter 4 of the June 2016 ES for further details.

4.4 The 'no development option' in the June 2016 ES set out that in the absence of the proposed development, the site would be restored in full accordance with the Restoration Plan (December 2013). There have been further updates to this restoration plan.

4.5 Staffordshire County Council issued Laver Leisure with two enforcement notices in September 2022 relating to breach of planning conditions associated with the restoration consent for the quarry (Enforcement Notice EN2) and the removal of the laboratory building (Enforcement Notice EN1).

4.6 The granting of planning permission ref: SMD/2019/0716 for the change of use of the laboratory building for facilities associated with the wider Moneystone Park in January 2024 has in effect 'overridden' Enforcement Notice EN1 so it is no longer applicable.

4.7 The EN2 Enforcement Notice was subsequently varied in September 2022 to amend the date to which the notices take effect to December 2023. It was further varied again on 21 December 2023 to amend the date on which the notice take effect to 31 May 2024.

4.8 To date, the approved restoration scheme for the quarry has not been completed in accordance with the approved plans and the programme of implementation. The intention of Laver Leisure has been for the leisure development to be delivered, and therefore to avoid unwarranted works taking place which would then be undone as part of that consent – such works have been paused pending the completion of the appeal. However, as per

the approach outlined in the June 2016 ES and subsequent Addendum, the restoration plan forms the baseline against which effects of the proposals are assessed.

4.9 Therefore, there have been no amendments to the proposed development that necessitate an update to the alternatives assessment presented as part of the June 2016 ES. No additional alternatives were considered as part of this ES Addendum.

5 THE PROPOSED DEVELOPMENT

5.1 There have been no material changes to the description of the development as set out in Chapter 5 of the June 2016 ES. Therefore, the description of the proposed development, as approved by the outline permission, remains as follows:

"Outline application with some matters reserved for the erection of a high quality leisure development comprising holiday lodges; a new central hub building (providing swimming pool, restaurant, bowling alley, spa, gym, informal screen/cinema room, children's soft play area, café, shop and sports hall; visitor centre with farm shop; administration building; maintenance building; archery centre; watersports centre; equipped play areas; multi-sports area; ropewalks; car parking; and managed footpaths, cycleways and bridleways set in attractive landscaping and ecological enhancements (re-submission of Planning Application SMD/2014/0682)".

5.2 As described in the June 2016 ES, the assessment considered the fixed assessment parameters, together with the description of development, consisting of the following:

- Red Line Location Plan (PL1088.M.106 Rev 3) referred to as Outline Planning Application Boundary;
- Parameters Plan (PL1088.M110 Rev 6);
- Eaves Lane Access Plan (PB5196 – 0100 Rev C) referred to as Means of Access Drawing; and
- Restoration Plan (December 2013).

5.3 These parameters, along with the written description of the proposed development, have not changed.

5.4 In addition, the June 2016 ES provided other supporting plans and information including:

- Illustrative Masterplan (PL1088.M100 Rev 4);
- Character Area Plan (PL1088.M113 Rev 3); and
- Illustrative Site Sections (PL1088.M107 Rev 4).

5.5 The subsequent Phase 1 Reserved Matters Application requested permission for:

"*Reserved matters application proposing details for the appearance, scale, layout and landscaping for phase 1 of the leisure development comprising 190 lodges; erection of a*

new central hub building (providing farm shop, gym, swimming pool, spa, restaurant, cafe, games room, visitor centre, hub management and plant areas): reuse and external alterations to the existing office building to provide housekeeping and maintenance accommodation (including meeting rooms, offices, storage, staff areas and workshop); children's play areas; multi use games area; quarry park; car parking; refuse and lighting arrangements; and managed footpaths, cycleways and bridleways set in attractive hard and soft landscaping."

5.6 The detailed designs included the provision of a bridge structure within Quarry 3, which was not included within the June 2016 ES, see Quarry 3 Masterplan (1733-MS-022 Rev U). Draft Phase 1 RMA Condition 25 (refer to **Appendix 5.1**) requests further details of the bridge prior to commencement of development:

"*Bridge*

25. Notwithstanding the submitted plans, no development shall take place in Quarry 3 until such time that full details of the bridge shown on drawing 1733/MS-815 have been submitted to and approved in writing by the Local Planning Authority. Such detail to include means of construction and samples of the finishing materials which shall be timber and vertically clad. Reason:- To ensure an acceptable external appearance in the interests of the character and appearance of the area"

5.7 The bridge structure is therefore considered within this ES Addendum, where necessary.

5.8 In addition, a full planning application was submitted to SMDC on 11th January 2022 for the following development at the site:

"Proposed construction of a revised surface water outfall associated with Moneystone Park leisure development and engineering operations to infill the existing outfall structure."

5.9 The proposals sought permission for the proposed surface water outfall being moved further east when compared to the principle for the outfall location proposed as part of the original application (and as assessed in the June 2016 ES). The purpose of the outfall is to maintain water levels within Quarry 3. As set out previously, the application was supported by an ES Addendum to consider any change in likely significant effects considered in the June 2016 ES.

5.10 It was accepted by the Council that the outfall proposals would secure a betterment to the SSSI as a result of the proposals being brought forward. The revised outfall application (Ref: SMD/2022/0014) was recommended for approval by SMDC Officers within the accompanying Officers Report. This application was approved at SMDC's Planning

Committee on 26th October 2023 and the final Decision Notice was issued on 28th November 2023, subject to a number of conditions.

5.11 Although not part of the proposed development considered in the June 2016 ES, a full planning application was also submitted to SMDC on 27th November 2019 for the following development at the site:

"*Retention of former laboratory building and change of use to a sports hall with climbing wall, soft play area, two-lane mini bowl, cinema room; craft room and craft store, bike store and maintenance and bike hire office, cafe, viewing area, WCs, management office and plant rooms associated with Moneystone Park external alterations and reconfiguration of existing car park to provide 24no. car parking spaces.*"

5.12 The purpose of this application was to provide additional facilities within the existing former laboratory building to form part of the wider leisure park scheme. This application was considered at SMDC's planning committee on 26th October 2023 and was recommended for approval by SMDC Officers within the accompanying Officers Report. This application was approved at SMDC's planning committee on 26th October 2023 and the final Decision Notice was issued on 10th January 2024. The planning permission is linked to the refused appeal scheme by condition 3, which states:

"The development herby permitted shall only be used and operated as a facility of the adjacent leisure scheme permitted under SMD/2016/0378 and shall not at any time be sold, let or used as an independent standalone facility.

Reason:- In the interests of highway safety and the and the integrity of the Approved Restoration Plan for the site"

5.13 There have been no further changes to the proposed development as presented in the June 2016 ES.

6 PLANNING POLICY CONTEXT

6.1 Since the June 2016 ES, there have been updates in relation to planning policy both nationally and locally. The June 2016 ES references the National Planning Policy Framework (NPPF) published in March 2012. The NPPF was updated in December 2023.

6.2 In addition, the Staffordshire Moorlands Core Strategy (adopted March 2014) has been superseded by the Staffordshire Moorlands Local Plan adopted in September 2020.

6.3 The relevant Development Plan therefore comprises:

- Staffordshire Moorlands Local Plan (adopted September 2020)
- Staffordshire and Stoke-on-Trent Joint Waste Core Strategy 2010-2026 (adopted March 2013); and
- 'Saved' Staffordshire and Stoke-on-Trent Minerals Local Plan (1994 to 2006).

6.4 Reference is made to the relevant updates, where required, in the technical Chapter of this ES Addendum.

7 SOCIO-ECONOMICS

Introduction

7.1 This Chapter assesses the potential effects of the Moneystone Park proposed development. Chapter 7 of the June 2016 ES comprised an assessment of the potential significant effects of the proposed development on socio-economic effects.

7.2 This chapter provides an update to the previous socio-economic assessment to identify any new or altered significant effects which could arise from that presented in the June 2016 ES. Where the assessment has not changed, it is referenced as such within this Chapter.

7.3 The approach to this assessment is set out within this Chapter and at Chapter 2 of the ES Addendum. This ES Addendum Chapter should be read in conjunction with Chapter 7 of the June 2016 ES submitted as part of the outline planning application (ref. SMD/2016/0378), which was approved in October 2016. The subsequent applications listed below are also considered as part of this assessment:

- Reserved Matters Application - SMD/2019/0646 (Appeal lodged May 2024)
    - May 2020 EIA Statement of Conformity (Avison Young)
- Water Outfall Application (SMD/2022/0014) (Approved November 2023)
    - December 2021 ES Addendum (Avison Young)
- Reserved Matters Application SMD/2023/0532 – (Awaiting determination)
    - October 2023 EIA Statement of Conformity (Asteer Planning)

7.4 Chapter 7 of the June 2016 ES was prepared by Regeneris Consulting. This chapter of this ES Addendum has been written by Darren Wisher of Wisher Consulting, who is the former Managing Director of Regeneris Consulting.

Legislative and Policy Framework

7.5 A range of new economic development and tourism policies have been published in the period since 2016. However, the overall policy direction remains exactly the same as it was in 2016 and continues to reinforce the potential of the tourism sector as a local employment growth sector and the need to invest heavily in the tourism product, particularly in visitor accommodation.

7.6 The main new policies are summarised below:

National Planning Policy Framework (2023)

7.7 The latest updates to the National Planning Policy Framework (NPPF) were published in December 2023.

7.8 Paragraph 8 of the latest NPPF confirms that supporting the economy is one of three overarching goals of the planning system. It states that the economic objective is to "*help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity*" (NPPF, 2023, Para 8).

7.9 Paragraph 85 of the latest NPPF states that "*planning policies and decisions should help create the conditions in which businesses can invest, expand and adapt. Significant weight should be placed on the need to support economic growth and productivity, taking into account both local business needs and wider opportunities for development. The approach taken should allow each area to build on its strengths, counter any weaknesses and address the challenges of the future*". (NPPF, 2023, Para 85).

7.10 Paragraph 88 – which deals with Supporting a Prosperous Rural Economy – states that planning policies and decisions should enable a number of features including "*sustainable rural tourism and leisure developments which respect the character of the countryside*" (NPPF, 2023, Para 88).

Staffordshire Moorlands Tourism Strategy (2023)

7.11 Staffordshire Moorlands Council launched their Tourism Strategy in early 2023, and in doing so recognised the importance of tourism as one of the prime employment sectors in the district.

7.12 The Strategy's SWOT analysis (p7) lists the numerous strengths of Staffordshire Moorlands as a tourism location but also lists a series of weaknesses and threats. These weaknesses include:

- "*Lack of destination awareness and weak destination identity*".
- *"Lack of accommodation investment"*.
- *"Day visitors dominate"*.
- *"(Slow) pace of change – getting left behind*".

7.13 The Vision for the document (p9) states:

7.14 "*Over the next five years Staffordshire Moorlands will become a stronger destination, unlocking its potential with an improved offer and a better reputation that results in more value from visitors*".

7.15 Four Action Areas are identified in the Strategy, the fourth of which is 'Accommodation'. The aim of this Action Area is to "expand, improve and encourage the development of accommodation to attract visitors to stay overnight and keep their spending in the local area rather than losing it to neighbouring regions" (p20).

7.16 The Strategy states that there is a requirement to "*unlock private sector investment with a clear policy environment that encourages suitable accommodation development and improvement in Staffordshire Moorlands*" (p20).

Staffordshire Moorlands Local Plan (2020)

7.17 The Staffordshire Moorlands Local Plan was adopted in September 2020 and covers the period 2014 to 2033.

7.18 Page 24 of the Local Plan list the main economic and tourism challenges and opportunities faced in Staffordshire Moorlands. The list includes:

"*Tourism is identified as one of the key areas where the District can have a major role to help bring more people in and diversify its economy*".

"*Service sector is seen as the main driver for economic growth with an opportunity to capitalise on the growth of the 'experience economy' – tourism, leisure and retail- in particular developing the District's tourism role*".

"*Economic development needs to recognise the contribution which the rural areas can make to the District's economy with a major role for tourism in terms of providing opportunities for jobs, attracting investment and bringing in wealth*".

7.19 The Local Plan Vision (p30) includes further reference to the tourism sector:

"*Tourism will be a key element in the diversification of the District's economy and will also contribute significantly to raising the environmental quality and the regeneration of the District….particularly around the Churnet Valley which together with Alton Towers will be a significant tourist attraction*".

7.20 Policy E4 positively supports the important role that tourism and culture plays in the economy of the Staffordshire Moorlands. In support of Policy E4, the Local Plan states…"*At present a very low proportion of visitors to the Moorlands stay overnight in*

serviced accommodation and supply is particularly low in the three towns. Within the Churnet Valley the provision of further short and long stay visitor accommodation is particularly supported" (p90/91).

7.21 The proposed development is located in the heart of the Churnet Valley and the Local Plan expands on the role of this area in Policy SS11. Policy SS11 is the Churnet Valley Strategy and states that the Churnet Valley is identified as an area for sustainable tourism and rural regeneration. The Policy states that within this area particular support will be given to the following forms of development and measures:

- "*short stay and long stay visitor accommodation*".
- "*the expansion of existing tourist attractions and facilities and the provision of compatible new tourist attractions and facilities*".
- "*measures to remediate and restore derelict land, buildings and features including the appropriate redevelopment of sites*" (p68/69).

7.22 The proposed development is also located near to the towns of both Leek and Cheadle, both of which are likely to be major recipients of any off-site expenditure, especially on food and provisions, emanating from the scheme, as well as the location of much of the workforce. The Local Plan Policy SO5 seeks to "*ensure the long-term vitality and viability of the three market towns of Leek, Biddulph and Cheadle*" (p103).

7.23 Policy SO5 contains a whole range of measures to maintain the vitality and viability of the town centres. The Policy states that retailing and other key town centre uses like offices, leisure uses such as hotels and cinemas and cultural facilities like those connected with performance and the arts should ideally be focused in town centres.

7.24 In addition to Policy SO5:

- Policy SS5 is the Leek Area Strategy and seeks to consolidate the role of Leek as the principal service centre and a market town and support its regeneration. The Policy states a desire promote Leek's special character and heritage and strengthen its role as a visitor destination.
- Policy SS7 is the Cheadle Area Strategy and seeks to expand the role of Cheadle as a significant service centre and a market town. The Policy outlines a desire to promote the role and historic character of the town, including the protection of heritage assets and its links with the Churnet Valley as a visitor destination.

7.25 Delivery of the town centre policies listed above would be greatly accelerated through the provision of additional expenditure and new visitors to the Staffordshire Moorlands area.

Staffordshire Moorlands Growth Strategy

7.26 Staffordshire Moorlands Council published their 'Growth Strategy for Staffordshire Moorlands' in December 2018. The Strategy sets out how Staffordshire Moorlands can promote and develop both housing and economic growth.

7.27 The Growth Strategy lists the main economic challenges that need to be overcome which include:

- "*Low growth area and low level of economic dynamism*".
- "*Low level of development and inward investment*" (p9).

7.28 The Growth Strategy identifies Leisure & Tourism as a key employment sector, accounting for 17% of the workforce (p6). In commenting on the tourism sector, the Strategy reiterates that the ratio of staying/day visitors is low…"i*n part due to lack of visitor accommodation compared to Derbyshire*" (p15).

7.29 One of the proposed key actions in the Growth Strategy is to "*attract more staying visitors by improving the quality and range of accommodation stock across the district by working with key operators and small businesses*" (p16). The Strategy specifically lists the proposed development as a prime example of the type of development that is required (p16).

Assessment Approach

Consultation

7.30 No additional consultation was required for this assessment.

Assessment of Significance

7.31 There are no changes to the assessment methodology since the June 2016 ES.

7.32 As with the June 2016 ES, the assessment of socio-economic effects has been based on a widely used and accepted methodology which considers the sensitivity of the receptors and the magnitude of the impacts of the proposed development on these receptors, informed using a series of indicators. The significance of each effect is then determined by considering both the sensitivity of the receptor and the magnitude of the impact.

Limitations to the Assessment

7.33 As with the June 2016 ES, all techniques used in this chapter are considered to be appropriate and proportionate. As such, no limitations are identified.

Baseline Conditions

7.34 Whilst new socio-economic data has become available in the period since the last ES was produced, the information continues to point to the same issues that were evident in 2016, namely:

- Jobs growth locally has continued to be slow and there is a deficit of local employment on a number of measures, including job density and daily net outflow of workers to jobs outside of the district.
- Pockets of deprivation continue to exist, notably in the main towns of Leek, Cheadle and Biddulph.
- Overnight visitors remain under-represented and there is a need to grow this aspect of the tourism market.

7.35 An overview of the new data baseline, using the same categories as used in the 2016 ES, is set out below:

Population & Labour Market

7.36 The most recent ONS population estimates (for 2021) show that Staffordshire Moorlands has 96,000 residents. Of these, 58% (55,700) were of 16-64 working age.

7.37 The current rate of economic inactivity in Staffordshire Moorlands - at 15.5% - is below the GB average of 21.2%[2]. That said, there remain numerous local people who need a job and are looking for one. The current unemployment claimant count in Staffordshire Moorlands stands at 1,175 as of May 2024[3]. There are also future labour market needs arising from extended later life working and an expanding population base.

Employment Trends

7.38 According to the latest (2022) data from the Government's Business Register and Employment Survey (BRES), there are some 29,150 employee jobs in Staffordshire

[2] ONS Annual Population Survey. September 2023.
[3] In addition to the claimant count there are other forms of economic inactivity that need to be addressed such as discouraged workers and those experiencing under-unemployment (i.e. those individuals who are working but not at the full hours they would wish for).

Moorlands[4]. The total number of jobs has not grown in the last five years, at a time when BRES data shows the number of jobs nationally has grown by nearly 5%.

7.39 The job density ratio measures the ratio of total jobs (including self-employment) to the population aged 16-64. In Staffordshire Moorlands the ratio stands at 0.76, significantly below the national ratio of 0.87[5].

7.40 Staffordshire Moorlands demonstrably needs to find additional sources of economic growth. The economic need for new jobs is just as strong now as it was in 2016.

Travel to Work

7.41 Data from the 2011 Census shows a 10,204 inflow of workers into Staffordshire Moorlands each day, but also a 22,994 outflow. The 12,790 net outflow is reflective of the shortage of jobs locally[6].

Deprivation

7.42 The overall scale of deprivation is Staffordshire Moorlands is modest compared to more urban areas. The district is the 204th most deprived local authority in England out of a total of 317, so it sits at the 65th percentile, according to the latest Index of multiple Deprivation. There are however distinct pockets of deprivation and economic disadvantage. There are 59 Lower-Level Super Output Areas (LSOAs) in Staffordshire. Of these:

7.43 Two are in the top 20% most deprived LSOAs in England and a further six are in the top 30%.

7.44 Of these eight LSOAs:

- Two are in Cheadle, approximately a 3.7 mile drive from the Proposed Development.
- Four are in Leek, approximately a 11.2 mile drive from the Proposed Development.
- Two are in Biddulph approximately 21.0 mile drive from the Proposed Development.

[4] This number excludes the self-employed.
[5] ONS Jobs Density data for 2022.
[6] Commuting data from the 2021 Census is unfortunately heavily skewed by the COVID travel restrictions that were in place at the time and is not reliable.

7.45 There are demonstrably pockets of deprivation within close proximity to the proposed development site relatively close proximity.

Tourism Market

7.46 Latest available data in the 2023 Staffordshire Moorlands Tourism Strategy shows that day visitors dominate the local tourism market, accounting for about 90% of the estimated 5.6m visits in 2019 (p11). This is obviously driven in part by the area playing host to one of the UK's most successful theme parks. Despite investments in overnight accommodation at Alton Towers in the 2015-2017 period, staying visitors still only account for just 10% of visits, however they account for 42% of the total estimated tourism spend (p11). The data highlights the importance of boosting overnight visits and extending the duration of visits and underscores that the potential for maximising the wider economic benefits of such visits.

7.47 The Tourism Strategy states that families and adult couples are the most prevalent visitor groups in Staffordshire Moorlands, accounting for 51% and 31% of all visits respectively. Data suggests that visitors to Staffordshire Moorlands are more affluent than the rest of Staffordshire with 43% from the 'AB' socio-demographic groups compared to 36% for Staffordshire (p11).

Summary of Previous Assessments

7.48 The conclusions from the previous applications including the June 2016 ES, December 2021 ES Addendum, Phase 1 Reserved Matters (SMD/2019/0646) May 2020 EIA SoC and Phase 2 Reserved Matters (SMD/2023/0532) October 2023 EIA SoC are outlined below in **Table 7.1**.

Table 7.1: Summary of Previous Assessments

Previous Assessments
Outline Planning Application (SMD/2016/0378) – June 2016 Outline Environmental Statement
The proposed development was assessed as having a number of significant beneficial impacts for the Staffordshire Moorlands district area during the construction phase (**moderate / minor beneficial** significance for temporary construction employment effects) and the operational phase (**major beneficial** significance for the tourism market effects, and **moderate / major beneficial** significance for the permanent employment effects). The main impacts include: • The construction phase would support 230 FTE construction jobs throughout the main programme of works. • Once fully developed, and in its steady-state year, the resort would attract 55,400 staying visitors per annum, while a further 32,500 annual day visitors could also potentially be attracted. • Off-site visitor expenditure from staying visitors would be in the order of £1m per annum. • The resort would support 250 FTE on-site jobs across a range of roles with the potential for flexible working arrangements. A high proportion of these jobs will be accessible to local people. • A further 78 indirect and induced FTE jobs would also be supported as a result of the proposed scheme.

• The development of Moneystone as a major visitor attraction has the potential to deliver some wider and catalytic effects for the local area. This could include investment in new/upgraded visitor accommodation in the vicinity of the site; local food and retail investments to capture enhanced visitor spend; and further investments in attractions as the project demonstrates success in drawing in large numbers of visitors to the area.
Water Outfall Application (SMD/2022/0014)– December 2021 ES Addendum
The December 2021 ES addendum concluded that there have been updates to the demographic data used in the 2016 assessment. However, it is not considered the baseline will have shifted significantly to alter the significance of the socio-economic benefits previously identified. The proposed development was considered to be part of the outline consent and therefore no new effects are envisaged from a socioeconomic perspective. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the socioeconomic effects of the development.
Phase 1 Reserved Matters (SMD/2019/0646) – May 2020 EIA Statement of Conformity (SoC)
The May 2019 EIA SoC concluded that due to the nature of the proposals the residual effects are less reliant on the socioeconomic baseline, as the effects are primarily derived by the capital expenditure and investment, as a result of the proposals, in the local economy, services and businesses. The investment into the local community and economy remains as presented in the June 2016 ES. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the socioeconomic effects of the development.
Phase 2 Reserved Matters (SMD/2023/0532) – October 2023 EIA SoC
The October 2023 EIA SoC concluded that there have been updates to the demographic data used in the 2016 assessment. However, it is not considered the baseline will have shifted significantly to alter the significance of the socio-economic benefits previously identified. There have been no amendments to the proposed development which were assessed and approved as part of the 2016 outline planning permission. There are no proposed changes to the description of development

or to the approved parameters. Therefore, the assessment of likely significant environmental effects remains as presented in the 2016 ES remains valid. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the socioeconomic effects of the development.

7.49 The conclusions of the previous June 2016 ES remain unchanged. All quantified socio-economic effects and their assessment of significance remain unaltered. The only slight change is that most recent construction labour ratios suggest the main construction phase will support 210 FTE construction jobs total, rather than the 230 FTE jobs estimated in the 2016 ES. This is not a material change to the scale of the effect and the assessment of significance remains unaltered.

Mitigation, Enhancement and Residual Effects

7.50 This chapter concludes the proposed development has been assessed as having a number of significant beneficial impacts for the Staffordshire Moorlands district area during the construction phase (moderate / minor beneficial significance for temporary construction employment effects) and the operational phase (major beneficial significance for the tourism market effects, and moderate / major beneficial significance for the permanent employment effects).

7.51 For both the construction and completion of the proposed development, the residual effects are identical to those described in the potential impacts section of the June 2016 Outline ES chapter, since no mitigation measures are required for any of the socio-economic receptors.

Table 7.2: Residual Effects Addendum Summary

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance)	Confirmation on whether the assessment has changed from previous ES
Temporary Construction Employment	Moderate / Minor Beneficial	None required	N/A	Moderate / Minor Beneficial	No change
Permanent New Visitors	Major Beneficial	None required	N/A	Major Beneficial	No change
Permanent New Operational Jobs	Moderate / Major Beneficial	None required	N/A	Moderate / Major Beneficial	No change

Summary

7.52 Whilst a range of new economic development and tourism policies have been published in the period since 2016, the overall direction of these policies remains largely unaltered. Policies continue to reinforce the potential of the tourism sector as a local employment growth sector and the need to invest heavily in the tourism product, particularly in visitor accommodation.

7.53 Equally, whilst new socio-economic data has become available in the period since the last ES was produced, the information continues to point to the same issues that were evident in 2016. The data continues to show a shortage of local employment opportunities, the presence of several pockets of deprivation and a demonstrable need to grow the overnight visitor market.

7.54 All quantified socio-economic effects and their assessment of significance remain unaltered from the 2016 ES.

7.55 This chapter therefore concludes the proposed development continues to have a number of significant beneficial impacts for the Staffordshire Moorlands district area:

- During the construction phase, there will be temporary construction employment effects that are assessed as being of **moderate / minor** beneficial significance.
- During the operational phase, there will be (i) a permanent uplift in visitor numbers which is assessed as being of **major beneficial** significance and (ii) permanent positive employment effects which is assessed as being of **moderate / major beneficial** significance.

7.56 In summary, there have been no changes to the socio economic assessment of significant effects and the conclusions presented in the June 2016 ES and subsequent EIA related assessments remain valid. It is worth noting that the economic and tourism need for the Proposed Development is just as strong now as it was in 2016, and the scheme will make a major contribution to the aims of the very recent 2023 Staffordshire Moorlands Tourism Strategy.

8 LANDSCAPE AND VISUAL ASSESSMENT

Introduction

8.1 This Chapter assesses the potential effects of the Moneystone Park proposed development. Chapter 8 of the June 2016 ES comprised an assessment of the potential significant effects of the proposed development on landscape and visual effects.

8.2 This Chapter provides an update to the previous Landscape and Visual assessment to identify any new or altered significant effects which could arise from that presented in the June 2016 ES (and subsequent addendum). Where the assessment has not changed, it is referenced as such within this Chapter.

8.3 The approach to this assessment is set out within this chapter and at Chapter 2 of the ES Addendum. This ES Addendum Chapter should be read in conjunction with Chapter 8 of the June 2016 ES submitted as part of the outline planning application (ref. SMD/2016/0378), which was approved in October 2016. The subsequent applications listed below are also considered as part of this assessment:

- Reserved Matters Application - SMD/2019/0646 (Appeal lodged May 2024)
    - May 2020 EIA Statement of Conformity (Avison Young)
- Water Outfall Application (SMD/2022/0014) (Approved November 2023)
    - December 2021 ES Addendum (Avison Young)
- Reserved Matters Application SMD/2023/0532 – (Awaiting determination)
    - October 2023 EIA Statement of Conformity (Asteer Planning)

8.4 Chapter 8 of the June 2016 ES and chapter 8 of this ES Addendum have been written by Planit-IE.

8.5 The Phase 2 RMA contains detailed drawings of the proposed bridge in Quarry 3 (1733-MS-022 / 1733-MS-815). Further detail of the bridge is required to be submitted by draft Condition 25, prior to the commencement of development. The bridge would not be visible from any of the assessment viewpoints, and its approximate location is consistent with the site layout that was assessed in the June 2016 ES. As such it is not considered likely to result in any additional effects over and above those previously identified and will not be considered further within this addendum. As noted, prior to commencement of development, full details of the bridge as shown on drawing 1733/MS-815 will be

submitted to and approved in writing by SMDC, as secured by draft Condition 25 of the Phase 1 RMA.

Legislative and Policy Framework

National Planning Policy Framework (NPPF), December 2023

8.6 The NPPF was revised in response to the Levelling-up and Regeneration Bill: reforms to national planning policy consultation on 19 December 2023 and sets out the government's planning policies for England and how these are expected to be applied. Guidance detail differs from that stated in the 2016 assessment although the general importance of good design, promoting healthy communities and conserving/ enhancing the natural environment is reflected in the updated guidance set out below.

8.7 The environmental objective of the NPPF is of particular relevance to the purpose of LVIA.

8.8 Section 12 of the NPPF deals with the requirements of good design. The overarching principle is set out in paragraph 131, which state, "*the creation of high-quality buildings and places is fundamental to what the planning and development process should achieve. Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities*."

8.9 Paragraph 135 of the NPPF sets out a number of principals of good design. In order to accord with these principles, it should be ensured that new developments:

- Will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;
- Will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;
- Are visually attractive as a result of good architecture, layout and appropriate and effective landscaping;
- Are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities);
- Establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming and distinctive places to live, work and visit;

- Optimize the potential of the application site to accommodate and sustain an appropriate amount and mix of development (including green and other public space) and support local facilities and transport networks; and,

- Create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion and resilience.

Staffordshire Moorlands Local Plan

8.10 The Core Strategy cited in the 2016 assessment has now been superseded by the Local Plan which was adopted on 9th September 2020.

8.11 Of particular relevance to LVIA is Policies DC 1&3 Design Considerations & Landscape and Settlement Setting, and NE 2 Trees, Woodland and Hedgerows.

DC 1 Design Considerations

8.12 All development shall be well designed and reinforce local distinctiveness by positively contributing to and complementing the special character and heritage of the area in line with the Council's Design Guide SPD.

- be of a high quality and add value to the local area, incorporating creativity, detailing and materials appropriate to the character of the area;

- be designed to respect the site and its surroundings and promote a positive sense of place and identity through its scale, height, density, layout, siting, landscaping, character and appearance:

- create, where appropriate, attractive, active, functional, accessible and safe public and private environments which incorporate public spaces, green infrastructure including making provision for networks of multi-functional new and existing green space (both public and private), landscaping, public art, 'designing out crime' initiatives and the principles of Active Design;

- promote the maintenance, enhancement, restoration and re-creation of biodiversity and geological heritage, where appropriate.

DC 3 Landscape and Settlement Setting

8.13 The Council will protect and, where possible, enhance local landscape and the setting of settlements in the Staffordshire Moorlands by:

- Resisting development which would lead to prominent intrusion into the countryside or have a significant adverse impact on the character or the setting of a settlement or important views into and out of the settlement as identified in the Landscape and Settlement Character evidence;
- Supporting development which respects and enhances local landscape character and which reinforces and enhances the setting of the settlement as identified in the Landscape and Settlement Character evidence;
- Supporting developments which conserve or enhance the biodiversity qualities of any natural or man-made features within the landscape, such as trees, woodlands, hedgerows, walls, watercourses or ponds;
- Supporting opportunities to positively manage the landscape and use sustainable building techniques and materials which are sympathetic to the landscape.

NE 2 Trees, Woodland and Hedgerows

8.14 The Council will protect existing trees, woodlands and hedgerows, in particular, ancient woodland, veteran trees and ancient or species-rich hedgerows from loss or deterioration.

Assessment Approach

Consultation

8.15 No additional consultation has been undertaken.

8.16 A site visit was undertaken on the 30th July 2024 to understand any changes to the landscape, structure and uses.

Assessment of Significance

8.17 The approach to how sensitivity and magnitude is determined and the assessment of significance is unchanged from the June 2016 ES.

8.18 This assessment has been carried out with reference to the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, 2013 (referred to hereafter as “the Guidelines”).

Limitations to the Assessment

8.19 Limitations to this assessment are unchanged from the June 2016 ES.

8.20 Updated viewpoint photography (**Appendix 8.1**) has been produced in accordance with the Landscape Institute, 2019. Technical Guidance Note 06/19 – Visual Representation of Development Proposals.

Baseline Conditions

8.21 There have been no material changes to the baseline since the June 2016 ES in regard to the following.

- National Landscape Character;
- Local Landscape Character Assessment;
- Site of Special Scientific Interest (SSSI);
- Site of Biological Importance (SBI);
- Green Belt;
- Listed Buildings; and
- Topography.

8.22 Public Rights of Way (PRoW). Staffordshire Moorlands Walks route/Carr Wood and Crowtree PRoW – this route now has extremely limited views over the site – as emerging woodland along the site edges screens views, and the previously noted processing plant is no longer visible (or audible) on site, other than a retained laboratory building and storage/ parking area. The laboratory building has since been granted planning permission in January 2024 for a change of use to a sports hall (SMD/2019/0716). This change does not alter the sensitivity of this receptor from that reported in the 2016 assessment.

8.23 Tree Cover – All the quarry areas now have substantial new emergent woodland where previously there had been quarry workings and disturbed ground. Views into and across them are limited by this dense vegetation, which has also colonised the steeper quarry slopes. Woodland and scrub is consistent with parts of the approved site restoration plan. This change does not alter the sensitivity of this receptor from that reported in the 2016 assessment.

Visual

8.24 Updated viewpoint photography has been undertaken in February/March 2024 to understand changes to baseline condition of views. These updated views are provided in **Appendix 8.1**, which includes the original 2016 viewpoint photography and photomontages for reference.

8.25 The majority of site conditions and overall layout of the main quarries are unchanged from that identified in the 2016 assessment. Two areas adjacent to the site originally identified for solar farms within the 2016 assessment have now been built which are now partially visible within views 2 & 17 – although they are heavily screened by tree planting. Planting in accordance with the approved December 2013 Restoration Plan has also matured, which is now prominent in a number of views – particularly views 6 & 17 where it provides additional screening into the main quarry areas.

8.26 Long range views from the south (view 16) are also broadly unchanged although vegetation in both the foreground and within the wider landscape has matured and increased in density/ height which provides further screening to views. The emergent woodland has led to a widespread greening of the site in longer range views, and some of the previously exposed rock faces are now becoming more difficult to see/ distinguish.

8.27 None of the identified changes are substantial and do not alter the assessed sensitivity of the views as set out in the 2016 assessment.

8.28 The updated site photographs represent winter conditions, in contrast to the summertime shots of the previous assessment. As such they provide a useful comparison between the two and highlight any potential additional visibility to the proposed development.

Summary of Previous Assessments

8.29 The conclusions from the previous applications including the June 2016 ES, December 2021 ES Addendum, Phase 1 Reserved Matters (SMD/2019/0646) May 2020 EIA SoC and Phase 2 Reserved Matters (SMD/2023/0532) October 2023 EIA SoC are outlined below in **Table 8.1**.

Table 8.1: Summary of Previous Assessments

Previous Assessments
Outline Planning Application (SMD/2016/0378) – June 2016 Outline ES
Landscape character – national level The site has been extensively quarried and therefore the presence of landscape features which contribute to landscape character as defined at the national level are minimal. The Revised Restoration Plan proposes the retention, enhancement and management of any existing landscape features of character and quality. The proposals incorporate landscape features proposed as part of the restoration of the site, with additional areas of tree cover and planting. Effect Significance – Negligible Not Significant
Landscape character – local level The landscape that forms part of the proposed development will be supplementary to the Revised Restoration Plan, with the purpose of providing a landscape setting to the development, screen potential views and contribute positively to habitat potential. Effects Significance – Negligible

Not Significant
Footpaths, cycleways and bridlepaths The proposed development will contribute positively to the existing network of footpaths, bridlepaths and cycleways, through the creation of new routes and therefore a new recreational resource, with connections to existing routes. Effect Significance – Moderate Beneficial Not Significant
Topography The existing topography of the site has been dramatically modified as a result of quarrying activities within the site. The Revised Restoration Plan works with the existing ground levels with modifications to ground levels where remediation is required. The proposed development will work with the remediated ground levels wherever possible, but will utilise cut and fill where required to minimise and/or avoid potential visual impacts of development. Effect Significance – Negligible Not Significant
Views Comprehensive desktop and onsite survey and investigation has demonstrated that views of the proposed development will be extremely limited. This is due to a combination of: former quarrying activities which created much lower ground levels within the three quarry sites, existing mature trees and planting, new tree cover and planting proposed as part of the Revised Restoration Plan, and a comprehensive landscape strategy as part of the proposed development, sensitive positioning of proposed new development through careful consideration of potential visual impact throughout the design development process.

Effect Significance:

- View 4 – minor adverse/negligible.
- View 6 – minor adverse
- View 16 – minor adverse
- View 17 – minor adverse
- All other views – negligible.

Not Significant

Water Outfall Application (SMD/2022/0014) – December 2021 ES Addendum

The December 2021 ES Addendum concluded, the works are relatively small scale and impacts on the surrounding landscape will be minimal. Localised level changes required to accommodate the new position of the outfall have the potential to change the local landscaped character, but this effect is so minor that the findings of the 2016 ES assessment are still valid. Whilst the proposal is on new areas of land outside of the 2016 outline application boundary, it is not considered significant effects on the identified receptors would change nor new significant effects be identified, and therefore mitigation measures identified as part of the June 2016 ES can be reflected for the Outfall application, where relevant.

Phase 1 Reserved Matters (SMD/2019/0646) – May EIA 2020 SoC

The May 2020 EIA SoC stated to supplement the reserved matters application and photomontages were prepared to illustrate the detailed designs when looking onto the site from the direction of the Listed Buildings at Little Eaves Farm. The location of these viewpoints were agreed with SMDC. Due to the robust approach for the LVIA it is not considered there would be any new effects nor a change to the significance of previously identified effects. The proposals accord with the parameters set by the 2016 outline permission and therefore the residual effects remain as presented in the June 2016 ES.

The May EIA 2020 SoC concluded that the June 2016 ES remains valid and is adequate to assess the landscape and visual effects of the development.
Phase 2 Reserved Matters (SMD/2023/0532) – October 2023 EIA SoC
The October 2023 EIA SoC stated there have been no material changes to the baseline conditions such that an update to the assessment was required. In addition, there have been no material changes to the baseline environment that was not predicted in the 2016 ES that would change the conclusions of the assessment of likely significant effects. There have been no amendments to the assessment parameters such that an update to the assessment was required and no additional environmental information was required with regards to the landscape and visual assessment. There was also no change to the recommended mitigation measures. The Reserved Matters application will not alter the conclusions set out within the June 2016 ES. As such, the assessment of likely significant effects as set out in the 2016 ES remain valid. No further assessment was required. The October 2023 EIA SoC, concluded that the June 2016 ES remains valid and is adequate to assess the landscape and visual effects of the development.

Additional Likely Significant Effects

8.30 No additional likely significant effects are anticipated and the previous effects identified in the June 2016 ES remain valid and unchanged.

Mitigation, Enhancement and Residual Effects

8.31 The residual effects from the June 2016 ES are outlined below and have been confirmed if they have changed since the assessment was completed.

8.32 There are a series of conditions attached to the 2016 outline planning permission which will require discharging as part of the reserved matters or prior to commencing works on site, including:

- Condition 12 – The proposed bridleways shall be informed by a construction methodology which takes account of landscape and visual construction and operation management measures.

- Condition 14 – The reserved matters should be delivered in accordance with the design principles within the DAS and the mitigation measures presented within Table 8.9, Chapter 8 LVIA of the June 2016 ES.

- Condition 17 – A Construction Environmental Management Plan ("CEMP") should be prepared which incorporates the mitigation measures presented within Table 8.10, Chapter 8 LVIA of the June 2016 ES.

- Condition 44 – Delivery of a comprehensive Structural Landscape Strategy ("SLS") which builds upon the mitigation and enhancement principles presented within Chapter 8 LVIA of the June 2016 ES.

8.33 There are also a number of draft conditions relating to the Phase 1 RMA, which are referred to below:

- Condition 5 (Phase 1 RMA) - Any lodge including its decked area (and all subsequent replacement lodges and their associated replacement decked area) shall only be erected in accordance with the design and elevational treatment and using the external facing and roofing material as specified and described in drawing numbers 1733 LV-020 Rev C, 1733 LV-021 Rev C, 1733 LV-022 Rev C and 1733 LV-023 Rev C submitted with the application, with samples of such facing and roofing materials having first been approved in writing by the Local Planning Authority. The development shall be carried out strictly in accordance with the agreed details. There shall be no variation to any of these details without the prior consent in writing of the Local

Planning Authority. For the avoidance of doubt any glazing proposed to decked areas should be non reflective/anti glare.

- Condition 6 (Phase 1 RMA) - Notwithstanding the submitted plans, no construction of the Hub building or external facing works to the Housekeeping building shall commence until samples of the following have been submitted to and approved in writing by the Local Planning Authority.

- Condition 7 (Phase 1 RMA). No development of the Hub building shall commence until such time that full details of any proposed extraction/ventilation/air con units or ducts have been submitted to and approved in writing by the Local Planning Authority. The intent must be to ensure as far as possible that any such equipment does not break the outline of the hub building. The development should proceed thereafter in accordance with the approved details

- Condition 8 (Phase 1 RMA).The natural play, junior play, adventure play areas and the MUGA shown on approved drawings 1088.4-PLA-00-XX-DR-L-8006 Rev P01, 1088.4-PLA-00-XX-DR-L-8007 Rev P01, 1088.4-PLA-00-XX-DR-L-8008 Rev P01 and 1088.4-PLA-00-XX-DR-L-8009 Rev P01 shall be made available for use prior to first occupation of any of the lodges within that phase of the development agreed under Condition 5 in which the play area and/or MUGA is situated

- Condition 9 (Phase 1 RMA) - Whilst retaining flexibility over the precise siting and alignment in order to minimise removal of or impact on existing trees and to respond to specific ground conditions and localised ground levels changes encountered as construction progresses, the new woodland paths and cycle tracks in the southern part of the site leading into and through the woodlands down into the Churnet Valley shall avoid any encroachment within the extent of Frame Wood included in the Inventory of Ancient Woodland for Staffordshire, and shall be constructed only and strictly in accordance with the specification and methods set out on the Planit I E "Southern Woodland Pathways" Drg. No. 1088.4-PLA-00-XX-DR-L-0006 Rev P02 and the Urban Green "Arboricultural Statement – Condition 9" reference 11874 Rev A submitted with the application hereby approved.

- Condition 10 (Phase 1 RMA).The planting and landscaping scheme shown on the following drawings:-

    - Landscape masterplan 1088.4-PLA-00-XX-DR-L- 0002 Rev P06

    - Planting Plan Quarry 3 1088.4-PLA-00-XX-DR-L-2002 Rev P05

- Planting Plan Quarry 1 North 1088.4-PLA-00-XX-DR-L-2003 Rev P04
- Planting Plan Quarry 1 South 1088.4-PLA-00-XX-DR-L-2004 Rev P03
- Planting schedule 1088.4-PLA-00-XX-DR-L-2005 Rev P04
- Soiling Plan 1088.4-PLA-00-XX-DR-L-2006 Rev P05
- Typical Softworks Details 1088.4-PLA-00-XX-DR-L-6000 Rev P02
- Landscape Masterplan Q3 1088.4-PLA-00-XX-DR-L-0002 Rev P06
- Landscape Masterplan Q1 North 1088.4-PLA-00-XX-DR-L-0003 Rev P04
- Landscape masterplan Q1 South 1088.4-PLA-00-XX-DR-L-0004 Rev P03

shall be fully implemented before the end of the first available suitable planting or seeding season following completion of each phase of the development agreed under Condition 5. The trees, shrubs, herbaceous and aquatic plants and grass planted in accordance with this landscaping scheme shall be properly maintained for a period of 5 years following planting to ensure successful establishment. Any plants which within this period are damaged, become diseased, die, are removed or otherwise fail to establish shall be replaced during the next suitable season. At all times, during the initial 5 year establishment period and thereafter, the landscaping shall be managed and maintained in accordance with the Habitat Management Plan to be approved under Conditions 19 of the outline planning permission SMD/2016/0378 and the approved Structural Landscape Strategy, Planet-IE dated October 2019.

- Condition 11 (Phase 1 RMA). No construction of the proposed gabion wall within the delivery area of the Hub building shown on the Site wide hardworks plan, drawing 1088.4-PLA-00-XX-DR-L-1001 Rev P08 shall commence until details have been submitted to and approved in writing by the LPA. Such detail shall include full design, construction, details of filling material, planting plans and timescale for planting. The development shall subsequently be carried out fully in accordance with the approved details.

- Condition 12 (Phase 1 RMA) .The development hereby permitted shall be carried out strictly in accordance with the Arboricultural Impact Assessment (Urban Green October 2019) and the Arboricultural Statement, Condition 9 (Urban Green October 2019)

- Condition 19 (Phase 1 RMA). No permission is hereby given or implied for the large totem signage referred to on indicative drawing Furniture and Signage Strategy 1088.4-PLA-00-XX-DR-L-4000 Rev P02.

- Condition 25 (Phase 1 RMA) - Notwithstanding the submitted plans, no development shall take place in Quarry 3 until such time that full details of the bridge shown on drawing 1733/MS-815 have been submitted to and approved in writing by the Local Planning Authority. Such detail to include means of construction and samples of the finishing materials which shall be timber and vertically clad.

Table 8.3: Residual Effects Addendum Summary

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
Impacts on Landscape character – National	Negligible Not Significant	The landscape screening areas to the boundaries of the site will be delivered at an early stage of development for each phase. Parking and construction accommodation will be positioned on site to limit visual impacts where possible. Lodges will primarily be prefabricated off site, which will help to minimise the duration of the construction period on site. Stockpiles will be located on site to limit visual impacts where possible. Where possible any removed material will be retained within the respective quarries to help avoid unnecessary construction vehicle movements across the wider site. (supported by Condition 17 of the outline consent)	Condition	Negligible Not Significant	No Change from previous ES assessment.

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
Impacts on Landscape character – Local	Negligible to Minor Adverse Not Significant	n/a	n/a	Negligible to Minor Adverse Not Significant	No Change from previous ES assessment.
Impacts on Footpaths, Cyclepaths and Bridlepaths	Negligible Not Significant	n/a	n/a	Negligible Not Significant	No Change from previous ES assessment.
Impacts on Topography	Negligible Not Significant	n/a	n/a	Negligible Not Significant	No Change from previous ES assessment.
Impacts on Visual Receptors (Viewpoints 1-17)	Negligible to Moderate Adverse (views 6& 17) Not Significant	Site hoarding will be used where appropriate and coloured to be sympathetic to the surrounding environment to minimise visual impacts. (supported by Condition 17 of the outline consent)	Condition	Negligible to Moderate Adverse (views 6& 17) Not Significant	No Change from previous ES assessment.

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
		The landscape screening areas to the boundaries of the site will be delivered at an early stage of development for each phase. Where possible hoarding lines will also utilise existing areas of woodland and scrub cover to help visually break up the extent of the fencing. Where possible, landscape screening and ecological enhancement measures will be delivered in advance of each phase of the construction of the built elements to soften and screen the development. (supported by Condition 17 of the outline consent)			
Impacts on Landscape character – National	Negligible Not Significant	Landscape Management Plan, including the on going detailed assessment and management plans for the existing woodland blocks – in particular Black Plantation. In order to ensure longevity of the block and promote native species &	Condition.	Negligible Not Significant	No Change from previous ES assessment.

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
		diversity. (supported by Condition 44 of the outline consent)			
Impacts on Landscape character – Local	Negligible Not Significant	Landscape Management Plan, including the on going detailed assessment and management plans for the existing woodland blocks – in particular Black Plantation. In order to ensure longevity of the block and promote native species & diversity (supported by Condition 44 of the outline consent)	Condition	Negligible Not Significant	No Change from previous ES assessment.
Impacts on Footpaths, Cyclepaths and Bridlepaths	Moderate Beneficial Not Significant	n/a	n/a	Moderate Beneficial Not Significant	No Change from previous ES assessment.
Impacts on Topography	Negligible Not Significant	n/a	n/a	Negligible Not Significant	No Change from previous ES assessment.

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
Impacts on Visual Receptors (Viewpoints 1-17)	Negligible to Minor Adverse Not Significant	n/a	n/a	Negligible to Minor Adverse Not Significant	No Change from previous ES assessment.

Summary

8.34 This chapter has reviewed the potential effects of the Moneystone Park proposed development as set out in Chapter 8 of the June 2016 ES which comprised an assessment of the potential significant effects of the proposed development on landscape and visual effects. It provides an update to the previous Landscape and Visual assessment to identify any new or altered significant effects which could arise from that presented in the June 2016 ES.

8.35 It has been carried out with reference to the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, 2013.

Legislative and Policy Framework

8.36 This section of the assessment has been updated to reflect changes to the wider legislative context including the NPPF and adopted Staffordshire Moorlands Local Plan. These contain relevant broad guidance in relation to LVIA in the form of guidance on design quality, environment and landscape setting. These replace the previous NPPF and Core Strategy guidance, but do not substantially alter the range or detail of guidance beyond that considered in the 2016 assessment.

Landscape Character at National and Local context.

8.37 The references to NCA 64 and Churnet Valley Landscape Character Assessment 2011 are still valid and utilised within the updated Staffordshire Moorlands Local Plan. As such the effects recorded within the June 2016 ES are unchanged.

Footpaths.

8.38 No change to the existing footpath network is recorded. As such the likely effects recorded within the 2016 assessment are unchanged.

Topography

8.39 No change to the existing site topography is recorded. As such the likely effects recorded within the 2016 assessment are unchanged.

Views

8.40 The updated viewpoint photography has highlighted change within the site from the previous assessment due to the addition of solar farms on adjacent land, the removal of all processing plant within the site, and the growth of emergent woodland on the views. These changes do not alter the likely view sensitivities or anticipated effects and as such the effects recorded within the 2016 assessment are unchanged.

8.41 In summary, there have been no material changes to the baseline environment since the June 2016 ES that would change the conclusions of the assessment of likely significant effects. There have been no amendments to the assessment parameters and there is also no change to the recommended mitigation measures. The Reserved Matters applications will not alter the conclusions set out within the June 2016 ES. Overall, it is considered that the June 2016 ES and subsequent EIA related assessments remain valid and are adequate to assess the landscape and visual effects of the development.

9 ECOLOGY

Introduction

9.1 This chapter assesses the potential effects of the Moneystone Park proposed development. Chapter 9 of the June 2016 ES comprised an assessment of the potential significant effects of the proposed development on Ecology.

9.2 This Chapter provides an update to the previous Ecology assessment to identify any new or altered significant effects which could arise from that presented in the June 2016 ES. Where the assessment has not changed, it is referenced as such within this Chapter.

9.3 The approach to this assessment is set out within this Chapter and at Chapter 2 of the ES Addendum. This ES Addendum Chapter should be read in conjunction with Chapter 9 of the June 2016 ES submitted as part of the outline planning application (ref. SMD/2016/0378), which was approved in October 2016 and subsequent Addendum. The subsequent applications listed below are also considered as part of this assessment:

- Reserved Matters Application - SMD/2019/0646 (**Appeal lodged May 2024**)
    - May 2020 EIA Statement of Conformity (Avison Young)
- Water Outfall Application (SMD/2022/0014) (**Approved November 2023**)
    - December 2021 ES Addendum (Avison Young)
- Reserved Matters Application SMD/2023/0532 (**Awaiting determination**)
    - October 2023 EIA Statement of Conformity (Asteer Planning)

9.4 Chapter 9 of the June 2016 ES and Chapter 9 of this ES Addendum have been written by Bowland Ecology Ltd.

Legislative and Policy Framework

9.5 The principal wildlife legislation of relevance and updated since 2016 are:

- Habitats Regulations 2019 (the Conservation of Habitats and Species Regulations 2017 (as amended) . Under this legislation, European Protected Species derogation licences need to meet strict tests before they can be issued:
    - the purpose of the licence has a valid basis (preserving public health or public safety or other imperative reasons of overriding public interest,

including those of a social or economic nature and beneficial consequences of primary importance for the environment);

- that there is no satisfactory alternative; and
- that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

9.6 Biodiversity Net Gain (BNG) became a mandatory requirement on the 12th of February 2024. However, if a planning application for a development was made before 12th February 2024, the development is exempt from the minimum requirement to provide 10% BNG. Nonetheless the aim to conserve and enhance biodiversity remains one which has been at the heart of planning decisions for the last two decades and has informed the evolution of these proposals from the outset.

9.7 In terms of changes to National Planning Policy:

- National planning policy is set out within the National Planning Policy Framework (NPPF) 2023 paragraphs 180-194. Chapter 15 'Conserving and Enhancing the Natural Environment' includes policies in respect of 'Habitats and Biodiversity'. Paragraph 186a sets out the key biodiversity test to be applied which is that of where 'significant harm to biodiversity' cannot be avoided, mitigated or compensated then planning permission should be refused.
- In addition to avoiding significant harm to biodiversity, the NPPF at paragraph 186d encourages opportunities to be taken up to incorporate biodiversity benefits into developments especially where this can secure net gains for biodiversity.

9.8 There have been changes to Local Planning Policy since 2016. The Core Strategy (2014) has been superseded by the Local Plan (adopted September 2020). Policy NE1 of the Local Plan relates to Biodiversity and Geological Resources and reflects the same policy reference within the Core Strategy (2014). Of particular relevance are the following:

- *Conserving and enhancing any Sites of Special Scientific Interest. The Council will not permit any development proposal which would directly or indirectly (either individually or in combination with other developments) have an adverse effect on a Site of Special Scientific Interest.*
- *Conserving, and enhancing regional and locally designated sites. The Council will not permit any development proposal which would directly or indirectly result in*

significant harm to geological and biodiversity conservation interests including ancient woodland, unless it can be demonstrated that: there is no appropriate alternative site available; and all statutory and regulatory requirements relating to any such proposal have been satisfied; and appropriate conservation and mitigation measures are provided; or if it is demonstrated that this is not possible the need for, and benefit of, the development is demonstrated to clearly outweigh the need to safeguard the intrinsic nature conservation value of the site and compensatory measures are implemented.

- *Supporting opportunities to improve site management and increase public access to wildlife sites including supporting the objectives of the Staffordshire County Council Rights of Way Improvement Plan.*

- *Ensuring development where appropriate produces a net gain in biodiversity, and ensuring that any unavoidable impacts are appropriately mitigated for.*

- *Ensuring development promotes the appropriate maintenance, enhancement, restoration and/or re-creation of biodiversity through its proposed nature, scale, location and design. The Staffordshire Moorlands Biodiversity Opportunity Map, in conjunction with the Staffordshire Biodiversity Action Plan, will be used to guide biodiversity enhancement measures to be included in development proposals as appropriate to the nature and scale of development proposed and other environmental interest, in particular supporting opportunities to increase grassland and heathland habitats including supporting targets in the UK and Staffordshire Biodiversity Action Plan.*

- *Protecting and enhancing habitats and species of principal importance for the conservation of biodiversity as identified in legislation, and recognising and implementing appropriate measures, including landscape-scale conservation management, to take account of the fact that the distribution of habitats and species will be affected by climate change.*

- *Recognising the value of the natural environment for sport and leisure activities and the need to manage such activities to ensure there is no conflict.'*

9.9 A difference between the previous Core Strategy Policy and the adopted Local Plan is the removal of reference to ancient woodland from NE1 and the introduction of a separate Trees, Woodland and Hedgerows Policy. Policy NE 2 makes reference to Trees, Woodland and Hedgerows and sets out that the Council will protect existing trees, woodlands and

hedgerows, in particular, ancient woodland, veteran trees and ancient or species-rich hedgerows from loss or deterioration. This will be achieved by:

- *Requiring that existing woodlands, healthy trees and hedgerows are retained and integrated within a proposed development unless the need for, and benefits of, the development clearly outweigh their loss;*

- *Requiring new developments to provide tree cover that secures a good level of sustainability through tree retention, planting and soft landscaping, including where possible the on site replacement of any trees that are removed with sufficient tree planting to replace or increase the canopy cover on-site as appropriate. Landscaping schemes will also be required to mitigate against negative landscape impact and complement the design of new development and make provision for future maintenance. Where it is not possible to secure this new or replacement tree planting within the site, the Council will work with applicants to ascertain if a suitable site(s) can be found off-site for replacement planting in the locality;*

- *Resisting development that would directly or indirectly damage existing ancient woodland, veteran trees and ancient or species-rich hedgerows.*

9.10 Previously under NE1 of the Core Strategy ancient woodland was afforded the following consideration:

- *Conserving, and enhancing regional and locally designated sites. The Council will not permit any development proposal which would directly or indirectly result in significant harm to geological and biodiversity conservation interests including* ***ancient woodland****, unless it can be demonstrated that: there is no appropriate alternative site available; and all statutory and regulatory requirements relating to any such proposal have been satisfied; and appropriate conservation and mitigation measures are provided; or if it is demonstrated that this is not possible the need for, and benefit of, the development is demonstrated to clearly outweigh the need to safeguard the intrinsic nature conservation value of the site and compensatory measures are implemented.*

Assessment Approach

Consultation

9.11 A updated protected species desk study has been undertaken, this involved contact with Staffordshire Ecological Record in July 2024 to obtain up to date species records. No further consultation has been undertaken.

Assessment of Significance

9.12 The assessment method for significance has not changed since the June 2016 ES.

Limitations to the Assessment

9.13 There are no changes to limitations since the June 2016 ES.

Baseline Conditions

9.14 This section briefly sets out changes to baseline conditions compared to information presented within the Chapter 9 of the June 2016 ES. The period of ecological information collected for use in the 2016 ES and this updating addendum spans the period 1994-2024. A summary of the timeline of this process is set out below.

1994-2006

9.15 The approach to surveys was initially informed by available information from previous planning applications relating to the site, notably the ecology chapter from an Environmental Statement prepared in 1996 (informed by baseline surveys that commenced in 1994); and a further Environmental Statement prepared in 2006. This data was collected prior to Laver Leisure acquiring the site and relates to quarry related activities undertaken at the site. The 2006 ES was prepared in respect of the proposed northern extension and Quarry 3 extension. The scope of ecology surveys at that time included:

- Desk studies.
- General botanical survey of vascular plants across all habitats in both sites.
- NVC survey of semi-improved or unimproved hay fields in the Quarry 3 extension site.
- Hedgerow survey applying Hedgerow Regulations 1997 criteria.
- Aquatic invertebrate sampling in areas with standing or flowing water.
- Great crested newt survey.
- General appraisal of the bird community in all habitats.
- Breeding bird survey in the woodland in the Northern Extension site.
- Badger sett survey.
- Bat survey.

2010-2021

9.16 A detailed desk study was carried out in 2010 and 2011 and included consultation of the following resources:

- Staffordshire Moorlands District Council.
- Staffordshire County Council.
- Natural England.
- Staffordshire Ecological Record (the key ecological data holder).
- Staffordshire Wildlife Trust.
- Staffordshire Badger Conservation Group.
- Staffordshire Mammal Group.
- Multi-Agency Geographic Information for the Countryside (MAGIC).

9.17 The aim of the desk study was to gather available ecological data and agree the scope of ecological information required to support a future planning application. Following the desk study, the sequence of surveys between 2010-2011 involved: an initial Phase 1 habitat survey of the full land holding plus a buffer area of 500 m to identify ponds. Bowland undertook this survey during April 2010 and this was further updated during other surveys carried out in 2011; and further targeted surveys of vegetation and species including:

- Detailed vegetation surveys including hedgerows, heathland mapping and Phase 2/NVC vegetation surveys.
- Reptiles & Amphibians.
- Breeding birds including considerations of crepuscular species and raptors.
- Badger.
- Otter & Water vole.
- Bats.
- Additional fauna - white-claw crayfish, polecat, pine marten and dormouse.

9.18 Further habitat surveys were conducted as part of ecological assessments prepared by FCPR during 2013. These assessments were prepared to support a planning application [SMD/2015/0220] for the installation of Solar Photovoltaic (SPV) panels; one area in the south east corner of Quarry 1 and another area within the south east corner of Quarry 2. This application was approved and the SPV panels have been installed and are in operation.

9.19 Updating surveys were carried out in 2014 to re-check baseline conditions, these surveys included habitat surveys (including checking National Vegetation Classifications) and faunal surveys. Faunal surveys involved 2 surveys visits within the optimal season for bats, amphibians and breeding birds. The surveys followed standard methodology but with a reduced scope based on the availability of comprehensive data recorded during 2010-2011.

9.20 Further updating surveys were again carried out in 2016 including habitats, birds, bats, and amphibians. The 2016 update faunal surveys mirrored those from 2014, 2 surveys visits following standard methodologies were conducted in the optimum survey season for bats, amphibians and breeding birds.

9.21 Regular site visits have been undertaken in the intervening period in relation to various specific aspects of the development. Most notably:

- Habitat walkovers of the whole site during March 2017 to inform the ongoing management requirements of the Approved Restoration Plan associated with the previous minerals consent for the quarry.
- An updating walkover survey carried out on Tuesday the 19th of September 2017 to verify baseline conditions.
- Habitat walkover surveys October-November 2018 to reassess baseline conditions and a separate walkover of the site with landscape architects and an arboricultural consultant to inform the sensitive design of paths through woodland habitats.
- Site walkover during 2019 with a specific focus on the outfall area in Quarry 3.
- Site visits during 2020 with a focus on the outfall area in Quarry 3, this also included a survey of laboratory buildings within Quarry 1.
- Site survey in September 2021 to provide an up to date description of ecological features within the area affected by the proposed outfall application for Quarry 3

(which subsequently informed the December 2021 ES Addendum, together with the baseline data gathered previous this date and as set out above).

2024

9.22 During 2024 to inform this ES Addendum an updated desk study and the following updating surveys were undertaken. The scope of the updating surveys was determined by review of previous ecological information relating to key receptors and through the result of an updating habitat and walkover survey which included scoping of protected species issues. The final scope of surveys involved:

- UKHAB survey and ecological walkover.
- Reptiles & Amphibians.
- Breeding birds.
- Bats.

9.23 A separate Ecological Surveys report provides the detailed results of an update survey carried out during 2024 and is the information that has been used to evidence changes to baseline conditions as set out in this chapter (see **Appendix 9.1**).

9.24 This section mirrors the order of receptors/features as set out in the June 2016 ES and will discuss the following in turn; habitats/botany, reptiles, amphibians, breeding birds, badger, otter/water vole, bats, white clawed crayfish and additional fauna.

9.25 In general baseline conditions for habitats are broadly similar to those described in the June 2016 ES. However, notable changes to habitats which reflect an absence of active management intervention are:

- an increase in the extent of scrub, leading to a loss of open grassland within the former mineral extraction areas and a decrease in the quality of woodland habitat where scrub is becoming very dense in the understorey;
- changes to wetland/aquatic habitat with a varied picture of scrub and vegetation encroachment reducing areas of previous open water and the establishment of new aquatic habitat in a former lagoon; and
- an increase in extent of the invasive species Himalayan Balsam.

9.26 With regards to reptiles a full suite of standard surveys was conducted in the optimal survey season during 2024 and these confirm that baseline conditions remain the same for reptiles.

9.27 With regards to amphibians a full suite of Great Crested Newt eDNA and standard surveys were conducted in the optimal survey season during 2024. These surveys confirm that baseline conditions remain the same for great crested newt and other amphibian species.

9.28 Changes to breeding bird populations are a response to habitat succession, there has been an overall decrease in species associated with more open wetland (e.g. lapwing and little ringed plover) and an increase in species associated with scrub/reedbed habitat (e.g. willow warbler, reed bunting). During the 2024 update survey, no Schedule 1 bird species were recorded to be breeding at the site, in contrast during 2016 the Schedule 1 little ringed plover held two breeding territories. This species relies on more open habitat which has reduced in the intervening years. With suitable active management this species could return to the site. Whilst bird populations have fluctuated in response to habitat change, in very broad terms the overall diversity and assemblages at the site are similar to those recorded in the 2016 ES.

9.29 No badger setts were confirmed to be present within the masterplan area during update surveys in 2024. However this species was observed during nocturnal surveys and will utilise habitats within the site. Areas of woodland, in particular provide potential future sett building habitat. This confirms that baseline conditions are similar to those reported in the 2016 ES.

9.30 Specific surveys for otter and water vole were not undertaken on the basis that the updating walkover surveys confirm that there are no significant changes to watercourse/associated habitats for these species and it is considered that the baseline conditions remain the same i.e. the Churnet Valley remains suitable for otter and that currently there is no suitable habitat for water vole at the site. The updated desk study returned no records for water vole, and no recent records (beyond those reported in the 2016 ES) for otter that are relevant to the site.

9.31 At the point of writing bat surveys are ongoing, however survey visits completed to date (3 transects and static detector deployment) are consistent with previous surveys and baseline conditions have not changed. This is a robust conclusion.

9.32 Previous white clawed crayfish surveys did not detect the presence of this species. Whilst specific update surveys were not undertaken, signal crayfish were confirmed to be present in one pond during amphibian surveys. This is consistent with the findings of previous

surveys and as such it is considered that white clawed crayfish are absent from water courses associated with the site. The updating desk study did not return any records for this species for the site. Baseline conditions remain the same for white clawed crayfish.

9.33 With regards to other fauna there were no records of note returned by the updating desk study. Baseline conditions remain broadly similar for other fauna.

Summary of Previous Assessments

9.34 The conclusions from the previous applications June 2016 ES, December 2021 ES Addendum, Phase 1 Reserved Matters (SMD/2019/0646), May 2020 EIA SoC and October 2023 EIA SoC are outlined below in **Table 9.1**.

Table 9.1: Summary of Previous Assessments

Previous Assessments
Outline Planning Application (SMD/2016/0378) – June 2016 ES
The June 2016 ES identified the development will impact upon habitats that have formed within the former quarry areas (Q1, Q2 andQ3) which predominantly comprise developing grassland, ephemeral habitats, scrub and areas of planting (trees, hydra seeding). In addition, the development will fragment the Approved Restoration Plan and introduce disturbance to the site which will also negatively affect the function of the proposed Approved Restoration Habitats. To mitigate and compensate for these impacts a strategic approach is taken which also links to the objectives the Churnet Valley Masterplan, Staffordshire Ecosystem Action Plans (Churnet Woodlands and Species Rich Farmland), and the Staffordshire Moorlands Biodiversity Opportunities Map (Churnet Woodlands). The key elements are measures to enhance/restore lowland grassland, plant new woodland and manage and enhance existing woodlands. Further measures will include planting of new hedgerow to enhance the ecological network value of the area (green infrastructure) and retention and management of Approved Restoration Habitats within the application site. With regards to fauna, the site is of interest for three species of reptile which were identified mainly within the quarry site. Amphibians, including great crested newt, were identified throughout the site. A number of significant bird species were also identified within varying habitat across the site. The site also provides valuable roosting and foraging habitat for bats.

Standard mitigation techniques will be implemented to avoid potential effects to species during construction and to avoid other potential impacts such as run off and lighting. Species interests will also be incorporated into the long term management objectives for the site. The site provides the opportunity to ensure the long term management of land for nature conservation and will provide the opportunity for the enjoyment of areas of wildlife. Sensitive development of the site clearly provides an opportunity to meet key objectives of the Churnet Valley Masterplan.
Water Outfall Application (SMD/2022/0014) – December 2021 ES Addendum
The December 2021 ES Addendum concluded the works are relatively small scale and impacts on terrestrial habitats will be minimal. However, there are several features within the proposed working area which are considered to be ecological value including; patchy woodland ground flora, coppiced hazels, a single alder tree and standing Without mitigation there could also be indirect impacts, particularly during construction, upon the watercourse and associated aquatic fauna as a result of pollution (silt run off or spills). It is considered that following the implementation of mitigation measures there will be negligible impacts upon habitats and species. The proposed outfall works aim to reinstate the quarry's hydrological position as close to the baseline conditions (pre-quarrying) as possible. Therefore, there are no significant adverse residual impacts arising from the proposed outfall works and location in comparison to the findings of the 2016 ES. Further that the proposed location of the outfall within the SSSI is higher up the catchment of Stream A within the SSSI than that outlined in the ES. This is a positive impact of the works which are sought for approval and will assist in reinstating the hydrological regime at the SSSI and surrounding area.
Phase 1 Reserved Matters (SMD/2019/0646) – May 2020 EIA SoC
The May 2020 EIA SoC stated it is not considered that further baseline information needs to be gathered nor will there be any new effects or change in the significance of effects previously identified. The conditions set out on the decision notice in respect of ecology, combined with the mitigation presented in the June 2016 ES, provide sufficient environmental management and mitigation measures for the long term protection of ecological receptors during the construction and operational phases of development. The conditions set out on the decision notice in respect of ecology, combined with the mitigation presented in the June 2016 ES, provide sufficient environmental management and mitigation measures for the long term protection of ecological receptors during the construction and operational phases of development.

Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the ecological effects of the development.
Phase 2 Reserved Matters (SMD/2023/0532) – October 2023 EIA SoC
The October 2023 EIA SoC identified the conditions set out on the decision notice in respect of ecology, provide sufficient environmental management and mitigation measures for the long-term protection of ecological receptors during the construction and operational phases of development. There have been no material changes to the baseline conditions such that an update to this assessment is required. In addition, there have been no material changes to the baseline environment that was not predicted in the 2016 ES that would change the conclusions of the assessment of likely significant effects. There have been no amendments to the assessment parameters such that an update to this assessment is required and no additional environmental information is required with regards to the ecological assessment. There is also no change to the recommended mitigation measures. The Reserved Matters application will not alter the conclusions set out within the 2016 ES. As such, the assessment of likely significant effects as set out in the ES remain valid. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the ecological effects of the development.

9.35 Update surveys carried out in 2024 confirm that baseline conditions are broadly similar to those report in the 2016 ES. There have been some habitat changes at the site which are reflected in associated species population changes. There is however currently no active habitat management regime at the site, as a consequence the cover of scrub is increasing rapidly. There have been some changes to aquatic habitats, an increase in open water (1 new pond has established in a former lagoon area in Q1), but an overall decrease in open water due to scrub and reed encroachment. This has resulted in a shift in breeding bird populations which are currently more reflective of scrub and woodland habitats with a lower representation of species associated with more open habitat. In terms of other protected species, there are no significant changes to baseline conditions. There is an apparent increase in the occurrence of the invasive species Himalayan Balsam.

9.36 None of these findings alter the value of any ecological receptors at the site, consequently there are no additional likely significant effects.

Mitigation, Enhancement and Residual Effects

9.37 The residual effects from the June 2016 ES are outlined below and have been confirmed if they have changed since the assessment was completed.

9.38 There are a series of conditions attached to the 2016 outline planning permission which will require discharging as part of the reserved matters or prior to commencing works on site, including:

- Condition 9 – Provision of an Ecological and Arboricultural assessment if any works are proposed within the area of retained landscape defined by the approved parameters plan.
- Condition 12 – The proposed bridleways shall be informed by a construction methodology which takes account of ecological management measures.
- Condition 18 – Provision of a Construction Ecological Management Plan which has been informed by the principles of the outline CEMP provided at Appendix 9.3 of the June 2016 ES.
- Condition 19 – Provision of a Habitat Management Plan which has been informed by the principles of the outline Habitat Management Plan provided at Appendix 9.4 of the June 2016 ES.
- Condition 20 – Provision of a sensitive lighting strategy to minimise the impacts on bats.

- Condition 44 – Delivery of a comprehensive Structural Landscape Strategy which builds upon the mitigation and enhancement principles presented within Chapter 9 Ecology of the June 2016 ES.

9.39 There are also a number of draft conditions relating to the Phase 1 reserved matters application (RMA), which are referred to below:

- Condition 9 - Whilst retaining flexibility over the precise siting and alignment in order to minimise removal of or impact on existing trees and to respond to specific ground conditions and localised ground levels changes encountered as construction progresses, the new woodland paths and cycle tracks in the southern part of the site leading into and through the woodlands down into the Churnet Valley shall avoid any encroachment within the extent of Frame Wood included in the Inventory of Ancient Woodland for Staffordshire, and shall be constructed only and strictly in accordance with the specification and methods set out on the Planit I E "Southern Woodland Pathways" Drg. No. 1088.4-PLA-00-XX-DR-L-0006 Rev P02 and the Urban Green "Arboricultural Statement – Condition 9" reference 11874 Rev A submitted with the application hereby approved.

- Condition 10 - The planting and landscaping scheme shown on the following drawings:-

    - Landscape masterplan 1088.4-PLA-00-XX-DR-L- 0002 Rev P06
    - Planting Plan Quarry 3 1088.4-PLA-00-XX-DR-L-2002 Rev P05
    - Planting Plan Quarry 1 North 1088.4-PLA-00-XX-DR-L-2003 Rev P04
    - Planting Plan Quarry 1 South 1088.4-PLA-00-XX-DR-L-2004 Rev P03
    - Planting schedule 1088.4-PLA-00-XX-DR-L-2005 Rev P04
    - Soiling Plan 1088.4-PLA-00-XX-DR-L-2006 Rev P05
    - Typical Softworks Details 1088.4-PLA-00-XX-DR-L-6000 Rev P02
    - Landscape Masterplan Q3 1088.4-PLA-00-XX-DR-L-0002 Rev P06
    - Landscape Masterplan Q1 North 1088.4-PLA-00-XX-DR-L-0003 Rev P04
    - Landscape masterplan Q1 South 1088.4-PLA-00-XX-DR-L-0004 Rev P03

shall be fully implemented before the end of the first available suitable planting or seeding season following completion of each phase of the development agreed under Condition 5. The trees, shrubs, herbaceous and aquatic plants and grass planted in accordance with this landscaping scheme shall be properly maintained for a period of 5 years following planting to ensure successful establishment. Any plants which within this period are damaged, become diseased, die, are removed or otherwise fail to establish shall be replaced during the next suitable season. At all times, during the initial 5 year establishment period and thereafter, the landscaping shall be managed and maintained in accordance with the Habitat Management Plan to be approved under Conditions 19 of the outline planning permission SMD/2016/0378 and the approved Structural Landscape Strategy, Planet-IE dated October 2019.

- Condition 12 - The development hereby permitted shall be carried out strictly in accordance with the Arboricultural Impact Assessment (Urban Green October 2019) and the Arboricultural Statement, Condition 9 (Urban Green October 2019).

- Condition 24 – No part of the development hereby approved shall be brought into use until such time that the new surface water outfall approved under SMD/2022/0014 has been constructed and brought into use.

Table 9.3: Residual Effects

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
Impacts on Habitats	Negligible to Moderate Adverse	Retention and avoidance of the most valuable habitats. Appendix 9.2 of the ES, Outline CEMP (supported by Condition 18 of the outline consent).	Condition	Negligible to Moderate Beneficial Not Significant	No change
Impacts on Amphibians	Moderate Adverse	Retention and avoidance of the most valuable habitats. Appendix 9.2 of the ES, Outline CEMP (supported by	Condition	Moderate Beneficial Not Significant	No change

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
		Condition 18 of the outline consent).			
Impacts on Reptiles	Minor Adverse	Retention and avoidance of the most valuable habitats. Appendix 9.2 of the ES, Outline CEMP (supported by Condition 18 of the outline consent).	Condition	Moderate Beneficial Not Significant	No change
Impacts on Birds	Minor Adverse	Retention and avoidance of the most valuable habitats. Appendix 9.2 of the ES, Outline CEMP (supported by	Condition	Moderate Beneficial Not Significant	No change

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
		Condition 18 of the outline consent).			
Impacts on Badgers	N/A	No impacts currently. Appendix 9.2 of the ES, Outline CEMP (supported by Condition 18 of the outline consent).	Condition	N/A	No change
Impacts on Bats	Negligible to Minor Adverse	Appendix 9.2 of the ES, Outline CEMP (supported by Condition 18 and Condition 20 of the outline consent).	Condition	Minor Beneficial Not Significant	No change

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
Impacts on Otters	Negligible Not Significant	Appendix 9.2 of the ES, Outline CEMP (supported by Condition 18 of the outline consent).	Condition	Negligible Not Significant	No change
Impacts on Habitats (including designated habitats)	Negligible to Minor Adverse / Major Beneficial	Retention and avoidance of the most valuable habitats. Habitat enhancements as set out in Appendix 9.3 of the ES Outline Habitat Management Plan (supported by Condition 19 of the outline consent).	Condition	Negligible to Moderate Beneficial Not Significant	No change

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
		Provision of surface water outfall (draft condition 24)			
Impacts in Protected Species	Negligible to Moderate Beneficial	Retention and avoidance. Habitat enhancements (with associated species benefits) as set out in Appendix 9.3 of the ES Outline Habitat Management Plan (supported by Condition 19 of the outline consent).	Condition	Negligible to Moderate Beneficial Not Significant	No change

Summary

9.40 Updated surveys and desk studies have been carried out during 2024. Surveys have targeted habitats, legally protected species and invasive species. Standard survey methods have been employed during the optimal survey season.

9.41 In general, baseline conditions are similar to those in 2016. There are some habitat changes at the site which are reflected in associated species population changes. There is currently no habitat management regime at the site, as a consequence the cover of scrub is increasing rapidly. There have been some changes to aquatic habitats, an increase in open water (1 new pond has established in a former lagoon area in Q1), but an overall decrease in open water due to scrub and reed encroachment. This has resulted in a shift in breeding bird populations which are currently more reflective of scrub and woodland habitats with a lower representation of species associated with more open habitat. In terms of other protected species, there are no significant changes to baseline conditions. There is an apparent increase in the occurrence of the invasive species Himalayan Balsam.

9.42 The findings of the June 2016 ES and subsequent EIA related assessments in terms of key receptors, evaluation, impact significance and mitigation measures remain unchanged, even with the identified changes to come of the baseline elements of the site. Implementation of a detailed management plan based upon the Outline Management Plan submitted alongside the June 2016 ES would provide long term wildlife benefits.

10 ARCHAEOLOGY AND HERITAGE

Introduction

10.1 This chapter assesses the potential effects of the Moneystone Park proposed development. Chapter 10 of the June 2016 ES comprised an assessment of the potential significant effects of the proposed development on Archaeology and Heritage.

10.2 This Chapter provides an update to the previous Archaeology and Heritage assessment to identify any new or altered significant effects which could arise from that presented in the June 2016 ES. Where the assessment has not changed, it is referenced as such within this Chapter.

10.3 The approach to this assessment is set out within this Chapter and at Chapter 2 of the ES Addendum. This ES Addendum Chapter should be read in conjunction with Chapter 10 of the June 2016 ES submitted as part of the outline planning application (ref. SMD/2016/0378), which was approved in October 2016. The subsequent applications listed below are also considered as part of this assessment:

- Reserved Matters Application - SMD/2019/0646 (Appeal lodged May 2024)
    - May 2020 EIA Statement of Conformity (Avison Young)
- Water Outfall Application (SMD/2022/0014) (Approved November 2023)
    - December 2021 ES Addendum (Avison Young)
- Reserved Matters Application SMD/2023/0532 (Awaiting determination)
    - October 2023 EIA Statement of Conformity (Asteer Planning)

10.4 Chapter 10 of the June 2016 ES and Chapter 4 of this ES Addendum have been written by Orion Heritage Limited.

Legislative and Policy Framework

National Planning Policy Framework

10.5 Since the National Planning Policy Framework of 2012, there have been several updates, the most recent one being in 2023. The guidance contained with the 2023 document remains the same as that outlined in 2012; that being 'Conserving and Enhancing the Historic Environment' (section 16). However, the section number has changed from 12 (2012) to 16 (2023), along with several paragraph numbers (para 128 [2012] to para 200 [2023] and paras 132-134 [2012] to 200-203 [2023]).

The Local Plan

10.6 The Staffordshire Moorlands Core Strategy has now been superseded by the Staffordshire Moorlands Local Plan which was adopted on the 9th September 2020.

10.7 Policy DC 2 is applicable to the historic environment:

1. The Council will conserve and where possible enhance heritage assets, including their setting in a manner appropriate to their significance. This will take into account the desirability of maintaining and enhancing their significance and will ensure that development proposals contribute positively to the character of the built and historic environment.

2. Protection will be given to designated heritage assets and their settings and non-designated heritage assets as set out in the NPPF.

3. All applications likely to affect heritage assets will require the submission of a heritage statement, including a qualitative visual assessment where appropriate.

4. Where development is likely to affect archaeology, both designated and undesignated, the Council requires the submission of a desk-based assessment, and where appropriate, field surveys and trench evaluation by a qualified professional.

5. Where the loss of significance is unavoidable, recording should take place and this should be added to the Historic Environment Record as a minimum, held by Staffordshire County Council.

6. The Council will continue its proactive approach to heritage assets at risk and welcomes development proposals which would result in the sympathetic reuse of these assets in line with NPPF policy.

7. The Council will promote development which sustains, respects or enhances buildings and features which contribute to the character or heritage of an area and those interests of acknowledged importance through the use of Conservation Area Appraisals, Design Guidance and Statements, Archaeological Assessments, Characterisation Studies and Masterplanning.

Assessment Approach

Consultation

10.8 No further consultation has been undertaken since the June 2016 ES.

Assessment of Significance

10.9 The assessment of significance remains the same as that within the June 2016 ES.

Limitations to the Assessment

10.10 There are no further limitations to the assessment beyond those outlined in the June 2016 ES.

Baseline Conditions

10.11 Due to the nature of archaeology and heritage receptors, it is not considered that the baseline will have changed since the June 2016 ES was prepared. Any archaeological resources would have remained in-situ and no new heritage assets have been designated which have the potential to be affected by the proposals.

Summary of Previous Assessments

10.12 The conclusions from the previous applications including the June 2016 ES, December 2021 ES Addendum, Phase 1 Reserved Matters (SMD/2019/0646) May 2020 EIA SoC and Phase 2 Reserved Matters (SMD/2023/0532) October 2023 EIA SoC are outlined below in **Table 10.1**.

Table 10.1: Summary of Previous Assessments

Previous Assessments
Outline Planning Application (SMD/2016/0378) – June 2016 ES
The June 2016 ES stated, in relation to non-designated heritage assets, it has been established that any archaeological evidence within the areas of former quarry workings will have been destroyed by quarrying operations. There are small areas of undisturbed land which lie on the fringes of the quarry workings that are considered to have low archaeological potential. In light of this, it is considered that as the archaeological potential of the site is very limited, no further work would seem warranted. However, in the event that the archaeological advisor to the Local Planning Authority requests some additional work, it is suggested that any such work be undertaken as a condition of planning consent. The June 2016 ES stated, in relation to designated heritage assets, a negligible/neutral effect is considered from the proposed development on the contribution that the wider setting provides to the significance of Little Eaves Farmhouse, Barn c. 5 m east of Little Eaves Farmhouse and the curtilage listed barn, in limited views to and from them. In addition, any negligible/neutral effect on the contribution that the wider setting provides to the significance of these designated assets can be reduced further by additional tree planting along the western perimeter of the proposed development site, and through the reduction in height and careful siting of the Multi Activity Hub buildings.

Water Outfall Application (SMD/2022/0014)– December 2021 ES Addendum
The December 2021 ES Addendum concluded Overall, it is not considered the proposed developments would lead to significant effects on the significance of the heritage assets within the vicinity of the site or archaeological resources. It is therefore considered that the June 2016 ES and this ES Addendum is sufficient for decision making purposes in respect of the likely environmental effects.
Phase 1 Reserved Matters (SMD/2019/0646) – May 2020 EIA SoC
The May 2020 EIA SoC stated the effects on the setting of listed buildings was a principal consideration of the Council and has been carefully reassessed. Accordingly, as set out above, there have been additional photomontages prepared to illustrate views from the Listed Buildings at Little Eaves Farmhouse. However, as the proposals are within the parameters previously assessed it is not considered there would be any new effects as a result of the reserved matters. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the archaeological and heritage effects of the development.
Phase 2 Reserved Matters (SMD/2023/0532) – October 2023 EIA SoC
The October 2023 EIA SoC stated there are no proposed changes to the description of development or to the approved parameters. Therefore, the assessment of likely significant environmental effects remains as presented in the 2016 ES remains valid. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the archaeological and heritage effects of the development.

10.13 There are no additional effects or changes to the previously identified effects as outlined in the June 2016 ES.

Mitigation, Enhancement and Residual Effects

10.14 The residual effects from the June 2016 ES are outlined below. None of the residual effects have changed since the June 2016 ES assessment was completed.

10.15 There are a series of conditions attached to the 2016 outline planning permission which will require discharging as part of the reserved matters or prior to commencing works on site, including:

- Condition 47 – Undertaking an archaeological watching brief, walkover and earthwork survey.
- Condition 48 – Erection of an interpretation board on the former site of Whiston Eaves Farmhouse and stable block on Whiston Eaves Lane.

Table 10.2: Residual Effects

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance)	Confirmation on whether the assessment has changed from previous ES
Impact on Non-Designated Heritage Assets	Negligible Not Significant	None	N/A	Negligible Not Significant	No Change
Impact on Designated Heritage Assets	Negligible/Neutral Not Significant	None	N/A	Negligible/Neutral Not Significant	No Change
Impact on Non-Designated Heritage Assets	No Impact Not Significant	None	N/A	No Impact Not Significant	No Change
Impact on Designated Heritage Assets	Negligible/Neutral Not Significant	None	N/A	Negligible/Neutral Not Significant	No Change

Summary

10.16 The purpose of this Chapter is to assess the potential effects of the Moneystone Park proposed development. Chapter 10 of the June 2016 ES comprised an assessment of the potential significant effects of the proposed development on Archaeology and Heritage.

10.17 This Chapter provides an update to the previous Archaeology and Heritage assessment and confirms that there are no new or altered significant effects which have arisen from that presented in the June 2016 ES and subsequent EIA related assessments. This includes no new or altered significant effects on the setting of the Listed Buildings at Little Eaves Farmhouse which was a principal consideration of the Council.

11 GROUND CONDITIONS

Introduction

11.1 This Chapter assesses the potential effects of the Moneystone Park proposed development. Chapter 11 of the June 2016 ES comprised an assessment of the potential significant effects of the proposed development on Ground Conditions effects.

11.2 This Chapter provides an update to the previous Ground Conditions assessment to identify any new or altered significant effects which could arise from that presented in the June 2016 ES. Where the assessment has not changed, it is referenced as such within this Chapter.

11.3 The approach to this assessment is set out within this Chapter and at Chapter 2 of the ES Addendum. This ES Addendum Chapter should be read in conjunction with Chapter 11 of the June 2016 ES submitted as part of the outline planning application (ref. SMD/2016/0378), which was approved in October 2016. The subsequent applications listed below are also considered as part of this assessment:

- Reserved Matters Application - SMD/2019/0646 (**Appeal lodged May 2024**)
    - May 2020 EIA Statement of Conformity (Avison Young)
- Water Outfall Application (SMD/2022/0014) (**Approved November 2023**)
    - December 2021 ES Addendum (Avison Young)
- Reserved Matters Application SMD/2023/0532 – (**Awaiting determination**)
    - October 2023 EIA Statement of Conformity (Asteer Planning)

11.4 Chapter 11 of the June 2016 ES and Chapter 11 of this ES Addendum have been written by Abbeydale Building Environment Consultants (BEC) Limited.

Legislative and Policy Framework

11.5 On 8th October 2020 CLT11 Model Procedures was replaced by Land Contamination Risk Management, which applies to England, Northern Ireland and Wales. This revised and updated some of the technical approach to land contamination assessment, but has not altered the approach to NPPF, which focuses on considering the possibility of land contamination, and ensuring that a site is 'suitable for use' following redevelopment for its intended use.

The Local Plan

The Staffordshire Moorlands Core Strategy has now been superseded by the Staffordshire Moorlands Local Plan which was adopted on the 9th September 2020.

Policy SD4 is applicable to ground conditions:

"*The Council will protect people and the environment from unsafe, unhealthy and polluted environments by ensuring proposals avoid potential adverse effects; and only permitting proposals that are deemed (individually or cumulatively) to result in pollution (including air/ water/ noise/ vibration/ light/ ground contamination) if after mitigation, potential adverse effects are deemed acceptable. This may be achieved by the imposition of planning conditions or through a planning obligation*".

Assessment Approach

11.6 A Slope Stability Statement (April 2021), Overview Site Investigation Report (October 2018) and Slope Stability Analysis Section drawing (reference Section 2H-2.sli) was prepared by Abbeydale BEC as part of a supplementary submission in January 2022.

11.7 Wardell Armstrong (WA) acting on behalf of the Council independently reviewed the supplementary submission and which is presented in a Peer Review (Stability) report dated June 2022. The findings of this process concluded that the quarry is in good condition, however further information would be required to demonstrate that stability had been sufficiently assessed for the proposed development.

11.8 In response, the following documents were submitted to SMDC in April 2023 in response. This included engineering drawings prepared by HSP Consulting to demonstrate the feasibility of constructing the proposed lodges on support structures within areas of Quarry 3;

- ABEC covering letter to SMDC, referenced 418058 WA Response, dated 25 April 2023;
- 418040DS App C – Slope Stability Assessment, dated 18 March 2011;
- 418055SI App B – Additional Slope Stability Analysis, dated October 2017;
- Ap5C 2022 Slide2 Assessment – July 2022 Analyses Notes;
- 4492-1 Schedule of Mitigation; and

- 4492-2 Schedule of Mitigation Flow Chart.

11.9 The supplementary submission was subsequently reviewed by Wardell Armstrong (letter dated 2nd June 2023). The response states: "*WA have reviewed the information provided by ABEC [Abbeydale BEC] and consider that provided the development is designed and maintained in accordance with the Schedule of Mitigation (4492-1/Schedule) and the associated Flow Chart (4492-2/Flow Chart), the development can be designed to be safe and stable*".

11.10 A series of conditions to secure the approach detailed in these documents is therefore recommended and include;

A) Post contouring of the site in accordance with the Table 3a Earthworks Sequence to submit an Earthworks Validation report;

B) On completion of the design stage of the slope stability mitigation in accordance with the Schedule of Mitigation (4992-1/Schedule) and the associated Flow Chart (4492-2/Flow chart) to submit a Slope Stabilisation Design Report;

C) Following implementation in full of the slope stabilisation mitigation in accordance with the Slope Stabilisation Design Report to submit a As Built Validation Report; and

D) Prior to the development coming into use, a development wide Monitoring and Maintenance Plan to be submitted.

11.11 As set out in **Chapter 12: Drainage and Flood Risk**, consultation has also been undertaken with Natural England and the Environment Agency in relation to the water level of Quarry 3 and to mitigate potential effects on the adjacent Whiston Eaves SSSI. This was also considered as part of a separate outfall application (SMD/2022/0014), approved in November 2023. As noted previously, an ES Addendum was prepared to consider the likely significant effects of the proposed outfall. The purpose of the water outfall (as now approved) is to ensure the water level within Quarry 3 is maintained at 156m AOD. There were no objections from Natural England or the Environment Agency in respect of the proposed development.

11.12 As set out in the June 2016 ES and as detailed within the Phase 1 reserved matters submission, earthworks are required to create the required development platforms across the site. A earthworks sequence has been prepared and submitted as part of the Phase 1 reserved matters. It is confirmed that this has been balanced, requiring no import or export of materials.

Assessment of Significance

11.13 There have been no changes to assessment methodology since the June 2016 ES.

Assumptions / Limitations to the Assessment

11.14 The following additional reports have been produced since the June 2016 Environmental Statement was compiled:

- Bi-Annual report (418040MM/3); dated May 2017. (**Appendix 11.1**)
- Biennial Monitoring Report; dated April 2019. (**Appendix 11.2**)
- Biennial Monitoring Report (418040MM/5); dated April 2021. (**Appendix 11.3**)
- Biennial Monitoring Report (418040MM/6); dated September 2023. (**Appendix 11.4**)

Baseline Conditions

11.15 There is a wealth of geo-environmental and geotechnical surveys which have been undertaken at the site during and since quarrying operations ceased. These surveys are further supplemented by the quarterly monitoring reports and summarised in Biannual reports which are undertaken by Abbeydale and provided to Staffordshire County Council (SCC). These surveys have provided an accurate picture of the geo-environmental and geotechnical conditions which also serve to validate the baseline conditions which informed the June 2016 ES. The ongoing monitoring confirms no slope stability issues at the site.

11.16 There have been no changes to the underlying geological, hydrological, hydrogeological, mining or historical settings of the site as set out in the June 2016 ES.

11.17 The ES Addendum (December 2021) prepared in support of the surface water outfall application (now approved), acknowledged that there had been '*only one significant change to the Site and surrounding area since 2016*". It goes on to state: "*In the Summer of 2021, a temporary spillway channel was cut from the Q3 quarry towards the SSSI, stopping before the boundary of the SSSI. This spillway is slightly lower than the previous spillway. It was constructed following advice from the Environment Agency to reduce risks associated with potential reservoir failures. The spillway lies circa 1.40m above the typical height of the Q3 lagoon and is only envisaged as being active in an extreme flood event*".

Summary of Previous Assessments

11.18 The conclusions from the previous applications June 2016 ES, December 2021 ES Addendum, Phase 1 Reserved Matters (SMD/2019/0646) May 2020 EIA SoC and Phase 2 Reserved Matters (SMD/2023/0532) October 2023 EIA SoC are outlined below in **Table 11.1**.

Table 11.1: Summary of Previous Assessments

Previous Assessments
Outline Planning Application (SMD/2016/0378) – June 2016 ES
The reports appended to the June 2016 ES identify potential risks associated with the ground conditions when developing and operating the site. Also the current risks of leaving the site, over an extended period, without further development. In the quarry area the sand resource has been exhausted. The leisure park, where practical, makes use of the remaining features of the quarry and reduces the risk of slope collapse and peak run-off flows down the streams flowing from the site. As part of the development ground profile changes are to be kept to a minimum so that existing natural vegetation and habitat can be retained and encourage to naturally re-generate into developed areas.
Water Outfall Application (SMD/2022/0014)– December 2021 ES Addendum
The Hydrology and Ecohydrology chapter in the December 2021 ES Addendum covers Ground Conditions and Flod Risk Chapters from the June 2016 ES. It states the Ground Conditions and Drainage and Flood Risk chapters have been merged into a single chapter due to the interrelationships of these disciplines and the proposed development sought for approval. The chapter identifies any new or altered significant effects which could arise from that previously presented. The December 2021 ES Addendum chapter concluded the proposed outfall has the potential to improve the current conditions of the SSSI in the operational phase. The redesign maximises the potential enhancement and should improve the SSSI's ecohydrological conditions. Consultation with Natural England occurred throughout the process which has allowed a comprehensive range of potential impact mechanisms to be identified and considered. The conclusions are based on a

series of ecohydrological investigations to understand how flows to the SSSI have changed through time and predict the effect of the outfall. The only additional effect considered as part of this assessment was to the change in ecohydrological conditions in the SSSI, which was identified as being Moderate Beneficial.
Phase 1 Reserved Matters (SMD/2019/0646) – May 2020 EIA Statement of Conformity (SoC)
The May 2020 EIA SoC concluded taking the June 2016 ES into consideration, the quarterly monitoring of the geo-environmental and geotechnical conditions at the site, and the conditions on the 2016 decision notice, it is not considered any further updates to the Ground Conditions assessment is considered necessary. The conditions provide sufficient environmental management and mitigation measures for the long-term protection of on and offsite receptors during the construction and operational phases of development. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the ground condition effects of the development.
Phase 2 Reserved Matters (SMD/2023/0532) – October 2023 EIA SoC
The October 2023 EIA SoC concluded there are no proposed changes to the description of development or to the approved parameters. Therefore, the assessment of likely significant environmental effects remains as presented in the 2016 ES remains valid. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the ground condition effects of the development.

Mitigation, Enhancement and Residual Effects

11.19 The residual effects from the June 2016 ES are outlined below and it is confirmed there have been no changes since the June 2016 ES

11.20 There are a series of conditions attached to the 2016 outline planning permission which will require discharging as part of the reserved matters or prior to commencing works on site, including:

- Condition 36 – Undertaking a risk assessment associated with contamination.
- Condition 37 – Preparing a remediation strategy and validation plan.
- Condition 38 – Preparing a validation report upon completion of the remediation strategy and implementation of the validation plan.
- Condition 39 – Requirement to cease any site operations if unidentified contamination is identified.
- Condition 40 – Restricting the importation of material unless it has been suitably tested for contamination and assessed for its suitability for the proposed development.

11.21 There are also a number of draft conditions relating to the Phase 1 reserved matters application (RMA), which are referred to below:

- Condition 13 (Phase 1 RMA) - Prior to the erection of any lodges, the construction of their foundation bases, the internal site roads, buildings and infrastructure hereby approved the recontouring of the site in accordance with the Moneystone Earthworks Proposed Phase 1 (Table 3a Earthworks Sequence) shall be completed and documented in an Earthworks Validation Report prepared by a Chartered Geologist, Registered Ground Engineering Professional or other appropriately experienced Chartered Engineer and submitted to and approved in writing by the Local Planning Authority. Reason: To ensure that the lodges, buildings, roads and other infrastructure are constructed on stable land prepared in accordance with the earthworks proposals.
- Condition 14 (Phase 1 RMA) - Prior to the erection of any lodges, the construction of their foundation bases, the internal site roads, buildings and infrastructure hereby approved, the Design stage of the slope stability mitigation identified in the submitted Schedule of Mitigation reference 4492- 1/Schedule and Schedule of

Mitigation Flowchart reference 4492-2/Flow Chart shall be completed and documented in a Slope Stabilisation Design Report prepared under the direction of a Chartered Geologist, Registered Ground Engineering Professional or other appropriately experienced and Chartered Engineer and submitted to and approved in writing by the Local Planning Authority. The detailed design of lodge foundations should be prepared under the direction of an appropriately experienced and Chartered Engineer. Reason: To ensure that the final recontoured slopes at the site are adequately investigated; that the slope stability hazards and risks are geotechnically assessed; and that mitigation design, proportionate to the level of geotechnical risk is documented in a geotechnical report.

- Condition 15 (Phase 1 RMA) - Prior to the erection of any lodges, the construction of their foundation bases, the internal site roads, buildings and infrastructure hereby approved the slope stabilisation mitigation shall be implemented in full and in accordance with the requirements of the Slope Stabilisation Design Report and documented within an As-Built Validation Report on completion of the Construction stage of the agreed Schedule of Mitigation reference 4492-1/Schedule. The As-Built Validation Report should be prepared under the direction of a Chartered Geologist, Registered Ground Engineering Professional or other appropriately experienced and Chartered Engineer and shall be submitted to and approved in writing by the Local Planning Authority prior to the erection of any lodges, the construction of their foundation bases, the internal site roads, buildings and infrastructure hereby approved Reason: To ensure that the slope stabilisation mitigation is fully implemented in accordance with the slope stabilisation design.

- Condition 16 (Phase 1 RMA) - Prior to first occupation of any of the development hereby approved and following the implementation of the slope stabilisation mitigation, a development-wide Monitoring and Maintenance Plan, in accordance with In Service stage of the agreed Schedule of Mitigation reference 4492-1/Schedule shall be prepared under the direction of a Chartered Geologist, Registered Ground Engineering Professional or other appropriately experienced and Chartered Engineer, and shall be submitted to the Local Planning Authority for its written approval. The development shall thereafter be carried out strictly in accordance with the approval Monitoring and Maintenance Plan. Reason: To ensure a long-term plan for monitoring and maintaining all the slopes at the development is in place.

- Condition 17 (Phase 1 RMA) - No development shall take place within Quarry 3 beyond written approval of the Earthworks Report under Condition 13 until details

of the steps and paths to the upper lodges in the west of Quarry 3 as shown on the Quarry 3 Masterplan drawing 1733/MS-022 Rev U.

- Condition 21 - No development within Quarry 3 shall be commenced until such time that full details of any exposed or potentially exposed foundation structures for the lodges in this part of the site including (but not restricted to) gabion baskets, stilted supports have been submitted to and approved in writing by the Local Planning Authority. Such detail to include materials, finish and where deemed necessary by the LPA additional planting and an implementation timescale for such planting. The development shall thereafter proceed in accordance with the approved details and timescale.

- Condition 24 – No part of the development hereby approved shall be brought into use until such time that the new surface water outfall approved under SMD/2022/0014 has been constructed and brought into use.

- Condition 25 (Phase 1 RMA) - Notwithstanding the submitted plans, no development shall take place in Quarry 3 until such time that full details of the bridge shown on drawing 1733/MS-815 have been submitted to and approved in writing by the Local Planning Authority. Such detail to include means of construction and samples of the finishing materials which shall be timber and vertically clad.

Table 11.2: Residual Effects Addendum Summary

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
Trackout	Minor Adverse	Soils to be treated in accordance with best practise and movement of soils to be kept to a minimum – outline CEMP (supported by Condition 18 of outline consent).	Condition	Negligible Not Significant	No change
Overflow from Q3 lake to SSSI	Moderate to Major Adverse	Reduction of lake levels and improving slope stability	Condition	Negligible Not Significant	Condition 24 of RMA requires the surface water outfall as approved by permission SMD/2022/0014 to be constructed prior to commencement. Water level to be

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
					maintained at 156m AOD.
Runoff from tailing lagoons to watercourses	Minor adverse Not Significant	Capping of tailings lagoons (conditions 36-40 in relation to ground conditions of outline consent)	Condition	Moderate Beneficial Not Significant	No change
Risk of contamination from concrete pouring	Minor Adverse Negligible	Use designated concrete batching areas outline CEMP (supported by Condition 18 of outline consent).	Condition	Negligible Not Significant	No change
Risks to people and animals from existing lagoons	Minor Adverse Not Significant	Capping to existing tailings to reduce exposure potential contamination.	Condition	Major Beneficial Not Significant	No change

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
		(conditions 36-40 in relation to ground conditions of outline consent)			
Risk of landslip affecting humans	Moderate Adverse	Improvements to slope stability	Condition	Major Beneficial Not Significant	Condition 13 - 17 of RMA requires the submission of detail to ensure stability of the scheme.
Contamination from site processes and materials storage	Negligible Not Significant	Compliance with best practices on-site and direction of surface water to existing lagoons to remove suspended sediment (conditions 36-40 in relation to ground conditions and conditions 28 and 29 in	Condition	Negligible Not Significant	No change

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
		relation to surface water of outline consent)			
Sterilisation of mineral deposits	Negligible Not Significant	None required	N/A	Negligible Not Significant	No change
Risk of slope collapse affecting visitors	Moderate Adverse	Monitoring of slope stability	Condition	Negligible Not Significant	Condition 13 - 17 of RMA requires the submission of detailed to ensure stability of the scheme
Change in Ecohydrological Conditions in the SSSI	Moderate Beneficial (ES Addendum – December 2021)	None above the embedded outfall redesign to maximise ecohydrological benefits	Condition	Moderate Beneficial Not Significant	Condition 24 of RMA requires the surface water outfall as approved by permission SMD/2022/0014 to be

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
					constructed prior to commencement. Water level to be maintained at 156m AOD.

Summary

11.22 This Chapter of the ES Addendum is provided pursuant to the June 2016 ES to confirm the overall findings with respect to the ground conditions assessment.

11.23 There is a wealth of geo-environmental and geotechnical surveys which have been undertaken at the site during and since quarrying operations ceased. These surveys are further supplemented by the quarterly monitoring reports and summarised in Biannual reports which are undertaken by Abbeydale BEC and provided to Staffordshire County Council. These surveys have provided an accurate picture of the geo-environmental and geotechnical conditions which informed the June 2016 ES. It is therefore considered that an accurate and representative understanding of the site's baseline conditions has been prepared which informed the assessment.

11.24 The outfall location has been changed since the June 2016 ES and the level of water in Q3 will be maintained at 156m AOD or lower by the permanent outfall.

11.25 Taking the June 2016 ES into consideration, the quarterly monitoring of the geo-environmental and geotechnical conditions at the site, the outline conditions on the 2016 decision notice and draft Phase 1 reserved matters conditions, it is not considered any further updates to the Ground Conditions assessment is considered necessary. The conditions provide sufficient environmental management and mitigation measures for the long-term protection of on and offsite receptors during the construction and operational phases of development.

11.26 No new or alternated likely significant effects have been identified as part of this ES Addendum. Overall it is considered that the June 2016 ES and subsequent EIA related assessments remain valid and adequate to assess the effects of the site with relation to ground conditions.

12 DRAINAGE AND FLOOD RISK

Introduction

12.1 This Chapter assesses the potential effects of the Moneystone Park proposed development. Chapter 12 of the June 2016 ES comprised an assessment of the potential significant effects of the proposed development on Drainage and Flood Risk effects.

12.2 This Chapter provides an update to the previous Drainage and Flood Risk assessment to identify any new or altered significant effects which could arise from that presented in the June 2016 ES. Where the assessment has not changed, it is referenced as such within this Chapter.

12.3 The approach to this assessment is set out within this Chapter 12 and at Chapter 12 of the ES Addendum. This ES Addendum Chapter should be read in conjunction with Chapter 12 of the June 2016 ES submitted as part of the outline planning application (ref. SMD/2016/0378), which was approved in October 2016. The subsequent applications listed below are also considered as part of this assessment:

- Reserved Matters Application - SMD/2019/0646 **(Appeal lodged May 2024)**
    - May 2020 EIA Statement of Conformity (Avison Young)

- Water Outfall Application (SMD/2022/0014) **(Approved November 2023)**
    - December 2021 ES Addendum (Avison Young)

- Reserved Matters Application SMD/2023/0532 – **(Awaiting determination)**
    - October 2023 EIA Statement of Conformity (Asteer Planning)

12.4 Chapter 12 of the June 2016 ES and Chapter 12 of this ES Addendum have been written by Abbeydale Building Environment Consultants Limited.

Legislative and Policy Framework

12.5 No changes since the June 2016 Environmental Statement.

Assessment Approach

Consultation

12.6 Further consultation has been undertaken since the 2016 outline permission, specifically in regards to the detailed design of the proposed development. Consultation has been undertaken with the Environment Agency and Natural England throughout this process and in particular regarding the outfall position and water level within Quarry 3. As set out

previously in this ES Addendum, a separate application has been approved (ref: SMD/2022/0014) for a channel between Quarry 3 and the established watercourse located within the Whiston Eaves SSS1. The new outfall entry will be set 156m AOD in order to maintain the water level in Quarry 3 as agreed with Natural England. The application was supported by an ES Addendum, to the June 2016 ES.

12.7 A Hydrological assessment was also undertaken by JBA Consulting (dated October 2021), which confirmed that the proposed outfall at Quarry 3 will allow flows to be restored to the Whiston Eaves SSSI and has the potential to enhance the ecohydrological conditions of the SSSI compared to the baseline conditions.

Assessment of Significance

12.8 No change since the June 2016 ES.

Assumptions / Limitations to the Assessment

12.9 The JBA drainage modelling report (October 2021) with reference to the ecohydrological conditions as a result of the outfall location.

Baseline Conditions

12.10 The June 2016 ES was informed by an FRA, as well as groundwater monitoring data which had been gathered since 2011. Therefore, a robust baseline assessment was undertaken to inform the EIA. Furthermore, there have been no material changes to baseline conditions, based on the JBA report (October 2021) and modelling undertaken since the June 2016 ES was prepared.

12.11 A detailed drainage strategy has been prepared by JPG Group (dated 24th September 20198) and is submitted with the Phase 1 reserved matters application for the entire site. This report intends to discharge the requirements of Condition 27 attached to the outline consent. The Lead Local Flood Authority raise no objection to the strategy. Natural England request a condition relating to foul drainage management and monitoring (as part of the discharge of condition 27). In addition, the Environment Agency have not objected to the strategy but highlight that an Environmental Permit might be required.

Summary of Previous Assessments

12.12 The conclusions from the previous applications June 2016 ES, December 2021 ES Addendum, Phase 1 Reserved Matters (SMD/2019/0646), May 2020 EIA SoC and October 2023 EIA SoC are outlined below in **Table 12.1**.

Table 12.1: Summary of Previous Assessments

Previous Assessments
Outline Planning Application (SMD/2016/0378) – June 2016 ES
The June 2016 ES concluded the reports appended to the chapter identified potential sources of contamination associated with site drainage and potential flood events. The proposed development is located outside the EA defined flood risk zones. The main impacts relate to the changes in surface water flows but with the measures proposed to control flows and the carrying of sediments these are likely to be of negligible or beneficial significance.
Water Outfall Application (SMD/2022/0014)– December 2021 ES Addendum
The Hydrology and Ecohydrology chapter in the December 2021 ES Addendum covers Ground Conditions and Flod Risk Chapters from the June 2016 ES. It states the Ground Conditions and Drainage and Flood Risk chapters have been merged into a single chapter due to the interrelationships of these disciplines and the proposed development sought for approval. The chapter identifies any new or altered significant effects which could arise from that previously presented. The December 2021 ES Addendum chapter concluded the proposed outfall has the potential to improve the current conditions of the SSSI in the operational phase. The redesign maximises the potential enhancement and should improve the SSSI's ecohydrological conditions. Consultation with Natural England occurred throughout the process which has allowed a comprehensive range of potential impact mechanisms to be identified and considered. The conclusions are based on a

series of ecohydrological investigations to understand how flows to the SSSI have changed through time and predict the effect of the outfall. The only additional effect considered as part of this assessment was to the change in ecohydrological conditions in the SSSI, which was identified as being Moderate Beneficial.
Phase 1 Reserved Matters (SMD/2019/0646) – May 2020 EIA SoC
The May 2020 EIA Statement of Conformity concluded taking the June 2016 ES into consideration, the quarterly monitoring of the groundwater at the site, and the conditions on the 2016 decision notice, it is not considered any further updates to the drainage and flood risk assessment is considered necessary. The conditions provide sufficient environmental management and mitigation measures for the long-term protection of on and off-site receptors during the construction and operational phases of development. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the drainage and flood risk effects of the development.
Phase 2 Reserved Matters (SMD/2023/0532) – October 2023 EIA SoC
The October 2023 EIA SoC concluded there are no proposed changes to the description of development or to the approved parameters. Therefore, the assessment of likely significant environmental effects remains as presented in the 2016 ES remains valid. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the drainage and flood risk effects of the development.

12.13 The conclusions of the previous June 2016 ES remain unchanged. All flood risk and drainage effects and their assessment of significance remain unaltered.

Mitigation, Enhancement and Residual Effects

12.14 The residual effects from the June 2016 ES are outlined below and it is confirmed there have been no changes since the June 2016 ES

12.15 There are a series of conditions attached to the 2016 outline planning permission which will require discharging as part of the reserved matters or prior to commencing works on site, including:

- Condition 27 – Provision of a foul and surface water drainage scheme informed by the detailed designs.
- Condition 28 – Assessment of surface water flow routes and necessary mitigation measures.
- Condition 29 – Restriction on works within the vicinity of open watercourses to ensure the maintenance and protection of watercourses and river habitat.
- Condition 30 – Restriction on the finished floor levels to protect development from overland flow.

There are also a number of draft conditions relating to the Phase 1 reserved matters application (RMA), which are referred to below:

- Condition 24 (Phase 1 RMA) - No part of the development hereby approved shall be brought into use until such time that the new surface water outfall approved under SMD/2022/0014 has been constructed and brought into use.

Table 12.2: Residual Effects

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
Localised flooding / ponding	Minor Adverse	Flow path assessment and temporary SuDs strategy, if required. outline CEMP (supported by Condition 18 of outline consent).	Condition	Negligible Not Significant	No change
Surface runoff to watercourses.	Not Significant	None outline CEMP (supported by Condition 18 of outline consent).	Condition	Moderate Beneficial	No change
Silt laden runoff entering Stream A/ SSSI	Moderate Adverse	Silt Traps and Monitoring	Condition	Negligible Not Significant	No change

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
		outline CEMP (supported by Condition 18 of outline consent).			
Silt laden runoff entering watercourses	Moderate Adverse	Silt Traps and Monitoring outline CEMP (supported by Condition 18 of outline consent).	Condition	Negligible Not Significant	No change
Acidic runoff entering watercourses	Negligible	Monitoring (Conditions 28 and 29 of outline consent)	Condition	Negligible Not Significant	No change

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
Reduction of flood risk associated with the proposed drainage strategy	Moderate Beneficial	N/A	N/A	Moderate Beneficial Not Significant	No change
Runoff rates to watercourses	Negligible to moderate beneficial (major beneficial to the SSSI)	SuDS Strategy (Condition 27 of outline consent)	Condition	Negligible to moderate beneficial (major beneficial to the SSSI) Significant	No change
Acidic runoff entering watercourses	Moderate Beneficial	Reed beds to be created in Q3 Condition 27 of outline consent)	Condition	Moderate Beneficial Not Significant	No change Condition 24 of RMA requires the surface water outfall as approved by permission

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
					SMD/2022/0014 to be constructed prior to commencement. Water level to be maintained at 156m AOD. No change
Change in Ecohydrological Conditions in the SSSI	Moderate Beneficial (ES Addendum – December 2021)	None above the embedded outfall redesign to maximise ecohydrological benefits	Condition	Moderate Beneficial	No change Condition 24 of RMA requires the surface water outfall as approved by permission SMD/2022/0014 to be constructed prior to commencement. Water level to be

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
					maintained at 156m AOD. No change

Summary

12.16 Taking the June 2016 ES and subsequent Addendum into consideration, the quarterly monitoring of the geo-environmental and geotechnical conditions at the site, it is not considered that any further updates to the Drainage and Flood Risk assessment is necessary. The conditions provide sufficient drainage and hydrological management and mitigation measures for the long-term protection of on and offsite receptors during the construction and operational phases of development.

12.17 Overall it is considered that the June 2016 ES and subsequent EIA related assessments remain valid and adequate to assess the effects of the site with relation to drainage and flood risk.

13 TRANSPORT AND ACCESS

Introduction

13.1 This chapter assesses the potential effects of the Moneystone Park proposed development. Chapter 13 of the June 2016 ES comprised an assessment of the potential significant effects of the proposed development on transport and access. Chapter 13 considered the potential effects of trips forecast during the construction and operational phases of the development as well as considering the pedestrian delay, amenity and severance; accidents and safety and hazardous loads.

13.2 This Chapter provides an update to the previous transport and access assessment to identify any new or altered significant effects which could arise from that presented in the June 2016 ES. Where the assessment has not changed, it is referenced as such within this Chapter.

13.3 The approach to this assessment is set out within this Chapter and at Chapter 2 of the ES Addendum. This ES Addendum Chapter should be read in conjunction with Chapter 13 of the June 2016 ES submitted as part of the outline planning application (ref. SMD/2016/0378), which was approved in October 2016. The subsequent applications listed below are also considered as part of this assessment:

- Reserved Matters Application - SMD/2019/0646 (**Appeal lodged May 2024**)
    - May 2020 EIA Statement of Conformity (Avison Young)
- Water Outfall Application (SMD/2022/0014) (**Approved November 2023**)
    - December 2021 ES Addendum (Avison Young)
- Reserved Matters Application SMD/2023/0532 – (**Awaiting determination**)
    - October 2023 EIA Statement of Conformity (Asteer Planning)

13.4 Chapter 13 of the June 2016 ES was written by Royal HaskoningDHV. Chapter 7 of this ES Addendum has been written by Stantec UK Limited.

Legislative and Policy Framework

National Planning Policy

National Planning Policy Framework (December 2023)

13.5 The revised National Planning Policy Framework (NPPF) originally came into force in 2012 and was last updated in December 2023.

13.6 The presumption in favour of sustainable development remains the core objective of the draft NPPF. Paragraph 10 states that, "*So that sustainable development is pursued in a positive way, at the heart of the Framework is a presumption in favour of sustainable developmen*t".

13.7 To promote sustainable transport, paragraph 114 states that, "*In assessing Sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*

a) Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

b) Safe and suitable access to the site can be achieved for all users;

c) The design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and

d) *Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.*"

13.8 Additionally, paragraph 117 of the NPPF states, "*All development that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed*".

13.9 In Section 9 'Promoting sustainable transport', paragraph 108 states that, "*Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:*

e) The potential impacts of development on transport networks can be addressed;

f) Opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;

g) opportunities to promote walking, cycling and public transport use are identified and pursued;

h) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and

i) *patterns of movement, streets, parking and other transport considerations are integral to the design of schemes and contribute to making high quality places*".

13.10 Paragraph 115 of the NPPF states, "*Development should only be prevented or refused on highway grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe*".

Planning Practice Guidance (2021)

13.11 The Planning Practice Guidance (PPG) was published in March 2012 and revised in 2018, 2019 and most recently July 2021. It sets out the current guidance for different aspects to development. For the purposes of this development, the guidance within the PPG 'Travel Plans, Transport Assessments and Statements' document is considered.

13.12 The PPG sets out the following with regards to Transport Assessments:

"*Transport Assessments and Transport Statements primarily focus on evaluating the potential transport impacts of a development proposal… The Transport Assessment or Transport Statement may propose mitigation measures where these are necessary to avoid unacceptable or "severe" impacts… Transport Assessments and Statements can be used to establish whether the residual transport impacts of a proposed development are likely to be "severe" …*"

13.13 It is noted within the PPG that Transport Assessments can positively contribute towards:

- Encouraging sustainable travel;
- Lessening traffic generation and its detrimental impacts;
- Reducing carbon emissions and climate impacts;
- Creating accessible, connected, inclusive communities;

- Improving health and outcomes and quality of life;
- Improving road safety; and
- Reducing the need for new development to increase existing road capacity or provide new roads.

Local Planning Policy

13.14 There have been no changes to local planning policy in relation to transport since the June 2016 ES.

Assessment Approach

13.15 The 2016 Transport Assessment (TA) prepared by Royal HaskoningDHV for the development identifies, as far as reasonably possible, the nature of the transport changes within the area of the proposed development. The assessment includes consideration of the traffic impacts during construction as well as the impacts forecast during the operation of the proposed development. The detailed assessment is contained within the TA and Travel Plan Framework (TPF) for the 2016 application.

13.16 The scope of these documents was agreed with the Local Highway Authority (LHA) at the time; and the method within accorded with:

- The Design Manual for Roads and Bridges, Department for Transport (various dates)
- The Manual for Streets, Department for Transport (2007);
- The Manual for Streets 2, Chartered Institution of Highways and Transportation (2010);
- Good Practice Guidelines: 'Delivering travel plans through the planning system', Department for Transport (2008); and
- Transport Assessments and Travel Plans Guide, Staffordshire County Council (January 2008).

13.17 The June 2016 ES chapter was produced in accordance with the Institute for Environmental Assessment (IEA) Guidance note 'Guidelines for the environmental Assessment of Road Traffic'. Following the submission of the July 2016 ES chapter, the IEA guidance document has been superseded by the Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement (July 2023). This ES chapter has therefore been produced in accordance

with the current IEMA Guidelines. The purpose of this ES Addendum chapter is to ascertain whether the baseline transport conditions have changed since the June 2016 ES was undertaken.

Consultation

13.18 There has been no further consultation since the June 2016 ES and determination of the planning application.

Study Area and Scope

13.19 The study area for the assessment has not changed since the submission of the June 2016 ES. The highway study area is shown in Plan 2 of the 2016 TA and includes the following roads; the A52, Eaves Lane, Carr Bank, Blakeley Lane and the B5417.

Assessment Scope

13.20 The 2016 ES chapter caried out an assessment of the environmental effects relating to transport and access for the following scenarios:

- 2020 Base Traffic Flows; and
- 2020 Assessment Traffic Flows

13.21 This assessment has been updated to take account of a 2025 opening year. The assessment of environmental effects relating to transport and access have therefore been considered for the following scenarios:

- 2025 Base Traffic Flows; and
- 2025 Assessment Traffic Flows

Assessment of Significance

13.22 As noted above, following the submission of the July 2016 ES chapter, the IEA guidance document has been superseded by the Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement (July 2023). The assessment has been undertaken in accordance with the current IEMA Guidelines.

13.23 It is noted that the IEMA guidelines states, "*as a guide*" or approximation that an impact is greater than negligible when, "*traffic flows have increased by more than 30%*" unless a sensitivity receptor is affected, in which case when "*traffic increases of at least 10%" is predicted or when a Heavy Goods Vehicle (HGV) flows "increase significantly*".

13.24 Therefore, whilst the highway scope area includes all links in the Site's surrounding local highway network that are likely to be subject to daily traffic flow changes as a result of the Development's construction or operation, a full assessment is undertaken on the links which satisfy the conditions set out in the rules above.

13.25 A 'Magnitude of Impact' value is determined by considering Severance, Pedestrian and Cycle Delay and Amenity, Fear and Intimidation, and Accidents and Road Safety which are the topics identified in the IEMA Guidelines for assessment. Table 13.1 gives an overview of the topics considered in this assessment.

Table 13.1: Assessment Topics

Assessment Topic	Typical Description
Severance	The perceived division within a community when separated by a major traffic artery.
Driver Delay	Assessment of junction capacity and delay is undertaken through the use of standard practice analytical tools and junction analysis programs.
Pedestrian Amenity and Delay	Changes in traffic patterns affecting pedestrians'/ cyclists' ability to cross. The pleasantness of pedestrians'/ cyclists' journeys encompassing other factors.
Accidents and Safety	Assessment of existing road link records and whether there will be an increase in incidents.
Fear and Intimidation	The composition and volume of traffic and whether it would be perceived as intimidating by pedestrians.

13.26 Further details of the approach or the assessment in respect of each of the above criteria is provided below.

Severance

13.27 The IEMA guidance states at paragraph 3.13 that "Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery." Furthermore, at paragraph 3.16 the guidance states, "Changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively." However, the guidance acknowledges that the measurement and prediction of severance is extremely difficult. The assessment of severance pays full regard to specific local conditions, in particular the location of pedestrian routes to key local facilities and whether or not crossing facilities are provided.

13.28 The potential effects as set out later in this chapter are based on an assessment, which takes into account the IEMA's thresholds. **Table 13.2** summarises these thresholds.

Table 13.2: Severance Thresholds

Magnitude	Traffic Flow (AADT) Increase
Major	>90%
Moderate	60 – 90%
Minor	30 – 60%
Negligible	<30%

Driver Delay

13.29 Delay to drivers can be estimated through capacity assessments at key points on the local highway network. The addition of new development-generated traffic could result in an increase in the number of vehicles using key junctions. This may lead to additional delays depending on the existing operation, levels of background traffic and development-generated traffic.

13.30 Paragraph 3.19 of the IEMA Guidelines state that "*Traffic delays to non-development traffic can occur at serval points on the network surrounding the Site including:*

- *At the Site entrance where there will be additional turning movements*
- *On the highways passing the site where there is likely to be additional traffic and the flow might be affected by additional parked cars*
- *At other key intersections along the highway which might be affected by increased traffic*
- *At side roads where the ability to find gaps in the traffic may be reduced, thereby lengthening delays.*"

13.31 Values for delay due to these elements can be determined through the use of 'industry-standard' junction modelling software packages (the ARCADY and PICADY modules of TRL's Junction 10 program for major/minor priority junctions and roundabouts and LinSig for traffic signal control junctions), or other suitable programs. The IEMA Guidelines further states at paragraph 3.20 that "These delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system."

13.32 **Table 13.3** shows the magnitude-scale applied to the category 'driver delay' at junctions, based on professional judgement, for the purpose of this assessment. It should be noted that Table 13.3 is used in this assessment for advisory purposes only. The magnitude of effect of the considered links is determined in a more holistic approach to determine the likely effects of the development on driver delay, led by the modelling outputs that are

included in the TA as well as professional judgement and knowledge of the characteristics.

Table 13.3: Driver Delay at Junctions – Magnitude of Effect

Magnitude	Definition
Major	Average vehicle delay increases of more than 2 minutes as a result of the Development during the peak periods
Moderate	Average vehicle delay increases are between 1 and 2 minutes as a result of the Development during the peak hour periods
Minor	Average vehicle delay increases between 45 and 60 seconds as a result of the Development during the peak hour periods
Negligible	Average vehicle delay increases are less than 45 seconds as a result of the Development during the peak hour periods

Non-motorised Pedestrian and Cycle Delay and Amenity

13.33 Non-motorised delay for a particular walking journey can be increased by changes to traffic flows and can affect the ability of pedestrians to cross roads. This can affect an individual's desire to make a particular walking journey and may provide to be a barrier in active travel. Changes in the volume, speed or composition of traffic are most likely to affect pedestrian delay, with the level of severity dependent on the general level of pedestrian activity and the physical condition of crossing points.

13.34 It is important to note that qualitative aspects such as the quality of the pedestrian and cycle environment, and the trip generators served by these environments, also influence the propensity for individuals to walk and cycle. Sense of personal security and safety, gradient, permeability, legibility and maintenance of these infrastructure aid in encouraging their use and discouraging the use of non-car modes. These, in addition to the quantitative aspects of assessment such as changing traffic flows, are therefore an important consideration in this chapter for a number of the criteria.

13.35 The determination of what constitutes a material impact on pedestrian delay is generally left to the judgement of the assessor and knowledge of local factors and conditions. IEMA Guidelines, paragraph 3.26 states "*Given the range of local factors and conditions that can influence pedestrian delay (e.g. a discrete delay may have a lesser impact in an urban environment than a rural setting), it is not considered wise to set down definitive thresholds. Instead, it is recommended that the competent traffic and movement expert use their judgement to determine whether pedestrian delay constitutes a significant effect*".

13.36 **Table 13.4** shows the magnitude-scale applied to links with insufficient or no pedestrian facilities at desire lines and links subject to pedestrian footfall. It is noted that these thresholds apply where no crossing facility is provided. Professional judgment is to be

used to determine the magnitude of impact where appropriate signalised crossing points are provided.

Table 13.4: Non-Motorised User Delay - Magnitude of Effect

Magnitude	Definition
Major	Link subject to a change in two-way flow of 5,600+ vehicles per hour
Moderate	Link subject to a change in two-way flow of 3,500-5,600 vehicles per hour
Minor	Link subject to a change in two-way flow of 1,400-3,500 vehicles per hour
Negligible	Link subject to a change in two-way flow of fewer than 1,400 vehicles per hour

13.37 Pedestrian amenity is broadly defined as the relative pleasantness of a journey, which is affected by traffic flow, traffic composition and footway width/separation from traffic. The guidance suggests at paragraph 3.30 that a *"…tentative threshold for judging the significance of changes in pedestrian amenity of where the traffic flow (or HGV component) is halved or doubled."*

Fear and Intimidation

13.38 A further effect of traffic flows on pedestrian and cycle movement is the element of fear and intimidation individual travellers will experience will respect to vehicular movements. The impact of the factor is dependant on the volume of traffic, the Heavy Good Vehicle (HGV) content and speed, the width of footway and its proximity to the carriageway edge. As is the case with pedestrian delay, there are no commonly agreed thresholds for the measurement of this impact, with appraisal based on the judgement of the assessor.

13.39 Nevertheless, the IEMA guidelines do suggest some thresholds, based on previous research, which could be used, and these are summarised in **Table 13.5**.

Table 13.5: Fear and Intimidation Threshold

Degree of Hazard Score	Average Traffic Flow over 18 Hours Day (all vehicles/hour)	Average Vehicle Speed	Total 18 Hour HGV Flow
30	1,800+	>40	3,000+
20	1,200-1,800	30-40	2,000-3,000
10	600-1,200	20-30	1,000-2,000
0	<600	<20	<1,000

13.40 Notwithstanding the thresholds set out in **Table 13.5**, the IEMA Guidelines suggest that they should be approached with a certain level of caution as the individual factors could be weighted by local circumstances to decide the overall value of intimidation. For example, a road may show higher speeds but lower flows; making crossing easier, or high

flows but congested and constant traffic, therefore reducing total fear of passing vehicles but increasing crossing difficulties.

13.41 The total score from the three elements is combined to provide a 'level' of fear and intimidation for all three elements. **Table 13.6** is presented below to demonstrate the levels of fear and intimidation.

Table 13.6: Levels of Fear and Intimidation

Level of Fear and Intimidation	Total Hazard Score
Extreme	71+
Great	41-70
Moderate	21-40
Small	0-20

13.42 The magnitude of impact is approximated with reference to the changes in the level of fear and intimidation from baseline conditions. **Table 13.7** summarises the magnitude-levels applied to the category fear and intimidation' for the purpose of this assessment.

Table 13.7: Fear and Intimidation – Magnitude of Effect

Magnitude	Definition	Change in step/traffic flows (AADT) from baseline conditions
High	• Increase in average traffic flow over 18 hours of 1,800+ vehicles/hour • An average 18-hour HGV flow of 3,000+	Two step changes in level
Medium	• Increase in average traffic flow over 18 hours of 1,200-1,800 vehicles per hour • An average 18-hour HGV flow of 2,000-3,000	One step change in level • >400 vehicle increase in average 18 hour AV two-way all vehicle flow • >500 HV increase in total 18-hour HV flow
Low	• Increase in average traffic flow over 18 hours of 600-1,200 vehicles/hour • An average 18-hour HGV flow of 1,000-2,000	One step change in level • <400 vehicle increase in average 18 hour AV two-way all vehicle flow • <500 HV increase in total 18-hour HV flow
Negligible	• Increase in average traffic flow over 18 hours of less than 600 vehicles/hour • An average 18-hour HGV flow of less than 1,000	No change in step changes

Determining Significance

13.43 A 'Significance' value for each link for the construction phase, as determined for 'Sensitivity' and 'Magnitude of Impact'.

13.44 The sensitivity values for each link are detailed and justified and each of the 'Magnitude of Impacts' are defined in accordance with IEMA Guidelines.

13.45 The significance criteria adopted for likely traffic and transport effects is based on the magnitude (or scale) of the change as well as the sensitivity (or importance) of the receptor affected. The magnitude of effects and receptor sensitivity has been compared to estimate the significance of effect.

13.46 The effects of Development have been assigned significance in accordance with the generic significance criteria set out in Table 13.8.

Table 13.8: Significance Criteria

Environmental Value (Sensitivity)	Magnitude of Impact (degree of change)					
		No Change	Negligible	Minor	Moderate	Major
	Very High	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
	High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
	Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
	Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
	Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

Sensitivity of Receptor

13.47 The Sensitivity of Receptors has not changed since the June 2016 ES.

Limitations to the Assessment

13.48 There has been no change to the limitations of the assessment since the June 2016 ES.

Baseline Conditions

Traffic flow comparison

13.49 Stantec produced a Technical Note (**Appendix 13.1**) in May 2024 to provide a comparison between the traffic flow data submitted for the 2016 application with recorded 2024 traffic flows which should be read in conjunction with this ES Addendum chapter.

13.50 In order to provide a comparison between the 2016 traffic flows with 2024 traffic flows, new Automatic Traffic Count (ATC) surveys were undertaken at the following highway links:

- Link 1 - A52 (West of Whiston Eaves Lane); and
- Link 2 - Carr Bank (North of the B5417)

13.51 The surveys were carried out from 18th April 2024 to 24th April 2024 and recorded the volume and speed of traffic.

13.52 To undertake a comparison of the 2016 traffic flows with 2024 traffic flows, a factor was applied to the 2016 traffic flows to reflect a future year of 2024. A comparison between the factored 2024 traffic flows with the recorded 2024 traffic flows has demonstrated that the flows used in the 2016 assessment are robust. Table 13.9 provides a comparison between the 2024 factored flows and the 2024 surveyed flows which are shown in Tables 8 and 9 of the Technical Note (Appendix 13.1).

Table 13.9: Traffic Flow Comparison

Link	2024 Factored Traffic Flows	2024 Surveyed Traffic Flows	Percentage Difference
A52 West of Whiston Eaves Lane	2405	2538	+6%
Carr Bank (North of the B5417)	773	667	-14%

13.53 Whilst Table 13.9 shows that the 2024 surveyed traffic flows are higher than the 2024 factored flows for the A52, the increase is within a 10% daily variance which is considered typical for a week. Given that the differences in traffic flows are less than 10%, the difference in flows would not have a material impact on the assessment carried out in 2016.

13.54 The 2024 factored flows for Carr Bank are higher than the 2024 surveyed traffic flows when compared with the 2024 surveyed traffic flows. Therefore, the flows used in the 2016 ES are considered robust.

13.55 This ES Addendum chapter is therefore based on the traffic flow data submitted for the 2016 application, factored up to 2024, since these are within a 10% variance for the A52 and higher for Carr Bank and therefore more robust, as well as to provide a degree of consistency with the original ES.

Baseline Traffic Flows

13.56 The baseline traffic flows for the assessment have been derived from Table 13.4 of the June 2016 ES chapter. In line with the previous ES Chapter the traffic flows have been factored by 1.5 to reflect the peak August holiday season.

13.57 The Department for Transport's (DfT) TEMPro database was integrated to determine the locally adjusted factors to reflect the 2024 and 2025 background traffic within the Middle Super Output Area (MSOA) of Staffordshire Moorlands 010 (in which the Site is located in) from a 2016 baseline. The factors for an average day (24 hours) are summarised in Table 13.10.

Table 13.10: TEMPro Factors

Year	Factor
2016 – 2024	1.0643
2024 - 2025	1.0099

13.58 The resulting Background traffic flows from a base year of 2016 have been forwards to a 2024 baseline and a 2025 opening year for the assessed links are summarised in Table 13.11 below.

Table 13.11: Saturday Daily Surveyed and, Factored (Base)and Background Two-way Traffic Flows

Link	2016 Surveyed Traffic Flows	2020 Base Traffic Flows	2024 Traffic Flows	2025 Base Traffic Flows
A52 (West of Eaves Lane)	1974	2961	3151	3183
A52 (East of Eaves Lane)	1707	2561	2726	2753
Whiston Eaves Lane (South of the junction with the A52)	595	893	950	960
Blakeley Lane	47	71	76	76

Link	2016 Surveyed Traffic Flows	2020 Base Traffic Flows	2024 Traffic Flows	2025 Base Traffic Flows
Eaves Lane (South of Blakeley Lane)	181	272	289	292
Carr Bank (in Oakamoor)	650	975	1038	1048
B5417 (West of Carr Bank)	2719	4079	4341	4384
B5417 (East of Carr Bank)	2586	3879	4128	4169

Committed Development

13.59 In order to provide a robust assessment, the 2016 ES Chapter included the Bolton Copperworks site in Froghall, which was identified in the Churnet Valley Masterplan (March 2014) as committed development. The Bolton Copperworks site is located approximately 1.2km west of Whiston and is accessed directly from the A52.

13.60 An outline planning application was submitted in March 2005 for a mixed use development comprising employment, residential, leisure/tourism uses, hotel, nursing home and public open space (planning reference SMD/2005/0137). The planning application was subsequently withdrawn in December 2005.

13.61 Following the 2005 planning application, the Bolton Copperworks site was subject to an Environmental Impact Assessment (EIA) scoping request in October 2014. Although no planning application had been submitted for the site at the time of writing the 2016 TA, it was envisaged that the maximum quantum of development could comprise of:

- 215 residential dwellings;
- Employment park, circa 2,250sqm gross floor area;
- Visitor centre, circa 2,500sqm gross floor area;
- 50 bedroom hotel; and
- Outdoor activity centre.

13.62 It should be noted that following the submission of the 2016 TA, no development has commenced on The Bolton Copperwork site to date and no further planning application has been submitted on the site.

13.63 As the development has not been progressed through the planning system the Bolton Copperworks site has been discounted from this assessment.

Baseline Pedestrian Delay and Amenity

13.64 For the study area considered in this chapter pedestrian delay comes from any issues crossing the road. As can be seen by 2024 baseline traffic flows outlined in Table 13.9, traffic levels are low along Whiston Eaves Lane, Eaves Lane and Carr Bank.

13.65 Pedestrian Amenity is affected by traffic flows and composition, footway width and the degree of segregation. Generally, the roads in the study area have limited footways and pedestrians walk on the carriageway, although this may be considered quite pleasant on the relatively quiet rural roads.

Baseline Pedestrian Severance

13.66 **Table 13.12** provides a summary of the existing levels of severance on the local road network.

Table 13.12: 2016 Baseline Severance Levels

Link	2024 AADT	Severance Level
A52 (West of Eaves Lane)	3151	Slight
A52 (East of Eaves Lane)	2726	Slight
Whiston Eaves Lane (South of the junction with the A52)	950	Slight
Blakeley Lane	76	Slight
Eaves Lane (South of Blakeley Lane)	289	Slight
Carr Bank (in Oakamoor)	1038	Slight
B5417 (West of Carr Bank)	4341	Slight
B5417 (East of Carr Bank)	4128	Slight

Baseline Accidents and Safety

13.67 A review of Personal Injury Collision (PIC) data for the most recent 5 year available period from 2018 to 2022 has been obtained from the CrashMap database, which is an official database of personal injury collision data in Great Britain.

13.68 PIC data is recorded by severity of injury, as slight, serious, or fatal. These are statistical definitions regarding the injuries to the casualties of a collision, which mean the following:

- Slight: at least one person is slightly injured, but no person is killed or seriously injured. Here a slight injury is one where treatment does not require a hospital stay as an in-patient;
- Serious: at least one person is seriously injured, but no person is killed. Here a serious injury is one where treatment requires a hospital stay as an in-patient; and
- Fatal: where a human casualty sustained injury, which caused death less than 30 days after the collision.

13.69 In summary, no PICs have occurred within the study area within the vicinity of the site over the last five years of most recent information available. It is therefore not considered that there is a significant accident problem on the highway network within the study area. This conclusion is in line with the June 2016 ES. No cluster sites have been identified and therefore it can be concluded that there are no areas that should be identified as sensitive to changes in traffic.

Potential Impacts

13.70 A comparison of the June 2016 ES 2020 Assessment flows with 2025 Assessment flows is provided in **Table 13.13**.

Table 13.13: Comparison of Flows

Link	2020 Assessment Flows	2025 Assessment Flows	Difference in Flow
A52 (West of Eaves Lane)	6260	3787	-2473
A52 (East of Eaves Lane)	5541	3056	-2485

Whiston Eaves Lane (South of the junction with the A52)	1840	1866	26
Blakeley Lane	74	76	2
Eaves Lane (South of Blakeley Lane)	352	360	8
Carr Bank (in Oakamoor)	1087	1116	29
B5417 (West of Carr Bank)	4268	4388	120
B5417 (East of Carr Bank)	4119	4233	114

13.71 Table 13.13 shows that the flows on the A52 are considerably lower in the 2025 Assessment scenario than the 2020 Assessment scenario used in the June 2016 ES. The reduction of flows on the A52 is a direct result of discounting the Bolton Copperworks site as a committed development from this assessment.

13.72 Although the flows do increase on the other links within the study area, the uplift in flows would not change the magnitude of impact assessed in the June 2016 ES and therefore remains valid.

Summary of Previous Assessments

13.73 The conclusions from the previous applications June 2016 ES, December 2021 ES Addendum, Phase 1 Reserved Matters (SMD/2019/0646), May 2020 EIA SoC and October 2023 EIA SoC are outlined below in Table 13.14.

Table 13.14: Summary of Previous Assessments

Previous Assessments
Outline Planning Application (SMD/2016/0378) – June 2016 ES
The June 2016 ES concluded traffic is expected to increase on the local roads around the site; the percentage increase on these has been considered in this section and assessed against a set of traffic capacity significance criteria. The operational capacity assessment (which includes consideration of driver delay) has been considered for key junctions in the study (identified in the TA) where traffic flow increases exceed 10%. Considering the impact of these using the significance criteria; the development is expected to have a Minor Adverse impact on traffic flows and a Negligible impact on driver delay. In respect to construction traffic, mitigation is required (e.g. a routing plan) so the impact is considered to be Moderately Adverse. However, with this mitigation in place and a Construction Management Plan active, the residual impact is expected to be Minor Adverse. This impact is temporary until the site is constructed. In terms of Pedestrian delay, the development is expected to have a Negligible impact and Amenity is expected to improve (with the provision of new routes onsite) so the impact is considered to be Minor Beneficial. In terms of pedestrian severance, there is expected to be a Negligible impact. There is expected to be a Negligible impact on accidents and safety and, as there are not anticipated to be any hazardous loads to the site this impact is also considered to be Negligible. As noted above, a Construction Traffic Management Plan will be implemented as will a Travel Plan Framework (TPF). The TPF will seek to reduce the impact of the development which will help mitigate its impact.

Water Outfall Application (SMD/2022/0014) – December 2021 ES Addendum
The December 2021 ES Addendum concluded, taking the June 2016 ES into consideration and the conditions on the 2016 decision notice, it is not considered any further updates to the highways assessment is considered necessary. The conditions and measures set out in the June 2016 ES provide sufficient environmental management and mitigation measures for the long-term protection of on and off-site receptors during the construction and operational phases of development. There will be very limited trips associated with the delivery of the outfall. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the traffic and transportation effects of the development.
Phase 1 Reserved Matters (SMD/2019/0646) – May 2020 EIA SoC
The May 2020 EIA SoC concluded, taking the June 2016 ES into consideration and the conditions on the 2016 decision notice, it is not considered any further updates to the highways assessment is considered necessary. The detailed designs will also allow a Travel Plan to be prepared and agreed with SMDC. The conditions and measures set out in the June 2016 ES provide sufficient environmental management and mitigation measures for the long-term protection of on and off-site receptors during the construction and operational phases of development. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the traffic and transportation effects of the development.
Phase 2 Reserved Matters (SMD/2023/0532) – October 2023 EIA SoC
The October 2023 EIA SoC concluded, there are no proposed changes to the description of development or to the approved parameters. Therefore, the assessment of likely significant environmental effects remains as presented in the 2016 ES remains valid. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the traffic and transportation effects of the development.

13.74 As shown in Table 13.12, traffic flows in the 2016 ES chapter are therefore considered suitable, and therefore there are no additional Likely Significant Effects associated with the proposed development. This is due to the reduced flows on the network and because the projected background traffic from the 2016 data is less than the surveyed background. The conditions and measures presented in the June 2016 ES therefore provide sufficient environmental management and mitigation measures for the long-term protection of on and off-site receptors during the construction and operational phases of development. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the traffic and transportation effects of the development.

Mitigation, Enhancement and Residual Effects

13.75 The residual effects from the June 2016 ES are outlined below and have been confirmed if they have changed since the assessment was completed.

13.76 A series of conditions are attached to the 2016 outline planning permission which require discharging as part of the reserved matters or prior to commencing works onsite, including:

- Condition 16 – Provision of pedestrian and cycling route information.
- Condition 21 – Detailed designs for highways infrastructure within the site.
- Condition 22 – Provision of the details for off-site highways improvements at the junction of Whiston Eaves Lane and the A52.
- Condition 23 – Detailed designs for the principal site access of Eaves Lane.
- Condition 24 – Provision of a traffic management scheme to reduce speed levels at the junction of Whiston Eaves Lane and the A52.
- Condition 25 – Preparation of a signage scheme for all traffic entering and exiting the site.
- Condition 26 – Preparation of a Construction Traffic Management Plan which implements and expands on the mitigation measures set out within Chapter 13 of the June 2016 ES.

13.77 There are also a number of draft conditions relating to the Phase 1 reserved matters application (RMA), which are referred to below:

- Condition 22 - No development shall take place in Quarry 3 until measures to ensure the operation of a one way system in this part of the site together with an implementation timetable have been submitted to and approved in writing by the Local Planning Authority. The development shall thereafter proceed in accordance with the approved details and timescale and retained for the life of the development.

Table 13.15: Residual Effects

Description of Effect	Potential Effect (inc. Significance)	Additional Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
Construction Traffic	Moderate Adverse	Construction Traffic Management Plan (supported by Condition 26 of the outline consent)	Condition	Minor Adverse	No Change
Traffic Flows	Minor Adverse	Travel Plan Framework (covered within S106 Agreement)	Condition	Minor Adverse	No Change
Driver Delay	Negligible	Travel Plan Framework (covered within S106 Agreement)	Condition	Negligible	No Change
Pedestrian Delay	Negligible	Travel Plan Framework (covered within S106 Agreement)	Condition	Negligible	No Change
Pedestrian Amenity	Minor Beneficial	New Pedestrian routes through the site with good	Condition	Minor Beneficial	No Change

		pedestrian amenity (supported by Condition 16 of the outline consent)			
Pedestrian Severance	Negligible	Travel Plan Framework (covered within S106 Agreement)	Condition	Negligible	No Change
Accidents and Safety	Negligible	Travel Plan Framework (covered within S106 Agreement)	Condition	Negligible	No Change
Hazardous Loads	Negligible	Travel Plan Framework (covered within S106 Agreement)	Condition	Negligible	No Change

Summary

13.78 In summary, this chapter has described the methods used to assess the impacts, the baseline conditions at the Site and surroundings, Likely Significant Effects of the proposed development and the mitigation measures required to prevent, reduce, or offset the impacts.

13.79 Stantec produced a Technical Note in May 2024 (Appendix 13.1) to provide a comparison between the traffic flow data submitted for the 2016 application with recorded 2024 traffic flows which should be read in conjunction with this ES Addendum chapter.

13.80 The comparison between the factored 2024 traffic flows with the recorded 2024 traffic flows demonstrated that the flows used in the 2016 assessment are higher. This ES Addendum chapter is therefore based on the traffic flow data submitted for the 2016 application, factored up to 2024.

13.81 It has been demonstrated that the conditions and measures presented in the June 2016 ES provide sufficient environmental management and mitigation measures for the long-term protection of on and off-site receptors during the construction and operational phases of development. Overall, it is considered that the June 2016 ES and subsequent EIA related assessments remain valid and are adequate to assess the traffic and transportation effects of the development.

14 AIR QUALITY

Introduction

14.1 This chapter assesses the potential effects of the Moneystone Park proposed development. Chapter 14 of the June 2016 ES comprised an assessment of the potential significant effects of the proposed development on local air quality.

14.2 This Chapter provides an update to the previous Chapter 14: Air Quality & Dust assessment to identify any new or altered significant effects which could arise from that presented in the June 2016 ES. Where the assessment has not changed, it is referenced as such within this Chapter.

14.3 The approach to this assessment is set out within this Chapter and at Chapter 2 of the ES Addendum. This ES Addendum Chapter should be read in conjunction with Chapter 14 of the June 2016 ES submitted as part of the outline planning application (ref. SMD/2016/0378), which was approved in October 2016. The subsequent applications listed below are also considered as part of this assessment:

- Reserved Matters Application - SMD/2019/0646 (**Appeal lodged May 2024**)
    - May 2020 EIA Statement of Conformity (Avison Young)
- Water Outfall Application (SMD/2022/0014) (**Approved November 2023**)
    - December 2021 ES Addendum (Avison Young)
- Reserved Matters Application SMD/2023/0532 – (**Awaiting determination**)
    - October 2023 EIA Statement of Conformity (Asteer Planning)

14.4 Chapter 14 of the June 2016 ES was written by WSP and Chapter 14 of this ES Addendum has been written by BWB Consulting.

Legislative and Policy Framework

14.5 There have been a number of updates to national legislation and planning policy since the June 2016 ES was prepared. This ES Addendum was undertaken in accordance with the following documents:

- European Parliament, EU 2008 ambient Air Quality Directive (2008)[7];
- HMSO, Air Quality (England) Regulations (2000)[8];
- HMSO, Environment Act (1995)[9];
- HMSO, Environment Act (2021)[10];
- HMSO, Air Quality (England) Regulations (2002)[11];
- HMSO, Air Quality Standards Regulations (2010)[12];
- Department for Environment, Air Quality Strategy (1997)[13];
- Department for the Environment, Food and Rural Affairs, Air Quality Strategy (2007)[14];
- Department for the Environment, Food and Rural Affairs, Air Quality Strategy (2023)[15];
- Department for the Environment, Food and Rural Affairs, The Environment (Miscellaneous Amendments) (EU Exit) Regulations (2020)[16];
- HMSO, The Environmental Targets (Fine Particulate Matter) (England) Regulations (2023)[17];
- Ministry of Housing, Communities and Local Government, National Planning Policy Framework (NPPF) (2023)[18]; and

[7] European Parliament (2008) Council Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe
[8] HMSO (2000) Statutory Instrument 2000 No. 928, The Air Quality (England) Regulations 2000 (as amended), London: HMSO
[9] HMSO (1995) The Environment Act 1995, London: TSO
[10] HMSO (2021) The Environment Act 2021, London: TSO
[11] HMSO (2002) Statutory Instruments 2002 No. 3043, The Air Quality (England) (Amendment) Regulations 2002, London: HMSO
[12] HMSO (2010) Statutory Instruments 2010 No. 1001 Air Quality Standards Regulations 2010. London: HMSO
[13] Department of the Environment (DoE) (1997) The UK National Air Quality Strategy, London: HMSO
[14] Department of the Environment, Food and Rural Affairs (Defra) (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, London: HMSO
[15] Department for the Environment, Food and Rural Affairs (Defra) (2023) Air Quality Strategy: Framework for Local Authority
[16] Department of the Environment, Food and Rural Affairs (Defra) (2020) The Environment (Miscellaneous Amendments) (EU Exit) Regulations, London: HMSO
[17] HMSO (2023) Statutory Instruments 2023 No. 96 The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023
[18] Ministry of Housing, Communities & Local Government (2023) National Planning Policy Framework, HMSO London

- Ministry for Housing, Communities and Local Government, Planning Practice Guidance (PPG) for air quality (2019)[19].

Local Planning Policy

14.6 The Staffordshire Moorlands Local Plan was adopted September 2020 and replaces the Staffordshire Moorlands Core Strategy previously considered within the June 2016 ES. The Staffordshire Moorlands Local Plan[20] contains the following policies relevant to air quality:

- Policy SD4 (Pollution and Flood Risk);
- Policy R1 (Rural Diversification); and
- Policy NE1 (Biodiversity and Geological Resources).

14.7 The Churnet Valley Masterplan Supplementary Planning document [21] references in the June 2016 ES still remains relevant.

Air Quality Assessment Guidance

14.8 There have been a number of updates to air quality assessment guidance since the June 2016 ES was prepared. The following guidance was utilised in this ES Addendum:

- Defra, Local Air Quality Management Technical Guidance (LAQM.TG(22)) (2022)[22];
- Institute of Air Quality Management, Guidance on the Assessment of Dust from Demolition and Construction (2024)[23]; and
- Institute of Air Quality Management and Environmental Protection UK, Land-Use Planning and Development Control: Planning for Air Quality (2017)[24].

[19] Ministry for Housing, Communities and Local Government (2019) Planning Practice Guidance Air Quality
[20] Staffordshire Moorlands District Council (2020) Staffordshire Moorlands Local Plan
[21] Staffordshire Moorlands District Council (2014) Churnet Valley Masterplan
[22] Defra (2022) Local Air Quality Management Technical Guidance LAQM.TG(22)
[23] Institute of Air Quality Management (2024) Guidance on the Assessment of Dust from Demolition and Construction, Institute of Air Quality Management
[24] Institute of Air Quality Management and Environmental Protection UK (2017) Land-Use Planning and Development Control: Planning for Air Quality

Assessment Approach

Consultation

14.9 Consultation with the SMDC Environmental Health department was undertaken via email on 23rd July 2024. SMDC responded via email on 24th July 2024 agreeing to the proposed methodology.

14.10 Details of the agreed methodology are below.

Construction Phase Dust Assessment

14.11 Since the June 2016 ES was prepared, the Institute of Air Quality Management (IAQM) has updated its construction dust guidance[22]. Therefore, an updated assessment of the potential impacts arising from the construction of the proposed development was undertaken in accordance with the most recent IAQM guidance. The full assessment methodology is provided in **Appendix 14.1**; however a summary of the assessment steps are detailed below:

- Step 1 – screen the requirement for a more detailed assessment. No assessment is required if there are no receptors within a certain distance of the works.
- Step 2 – assess the risk of dust impacts separately for each of the four activities considered (demolition, earthworks, construction and trackout).
    - Step 2A – determine the potential dust emission magnitude for each of the four activities;
    - Step 2B – determine the sensitivity of the area;
    - Step 2C – determine the risk of dust impacts by combining the findings of steps 2A and 2B.
- Step 3 – determine the site-specific mitigation for each of the four activities; and
- Step 4 – examine the residual effects and determine significance.

14.12 The study area utilised for the construction phase dust assessment was taken from IAQM guidance, which defines the study area as areas within 250m of the site boundary or within 50m of roads up to 250m from the site access/egress points. Figure 14.1 details the construction phase distance buffers which are measures at 20m, 50m, 100m, and 250m from the site boundary.

Construction Phase Road Traffic Emissions Assessment

14.13 At the time of writing, construction phase road traffic emissions were not known. As such, there are no changes to the construction phase screening assessment since the preparation of the June 2016 ES.

14.14 As stated within the June 2016 ES, it is understood that a Construction and Environmental Management Plan (CEMP) will be prepared for the site. Construction traffic is anticipated to travel via Eaves Lane and the A52.

Operational Phase Road Traffic Emissions Assessment

Air Dispersion Modelling

14.15 Since the June 2016 ES was prepared, there have been changes to modelling tools, including the ADMS-Roads Dispersion Model, Defra's Emission Factor Toolkit[25] and Defra Background Mapping[26]. In addition, updated assessment years are required. Therefore, an updated operational phase road traffic emissions impact assessment was undertaken.

14.16 A detailed assessment of operational phase road traffic emissions was undertaken in accordance with Defra LAQM TG.[21] and IAQM and EPUK guidance[23].

14.17 The air dispersion model ADMS-Roads, version 5.0.1.3 was utilised in the assessment to predict concentrations of oxides of nitrogen (NOx) and particulate matter (PM_{10} and $PM_{2.5}$) at identified existing sensitive receptor locations within the study area to consider the impact of the proposed development on local air quality.

14.18 The following scenarios were considered in the air dispersion modelling:

- Scenario 1: 2022 Verification Year and Base Year
- Scenario 2: 2024 Base Year
- Scenario 3: 2025 Opening Year Without Proposed Development
- Scenario 4 2025 Opening Year With Proposed Development
- Scenario 5: 2028 Completion Year Without Proposed Development

[25] Defra (2023) Emission Factor Toolkit [https://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html]
[26] Defra (2020) Background Mapping data for local authorities (https://uk-air.defra.gov.uk/data/laqm-backgroundhome)

- Scenario 6: 2028 Completion Year With Proposed Development

14.19 Traffic data was obtained from Stantec, the project Transport Consultant. 24-hour Annual Average Daily Traffic (AADT) and heavy-duty vehicle (HDV) proportions were provided for the road network as shown in Figure 14.2 and Figure 14.3 which comprise the study area for the operational phase road traffic emissions impact assessment.

14.20 A new Air Quality Management Area (AQMA) has been designated at the Cellarhead Junction, approximately 8km west of Site for the potential exceedance of annual mean NO_2 objective. BWB Consulting modelled the Cellarhead Junction within the 2020 EIA SoC to determine impacts of the proposed development on the new AQMA. For robustness, the roads included in the assessment is the same study area as that considered in the June 2016 ES and the 2020 EIA SoC combined.

14.21 The following model inputs were utilised in the assessment:

- Emission Factors – emission factors were utilised from the Defra Emission Factor Toolkit (EFT)[24] version 12.0.1, for the years of assessment; 2022, 2024, 2025 and 2028.

- Conversion of oxides of nitrogen – concentrations of NOx were predicted using the ADMS-Roads dispersion model. These concentrations were converted to nitrogen dioxide (NO_2) using the Defra NOx to NO_2 calculator[27] , version 8.1.

- Meteorological Data – hourly sequential meteorological data for the verification year of assessment (2022) were obtained for the Leek Thorncliffe meteorological recording station. Leek Thorncliffe is considered to be the most representative meteorological station to the Site due to its distance to the study area. The wind rose for 2022 is provided in **Appendix 14.2**.

- Surface roughness and Monin-Obukhov length (MO) – Site – a surface roughness of 0.5m and a MO length of 10m, representative of small towns in rural locations were utilised in the air dispersion model to represent conditions at the proposed development and within the study area.

- Surface roughness and Monin-Obukhov length (MO) – Meteorological Station – a surface roughness of 0.3m, representative of mainly suburban environment, and a MO

[27] Defra (2019) NOx to NO2 Calculator [https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html#NOxNO2calc]

length of 10m, representative of a rural location, were utilised in the air dispersion model to represent conditions at the at the meteorological recording station.

- Background pollutant concentrations – background concentrations of NOx, NO_2, PM_{10} and $PM_{2.5}$ for the study area were obtained from the pollutant concentration maps provided by Defra[25] as a 1km x 1km grid of the UK, for the years of assessment (2022, 2024, 2025, and 2028).

- Model verification – model verification was undertaken using 2022 SMDC monitoring data available for the study area. Full details of the verification procedure are provided in **Appendix 14.3**. Monitoring locations used in the verification process are shown in Figure 14.4 and Figure 14.5.

- Calculation of short term PM10 concentrations – the following calculation, as detailed in Defra guidance[21], was utilised to calculate the number of exceedances of the 24-hour mean PM_{10} air quality objective:

- Number of 24-Hour Mean Exceedance = -18.5 + 0.00145 * Annual Mean3 + 206 / Annual Mean)

Receptors

Construction Phase Dust Assessment

14.22 Existing sensitive receptors are located within 250m of the proposed development. These receptors comprise a variety of sensitivities which are defined using the IAQM guidance[22]. Whilst this construction phase dust assessment was undertaken in accordance with the latest IAQM guidance[22], the sensitivity of receptors sensitive to dust impacts have not changed since the preparation of the June 2016 ES.

14.23 The construction phase dust assessment was undertaken using the most sensitive receptor classification within the appropriate distance bands to the proposed development.

Operational Phase Road Traffic Emissions Assessment

14.24 All existing sensitive receptors identified and considered in the assessment are relevant for exposure to the annual mean objectives for NO_2, PM_{10} and $PM_{2.5}$ and therefore are considered to be highly sensitive. Upon review of the June 2016 ES, additional receptors were included within the model, specifically at Cellarhead Junction and Blakely Lane. Modelled receptors are shown in Figure 14.4, Figure 14.5 and Table 14.1.

14.25 The ecological receptor, Whiston Eaves Site of Special Scientific Interest (SSSI) is located adjacent to the south and west of the proposed development. The Whiston Eaves SSSI was assessed within the June 2016 ES and as such was included within this ES Addendum chapter for consistency. The modelled ecological receptor is shown in Figure 14.4 and Table 14.1.

Table 14.1 Existing Sensitive Receptors

ID	Grid Reference		Height (m)	Receptor Name	Sensitivity of Receptor
	x	y			
R1	403546	347149	1.5	Residential Receptor off Ashbourne Road	High
R2	403681	347139	1.5	Residential Receptor off Ashbourne Road	High
R3	403734	347195	1.5	Residential Receptor off Ashbourne Road	High
R4	403952	347234	1.5	Residential Receptor off Ashbourne Road	High
R5	403764	347154	1.5	Residential Receptor off Whiston Eaves Lane	High
R6	403754	347133	1.5	Residential Receptor off Whiston Eaves Lane	High
R7	403763	347105	1.5	Residential Receptor off Whiston Eaves Lane	High
R8	403889	346775	1.5	Residential Receptor off Whiston Eaves Lane	High
R9	404138	346430	1.5	Residential Receptor off Whiston Eaves Lane	High
R10	404890	346011	1.5	Residential Receptor off Eaves Lane	High
R11	405399	345712	1.5	Residential Receptor off Eaves Lane	High
R12	405461	345086	1.5	Residential Receptor off Carr Bank	High
R13	405439	344982	1.5	Residential Receptor off Carr Bank	High
R14	405463	344932	1.5	Residential Receptor off Carr Bank	High
R15	405462	344896	1.5	Residential Receptor off Star Bank	High
R16	405494	344888	1.5	Residential Receptor off Star Bank	High
R17	405563	344884	1.5	Residential Receptor off Star Bank	High
R18	405289	344775	1.5	Residential Receptor off Church Bank	High
R19	404654	347725	1.5	Residential Receptor off Blakely Lane	High
R20	395706	347572	1.5	Residential dwelling off A520 Leek Road	High
R21	395723	347571	1.5	Residential Dwelling off Kingsley Road	High
R22	395705	347592	1.5	Residential dwelling off A520 Leek Road	High
R23	395725	347580	1.5	Residential Dwelling off Kingsley Road	High
ER1	403942	346288	0	Whiston Eaves SSSI	High

14.26 Pollutant concentrations were predicted across the Site to consider exposure of future residents of the proposed development to air quality. A Cartesian grid was utilised to

predict concentrations of NO_2, PM_{10} and $PM_{2.5}$ across the Site and the surrounding area for the following grid references: minimum X 403793, Y 345136 to maximum X 404893, Y 346536. A Site suitability assessment was not included within the June 2016 ES, however a Site suitability assessment was undertaken for this Addendum due to the development generated traffic along Whiston Eaves Lane, which bounds the Site to the north.

Assessment Criteria

Construction Phase Dust Assessment

14.27 The IAQM have since published a revised version of the Assessment of Dust from Demolition and Construction guidance document, which includes a number of updates to the assessment criteria. A new construction phase dust assessment was therefore undertaken in accordance with latest version of the IAQM guidance. The updated assessment criteria used to undertake the assessment are provided in **Appendix 14.1.**

14.28 The dust emission magnitude associated with each activity during the construction phase is combined with the sensitivity of receptors to determine the overall dust risk. The dust risk determines the overall impact of the construction phase from the proposed development. Negligible and Low Risk impacts are considered to be 'not significant' and Medium and High Risk impacts are considered to be 'significant'.

Operational Phase Road Traffic Emissions Assessment

Human Receptors

14.29 Predicted pollutant concentrations were compared to the current relevant air quality objectives for England. Since the original ES was prepared, updated $PM_{2.5}$ objectives, including interim targets and future objectives were published[16]. The current relevant air quality standards and objectives are detailed in Table 14.2.

Table 14.2: Air Quality Standards and Objectives England

Pollutant	Averaging Period	Air Quality Objective ($\mu g.m^{-3}$)	Date to Achieve by
NO_2	Annual Mean	40	31 December 2005
	1-hour mean not to be exceeded more than 18 times per year	200	31 December 2005
PM_{10}	Annual Mean	40	31 December 2004
	24-hour mean not to be exceeded more than 35 times per year	50	31 December 2004
$PM_{2.5}$	Annual mean	20	1 January 2020
	Annual mean interim target as detailed within the Environmental Improvement Plan [i]	12	31 January 2028
	Annual mean	10	31 December 2040

14.30 Guidance provided by the IAQM and EPUK was used to determine the significance of the impact of development generated road traffic emissions on local air quality. The impact descriptors at receptor locations are detailed in Table 14.3. These impact descriptors predicted magnitude of change in pollutant concentrations and the concentration in relation to the relevant air quality objectives.

Table 14.3: Impact Descriptors for Individual Receptors

Long Term Average Concentration at Receptor in Assessment Year	% Change in Concentration Relative to Air Quality Assessment Level (AQAL)			
	1%	2 – 5%	6 – 10%	>10%
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76 – 94% of AQAL	Negligible	Slight	Moderate	Moderate
95 – 102% of AQAL	Slight	Moderate	Moderate	Substantial

Long Term Average Concentration at Receptor in Assessment Year	% Change in Concentration Relative to Air Quality Assessment Level (AQAL)			
	1%	2 – 5%	6 – 10%	>10%
103 – 109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

Note: Figures rounded up to the nearest whole number, therefore any values less than 1% after rounding (effectively less than 0.5%) will be described as negligible.

14.31 In determining the significance of operational phase impacts, the spatial extent, duration, frequency and reversibility of impacts were considered in addition to professional judgement. Whilst professional judgement is used in determining whether effects are significant, it is generally considered that 'substantial' and 'moderate' equates to a significant effect.

Ecological Receptors

14.32 Increases in oxides of nitrogen (NOx) as a result of proposed development generated traffic were modelled at the Whiston Eaves SSSI. In accordance with Natural England Guidance[28], there is the potential for a significant impact if:

14.33 The overall Predicted Environmental Concentration (PEC) exceeds the relevant Critical Load/Level; and

14.34 The Process Contribution (PC) from the development is greater than 1% of the relevant Critical Load/Level.

14.35 Predicted annual mean concentrations of nitrogen oxides (NOx) were assessed against the relevant Critical Level for the identified ecological receptor. The Critical Levels are summarised on the Air Pollution Information System (APIS) website. The Critical Level used in this assessment is shown below in Table 14.4.

[28] Natural England (2018) Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations

Table 14.4 Critical Level

Pollutant	Averaging Period	Critical Level (µg.m^{-3})	Date to Achieve by
NOx	Annual	30	31 December 2000

Baseline Conditions

Local Air Quality Management

14.36 The Site is not located within an existing AQMA, however the Cellarhead Junction is located approximately 8km west of Site. The AQMA includes the crossroads of the A520 Leek Road (north and south) and A52 Kingsley Road and A52 Cellarhead Road (east and west respectively. The Cellarhead Junction AQMA was designated in July 2019 for the potential exceedance of annual mean NO_2.

14.37 The proposed development has the potential to impact air quality at the Cellarhead Junction with regards to the current relevant air quality objectives. As the AQMA was not designated at the time of the original June 2016 ES submission date, it was not considered within the air quality assessment in Chapter 14 of the June 2016 ES. It has since been assessed by BWB Consulting within the 2020 SoC where the impacts were 'not significant'. As there have been updates to the traffic data provided by the Transport Consultants, Stantec, the AQMA has been included in the study area for robustness.

Local Air Quality Monitoring

Nitrogen Dioxide

14.38 SMDC undertakes monitoring of NO_2 within its administrative area utilising a network of diffusion tubes. The closest SMBC-operated monitoring location to the Site are diffusion tubes 38A&B, 39A&B, 42A&B, 49, 53, 54, 55, and 56 which are located approximately 8km west at the Cellarhead Junction. Diffusion tubes 38A&38B, 39A&39B, and 42A&42B were operational at the time of the June 2016 ES. An additional diffusion tube, tube 49 was installed in 2017 followed by tubes 53, 54, 55 and 56 in 2019 (the same year the AQMA was designated).

14.39 Bias adjusted annual mean NO2 concentrations recorded at monitoring locations in the vicinity of the Site are detailed in Table 14.5. Table 14.5 details the latest reported monitoring published since the preparation of the June 2016 ES.

14.40 At the time of assessment 2020 and 2021 monitoring data were available and therefore were included in the review. The IAQM released a position statement[29] in August 2021 with regard to 2020 and 2021 monitoring datasets. Due to the influence of the COVID-19 pandemic lockdown restrictions, 2020 and 2021 monitoring data are not considered representative of normal conditions. 2022 data were available and included in the review. As the IAQM has not released a position statement in 2022 monitoring data, 2022 was considered representative of normal conditions. Exceedances are shown in **Bold**.

Table 14.5: SMDC NO_2 Monitoring Data in 2016-2022

ID and Location	Grid Ref	Site Type	Distance from and direction from Site boundary	Monitored Annual Average Concentration ($\mu g.m^{-3}$)						
				2016	2017	2018	2019	2020	2021	2022
38A&38B*	395700, 347538	Roadside	8km west	**50.8**	**47.9**	**42.3**	**42.5**	32.0	35.6	35.3
39A&39B*	395703, 347554	Roadside	8km west	**51.1**	**48.2**	**42.1**	**42.7**	32.4	35.1	35.0
42A&42B*	395704, 347562	Roadside	8km west	**48.9**	**41.2**	**40.7**	**42.0**	30.6	32.8	34.6
49	395728, 347570	Roadside	8km west	-	27.8	30.0	25.1	18.7	20.0	20.0
53	395710, 347588	Roadside	8km west	-	-	-	**41.9**	28.4	30.2	32.0
54	395734, 347578	Roadside	8km west	-	-	**-**	30.5	17.4	19.3	20.0
55	395721, 347570	Roadside	8km west	-	-	**-**	32.1	23.6	25.9	27.1
56	395699, 347577	Roadside	8km west	-	-	**-**	38.1	27.6	27.3	30.4

– data not available, * tubes are in duplicate

14.41 Annual mean NO_2 concentrations monitored at the Cellarhead Junction were all below the annual mean objective of 40µg.m-3 between 2020 and 2022. Concentrations of NO_2 fluctuated between 2016 and 2022 with an overall downward trend. It should be noted that there was a significant decrease in recorded NO_2 concentration in 2020, followed by an increase in 2021 and 2022. This is likely due to the influence of COVID-19 lockdown restrictions, as stated within the IAQM position statement[28]. Baseline monitoring

[29] Institute of Air Quality Management (2021) Position Statement: Use of 2020 and 2021 Monitoring Datasets

indicates that baseline conditions have improved since the 2020 EIA SoC Air Quality Assessment on the Cellarhead Junction.

14.42 All diffusion tube monitoring locations within Table 14.5 were utilised in the model verification process detailed in **Appendix 14.3**. The monitoring locations used in the verification process are shown in Figure 14.6.

14.43 The Whiston diffusion tube (DT22) used within the June 2016 ES ceased operation in 2009; therefore, DT22 could not be used for verification.

Particulate Matter (PM_{10} and $PM_{2.5}$)

14.44 No Particulate Matter (PM_{10} or $PM_{2.5}$) monitoring was undertaken by SMDC within the study area at the time of assessment. No PM_{10} or $PM_{2.5}$ monitoring was undertaken during submission of the June 2016 ES.

Defra Background Pollutant Concentrations

14.45 No background air quality monitoring of NO_2, PM_{10} or $PM_{2.5}$ is undertaken by SMDC within the study area and the same methodology within the June 2016 ES Defra was undertaken. Background pollutant concentrations were therefore obtained from the latest Defra background concentration maps which are provided for the UK as a 1km x 1km grid network. The latest maps are based on 2018 monitoring and meteorological data. Background concentrations of NO_2, PM_{10} and $PM_{2.5}$ were obtained for the grid squares covering the study area for the years of assessment (2022, 2024, 2025, and 2028). The background concentrations used in the assessment are detailed in Table 14.6.

Table 14.6: Background NO_2, PM_{10} and $PM_{2.5}$ Concentrations used in the Assessment

Pollutant	Grid Square	Monitoring Locations / Receptors	Concentration (µg.m^{-3})			
			2022	2024	2025	2028
Verification						
NO_2	395500, 347500	38A&B, 39A&B, 42A&B, 49, 53,54, 55, 56	8.3	Not required for this scenario		
PM_{10}			9.9			
$PM_{2.5}$			6.6			
Receptors						
NO_2		R20-R23	8.3	7.8	7.5	7.0

Pollutant	Grid Square	Monitoring Locations / Receptors	Concentration (µg.m^{-3})			
			2022	2024	2025	2028
PM_{10}	395500, 347500		9.9	9.7	9.6	9.5
$PM_{2.5}$			6.6	6.4	6.3	6.3
NO_2	403500, 407500	R1-R7	5.8	5.4	5.3	5.0
PM_{10}			9.4	9.1	9.0	9.0
$PM_{2.5}$			6.1	5.9	5.9	5.8
NO_2	403500, 346500	R8	5.7	5.3	5.2	4.9
PM_{10}			9.2	9.0	8.9	8.9
$PM_{2.5}$			6.0	5.9	5.8	5.8
NO_2	404500, 346500	R9, R10	5.4	5.1	4.9	4.7
PM_{10}			10.3	10.1	10.0	9.9
$PM_{2.5}$			6.2	6.0	6.0	5.9
NO_2	405500, 345500	R11	5.7	5.3	5.2	4.9
PM_{10}			9.3	9.1	9.0	8.9
$PM_{2.5}$			6.0	5.9	5.8	5.8
NO_2	405500, 344500	R12-R18	5.7	5.4	5.2	5.0
PM_{10}			9.5	9.3	9.2	9.2
$PM_{2.5}$			6.2	6.0	5.9	5.9
NO_2	40450, 347500	R19	5.5	5.2	5.0	4.8
PM_{10}			9.3	9.1	9.0	8.9
$PM_{2.5}$			6.0	5.9	5.8	5.7

14.46 Background NO_2, PM_{10} and $PM_{2.5}$ concentrations were below the current relevant annual mean air quality objectives in all grid squares. $PM_{2.5}$ concentrations were also below the 2028 interim target of 12 µg.m^{-3} and the 2040 future objective of 10 µg.m^{-3}. Background

PM_{10} concentrations are higher than NO_2 concentrations; this was considered to be due to a large proportion of residual secondary PM_{10}.

14.47 Background NOx concentrations were also obtained from the latest Defra background concentration maps which are provided for the UK as a 1km x 1km grid network for ER1, the Whiston Eaves SSSI. Background NOx concentrations for the grid square covering the study area for the years of assessment (2022, 2024, 2025, and 2028). A summary of the background NOx concentrations are presented in Table 14.7.

Table 14.7 Background NOx Concentrations Used Within the Assessment

Pollutant	Grid Square	Monitoring Locations / Receptors	Concentration (µg.m^{-3})			
			2022	2024	2025	2028
NOx	403500, 346500	ER1	7.2	6.7	6.5	6.2

14.48 Background annual mean NOx concentrations for the Whiston Eaves SSSI indicate no exceedances to the Critical Level of 30 µg.m^{-3}. This is consistent with the June 2016 ES.

Current and Future Baseline Pollutant Concentrations

14.49 Pollutant concentrations were predicted at the identified existing sensitive receptor locations using the dispersion model ADMS-Roads. The predicted pollutant concentrations for Scenario 2: 2024 Base Year, Scenario 3: 2025 Opening Year Without Development and Scenario 5: 2028 Completion Year Without Development are detailed in Table 14.8.

Table 14.8: Annual Mean NO_2, PM_{10} and $PM_{2.5}$ Concentrations at Existing Sensitive Receptor Locations in Scenario 2, Scenario 3 and Scenario 5

Receptor	Scenario 2: 2024 Base Year (µg.m^{-3})			Scenario 3: 2025 Opening Year without Development (µg.m^{-3})			Scenario 5: 2028 CompletionYear without Development (µg.m^{-3})		
	NO_2	PM_{10}	$PM_{2.5}$	NO_2	PM_{10}	$PM_{2.5}$	NO_2	PM_{10}	$PM_{2.5}$
R1	7.9	9.9	6.4	7.5	9.8	6.3	6.6	9.8	6.2
R2	8.4	10.1	6.4	7.9	10.0	6.4	6.8	9.9	6.3
R3	7.2	9.7	6.2	6.8	9.6	6.1	6.1	9.5	6.1
R4	6.8	9.5	6.2	6.5	9.4	6.1	5.8	9.4	6.0

Receptor	Scenario 2: 2024 Base Year ($\mu g.m^{-3}$)			Scenario 3: 2025 Opening Year without Development ($\mu g.m^{-3}$)			Scenario 5: 2028 CompletionYear without Development ($\mu g.m^{-3}$)		
	NO_2	PM_{10}	$PM_{2.5}$	NO_2	PM_{10}	$PM_{2.5}$	NO_2	PM_{10}	$PM_{2.5}$
R5	7.9	9.9	6.3	7.4	9.8	6.2	6.5	9.7	6.2
R6	6.8	9.6	6.2	6.5	9.5	6.1	5.8	9.4	6.0
R7	7.0	9.6	6.2	6.6	9.5	6.1	5.9	9.5	6.1
R8	5.5	9.0	5.9	5.3	8.9	5.8	5.1	8.9	5.8
R9	5.2	10.1	6.0	5.0	10.0	6.0	4.8	9.9	5.9
R10	5.2	10.1	6.1	5.1	10.0	6.0	4.8	10.0	5.9
R11	5.6	9.2	5.9	5.4	9.1	5.8	5.1	9.0	5.8
R12	6.6	9.4	6.1	6.3	9.3	6.0	5.7	9.3	6.0
R13	6.4	9.6	6.2	6.1	9.5	6.1	5.6	9.4	6.0
R14	6.7	9.7	6.2	6.4	9.6	6.1	5.8	9.5	6.1
R15	8.8	10.4	6.6	8.3	10.3	6.5	7.1	10.2	6.5
R16	7.6	10.0	6.4	7.2	9.9	6.3	6.4	9.9	6.3
R17	7.6	10.0	6.4	7.3	9.9	6.3	6.4	9.9	6.3
R18	8.5	10.3	6.5	8.0	10.2	6.5	6.9	10.2	6.4
R19	5.6	9.1	5.9	5.3	9.0	5.8	5.0	9.0	5.8
R20	29.8	17.2	10.3	27.4	17.1	10.2	20.9	17.0	10.2
R21	27.3	16.2	9.8	25.1	16.1	9.7	19.3	16.1	9.7
R22	24.6	15.3	9.3	22.7	15.2	9.3	17.6	15.1	9.2
R23	30.3	17.4	10.4	27.9	17.2	10.3	21.3	17.2	10.3

14.50 The predicted concentrations of NO_2, PM_{10} and $PM_{2.5}$ were below the current annual mean air quality objectives for all receptors in Scenario 2, Scenario 3 and Scenario 5. Annual mean $PM_{2.5}$ concentrations were also predicted to be below the 2028 interim target of 12 $\mu g.m^{-3}$ at all receptor locations in both Scenario 2, Scenario 3 and Scenario 5. Additionally,

there were no exceedances to the 2040 future $PM_{2.5}$ objective of 10 µg.m^{-3}, with the exception of R20 and R23 which are within the Cellarhead Junction AQMA.

Assessment of Significance

Construction Phase Dust Assessment

14.51 The construction phase of the proposed development will involve a number of activities which have the potential to impact on local air quality.

14.52 The location of sensitive receptors in relation to construction activities will affect the potential for such construction activities to cause dust soiling, nuisance and local air quality impacts. Meteorological conditions and the use of control measures will also contribute to the effects experienced.

14.53 Steps 1 to 4 of the IAQM guidance were followed in undertaking the construction phase dust assessment. Full details of the assessment undertaken are provided in **Appendix 14.1** with a summary of the findings of Steps 2a, 2b, and 2c of the assessment provided below.

Step 2: Assess the Risk of Dust Impacts

Step 2A: Define the Potential Dust Emission Magnitude

14.54 The dust emission magnitudes for the construction activities were defined using the criteria detailed in the IAQM guidance as detailed in **Appendix 14.1** and are summarised in Table 14.9. There are no material changes to the proposed development since the 2016 June ES, however the dust emission magnitude criteria in the latest version of the IAQM guidance was updated since the June 2016 ES which is reflected in Table 14.9 below.

14.55 As stated within the June 2016 ES, demolition activities required for the former quarry site will be undertaken as part of the restoration scheme and are therefore not considered within this assessment. An updated earthworks sequence has been produced since the submission of the June 2016 ES. The earthworks sequence was considered within the emission magnitude for earthworks, as presented in Table 14.9 below.

Table 14.9 Dust Emission Magnitude Definition

Activity	Project Defined Dust Emission Magnitude	IAQM Dust Emission Magnitude Criteria
Earthworks	Large	The Site area is greater than 110,000m^2.
Construction	Large	The total building volume will be greater than 75,000m^3.
Trackout	Medium	Based on the scale of the proposals and the phased nature of construction, it is anticipated there will be between 20 and 50 outward HDV movements may be operational at peak construction.

Step 2B: Define the Sensitivity of the Area

14.56 The assessment requires the determination of the sensitivity of the area for the purposes of dust soiling, human health and ecological impacts. The sensitivity of the study area takes into account the specific receptors in the vicinity of the Site, the proximity and number of those receptors, the local background concentration of PM_{10} and site-specific factors. Publicly available mapping was utilised to determine the number of receptors located within the distance bands provided in the IAQM guidance for determining receptor sensitivity.

14.57 According to the IAQM guidance, the main potential impacts on ecological receptors resulting from dust emissions are direct physical effects in the form of "reduced photosynthesis, respiration and transpiration through smothering". Other impacts, such as chemical changes to soil "*are likely to occur only as a result of long-term demolition and construction works*". Unless species particularly sensitive to these effects are present, ecological receptors are likely to be less sensitive than human receptors. The Whiston Eaves Site of Special Scientific Interest (SSSI) and Ashbourne Hey Ancient Woodland are directly adjacent to the west of the Site boundary. Additionally Ancient Woodlands Key Wood, Carr Wood and Frame Wood are located to the south and within the Site boundary. All ecological receptors have been considered to be highly sensitive to dust for a robust assessment. A summary of the sensitivity of the area to construction phase dust, human health and ecological effects is provided in Table 14.10.

Table 14.10: Determination of the Sensitivity of the Area

Potential Impact	Justification	Sensitivity		
		Earthworks	Construction	Trackout
Dust Soiling	There is one solar farm located within 20m of the Site boundary which is considered to be highly sensitive to dust soiling. Additionaly residential dwellings are considered to be highly sensitive to dust soiling impacts. There are between 1 and 10 highly sensitive residential dwellings within 50 of the proposed Site boundary. There are no receptors within 50m of roads used by construction vehicles.	Medium	Medium	Negligible
Human Health	Residential dwellings are considered to be highly sensitive to human health effects. There are between 1 and 10 highly sensitive residential dwellings within 50m of the Site boundary. There are no receptors within 50m of roads used by construction vehicles. The background PM_{10} concentration is less than 24µg.m^{-3} [5].	Low	Low	Negligible
Ecological	The Whiston Eaves SSSI and Ancient Woodlands, Ashbourne Hey, Carr Wood, Key Wood and Frame Wood are all within 20m of the Site boundary. There are no ecological receptors within 50m of the trackout route.	High	High	Negligible

Step 2C: Define the Risk of Impacts

14.58 Therefore, the significance of effect was considered to be negligible to major adverse and would therefore be classified as significant before embedded mitigation measures. The June 2016 ES predicted the impact to be negligible to minor adverse. Changes to the significance of construction phase emissions are due to the updates of significance criteria within the IAQM guidance.

14.59 The dust emission magnitude determined in Step 2A is then combined with the sensitivity of the area determined in Step 2B to define the risk of dust impacts with no mitigation applied. The results of this assessment are detailed in Table 14.11. The highest risk of predicted dust impacts from the proposed development are 'High risk'. The highest risk of predicted dust impacts within the June 2016 ES was 'Medium risk'.

Table 14.11: Summary Dust Risk Table to Define Site Specific Risk

Activity	Step 2A: Dust Emission Magnitude	Step 2B: Sensitivity of the Area	Step 2C: Risk of Dust Impacts
Dust Soiling Effects on People and Property			
Earthworks	Large	Medium	High Risk
Construction	Large	Medium	High Risk
Trackout	Medium	Negligible	Negligible Risk
Human Health Impacts			
Earthworks	Large	Low	Low Risk
Construction	Large	Low	Low Risk
Trackout	Medium	Negligible	Negligible Risk
Ecological Effects			
Earthworks	Large	High	High Risk
Construction	Large	High	High Risk
Trackout	Medium	Negligible	Negligible Risk

Operational Phase Road Traffic Emissions Impact Assessment

2025 Opening Year

14.60 Concentrations of NO_2, PM_{10} and $PM_{2.5}$ were predicted at identified existing receptor locations for Scenario 4: 2025 Opening Year With Development, to consider the impact of development-generated vehicles on local air quality.

14.61 Predicted pollutant concentrations are detailed in Table 14.12, Table 14.13 and Table 14.14 for NO_2, $PM_{10,}$ and $PM_{2.5}$ respectively with Scenario 3: 2025 Opening Year Without Development concentrations for comparison purposes. The predicted change in pollutant

concentrations resulting from development-generated traffic, and the associated impact are provided.

Table 14.12: Predicted Annual Mean NO_2 Concentrations in Scenarios 3: 2025 Opening Year without Development and Scenario 4: 2025 Opening Year with Development

Receptor	Predicted NO_2 Concentration ($\mu g.m^{-3}$)				
	Scenario 3: 2025 Opening Year Without Development ($\mu g.m^{-3}$)	Scenario 4: 2025 Opening Year With Development ($\mu g.m^{-3}$)	Concentration Change* ($\mu g.m^{-3}$)	Change in Concentration Relative to Air Quality Assessment Level (%)	Impact
R1	7.5	8.0	+0.5	1	Negligible
R2	7.9	8.5	+0.6	1	Negligible
R3	6.8	7.2	+0.4	1	Negligible
R4	6.5	6.6	+0.2	0	Negligible
R5	7.4	9.2	+1.8	4	Negligible
R6	6.5	7.3	+0.8	2	Negligible
R7	6.6	7.9	+1.3	3	Negligible
R8	5.3	6.5	+1.2	3	Negligible
R9	5.0	5.2	+0.2	0	Negligible
R10	5.1	5.1	0.0	0	Negligible
R11	5.4	5.5	0.0	0	Negligible
R12	6.3	6.4	+0.1	0	Negligible
R13	6.1	6.2	0.0	0	Negligible
R14	6.4	6.5	0.0	0	Negligible
R15	8.3	8.4	+0.1	0	Negligible
R16	7.2	7.3	0.0	0	Negligible
R17	7.3	7.3	0.0	0	Negligible
R18	8.0	8.0	0.0	0	Negligible

Receptor	Predicted NO_2 Concentration ($\mu g.m^{-3}$)				
	Scenario 3: 2025 Opening Year Without Development ($\mu g.m^{-3}$)	Scenario 4: 2025 Opening Year With Development ($\mu g.m^{-3}$)	Concentration Change* ($\mu g.m^{-3}$)	Change in Concentration Relative to Air Quality Assessment Level (%)	Impact
R19	5.3	5.4	0.0	0	Negligible
R20	27.4	27.8	+0.4	1	Negligible
R21	25.1	25.6	+0.5	1	Negligible
R22	22.7	23.0	+0.3	1	Negligible
R23	27.9	28.5	+0.7	2	Negligible

** Discrepancies in changes due to rounding effects*

Table 14.13: Predicted Annual Mean PM_{10} Concentrations in Scenarios 3: 2025 Opening Year without Development and Scenario 4: 2025 Opening Year with Development

Receptor	Predicted PM_{10} Concentration ($\mu g.m^{-3}$)				
	Scenario 3: 2025 Opening Year Without Development ($\mu g.m^{-3}$)	Scenario 4: 2025 Opening Year With Development ($\mu g.m^{-3}$)	Concentration Change* ($\mu g.m^{-3}$)	Change in Concentration Relative to Air Quality Assessment Level (%)	Impact
R1	9.8	10.0	+0.1	0	Negligible
R2	10.0	10.1	+0.2	0	Negligible
R3	9.6	9.7	+0.1	0	Negligible
R4	9.4	9.5	0.0	0	Negligible
R5	9.8	10.3	+0.6	1	Negligible
R6	9.5	9.7	+0.3	1	Negligible
R7	9.5	9.9	+0.4	1	Negligible
R8	8.9	9.2	+0.3	1	Negligible
R9	10.0	10.0	0.0	0	Negligible
R10	10.0	10.0	0.0	0	Negligible

Receptor	Predicted PM_{10} Concentration ($\mu g.m^{-3}$)				
	Scenario 3: 2025 Opening Year Without Development ($\mu g.m^{-3}$)	Scenario 4: 2025 Opening Year With Development ($\mu g.m^{-3}$)	Concentration Change* ($\mu g.m^{-3}$)	Change in Concentration Relative to Air Quality Assessment Level (%)	Impact
R11	9.1	9.1	0.0	0	Negligible
R12	9.3	9.4	0.0	0	Negligible
R13	9.5	9.5	0.0	0	Negligible
R14	9.6	9.6	0.0	0	Negligible
R15	10.3	10.3	0.0	0	Negligible
R16	9.9	9.9	0.0	0	Negligible
R17	9.9	9.9	0.0	0	Negligible
R18	10.2	10.2	0.0	0	Negligible
R19	9.0	9.0	0.0	0	Negligible
R20	17.1	17.2	+0.1	0	Negligible
R21	16.1	16.3	+0.2	0	Negligible
R22	15.2	15.3	+0.1	0	Negligible
R23	17.2	17.5	+0.3	1	Negligible

** Discrepancies in changes due to rounding effects*

Table 14.14: Predicted Annual Mean $PM_{2.5}$ Concentrations in Scenarios 3: 2025 Opening Year without Development and Scenario 4: 2025 Opening Year with Development

Receptor	Predicted $PM_{2.5}$ Concentration ($\mu g.m^{-3}$)				
	Scenario 3: 2025 Opening Year Without Development ($\mu g.m^{-3}$)	Scenario 4: 2025 Opening Year With Development ($\mu g.m^{-3}$)	Concentration Change* ($\mu g.m^{-3}$)	Change in Concentration Relative to Air Quality Assessment Level (%)	Impact
R1	6.3	6.4	+0.1	0	Negligible
R2	6.4	6.5	+0.1	0	Negligible

Receptor	Predicted $PM_{2.5}$ Concentration ($\mu g.m^{-3}$)				
	Scenario 3: 2025 Opening Year Without Development ($\mu g.m^{-3}$)	Scenario 4: 2025 Opening Year With Development ($\mu g.m^{-3}$)	Concentration Change* ($\mu g.m^{-3}$)	Change in Concentration Relative to Air Quality Assessment Level (%)	Impact
R3	6.1	6.2	+0.1	0	Negligible
R4	6.1	6.1	0.0	0	Negligible
R5	6.2	6.5	+0.3	1	Negligible
R6	6.1	6.2	+0.1	1	Negligible
R7	6.1	6.3	+0.2	1	Negligible
R8	5.8	6.0	+0.2	1	Negligible
R9	6.0	6.0	0.0	0	Negligible
R10	6.0	6.0	0.0	0	Negligible
R11	5.8	5.9	0.0	0	Negligible
R12	6.0	6.0	0.0	0	Negligible
R13	6.1	6.1	0.0	0	Negligible
R14	6.1	6.1	0.0	0	Negligible
R15	6.5	6.5	0.0	0	Negligible
R16	6.3	6.3	0.0	0	Negligible
R17	6.3	6.3	0.0	0	Negligible
R18	6.5	6.5	0.0	0	Negligible
R19	5.8	5.8	0.0	0	Negligible
R20	10.2	10.3	+0.1	0	Negligible
R21	9.7	9.8	+0.1	0	Negligible
R22	9.3	9.3	+0.1	0	Negligible
R23	10.3	10.5	+0.1	1	Negligible

* Discrepancies in changes due to rounding effects

14.62 The predicted annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations for Scenario 3: 2025 Opening Year Without Development and Scenario 4: 2025 Opening Year With Development are below the current relevant air quality objectives at all existing receptor locations. Annual mean $PM_{2.5}$ concentrations are also below the 2028 interim target of 12 μg.m^{-3} at all receptors in both Scenario 3 and 4. Two receptors, R20 and R23, exceed the 2040 future objective of 10 μg.m^{-3} in both Scenario 3 and 4, however it should be noted that the proposed development does not lead to any new exceedances of the 2040 future objective.

14.63 The proposed development was predicted to have a negligible impact at all modelled receptor locations in accordance with IAQM and EPUK guidance18. Overall the impact of the proposed development on annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations at existing sensitive receptor locations in the Opening Year was considered to be negligible which is 'not significant'.

14.64 With regard to short term objectives for NO_2 and PM_{10}, the predicted annual mean NO_2 concentrations are less than 60 μg.m^{-3} and therefore in accordance with Defra guidance it may be assumed that exceedance of the 1-hour mean objective is unlikely. The calculation detailed in paragraph 14.21 was used to determine the potential exceedance of the 24-hour PM_{10} short term objective; no exceedances were predicted.

14.65 The June 2016 ES also predicted an overall not significant impact from road traffic emissions associated with the proposed development.

2028 Completion Year

14.66 Concentrations of NO_2, PM_{10} and $PM_{2.5}$ were also predicted at identified existing receptor locations for and Scenario 6: 2028 Completion Year With Development to consider the impact of development-generated vehicles on local air quality.

14.67 Predicted pollutant concentrations are detailed in Table 14.15, Table 14.16. and Table 14.17 for NO_2, PM_{10} and $PM_{2.5}$ respectively with Scenario 5: 2028 Completion Year Without Development concentrations for comparison purposes. The predicted change in pollutant concentrations resulting from development-generated traffic, and the associated impact are also provided.

Table 14.15: Predicted Annual Mean NO_2 Concentrations in Scenarios 5: 2028 Completion Year without Development and Scenario 6: 2028 Completion Year with Development

Receptor	Predicted NO_2 Concentration ($\mu g.m^{-3}$)				
	Scenario 5: 2028 Completion Year Without Development ($\mu g.m^{-3}$)	Scenario 6: 2028 Completion Year With Development ($\mu g.m^{-3}$)	Concentration Change* ($\mu g.m^{-3}$)	Change in Concentration Relative to Air Quality Assessment Level (%)	Impact
R1	6.6	6.9	+0.3	1	Negligible
R2	6.8	7.2	+0.4	1	Negligible
R3	6.1	6.3	+0.3	1	Negligible
R4	5.8	5.9	+0.1	0	Negligible
R5	6.5	7.7	+1.2	3	Negligible
R6	5.8	6.4	+0.5	1	Negligible
R7	5.9	6.8	+0.9	2	Negligible
R8	5.1	5.9	+0.8	2	Negligible
R9	4.8	4.9	+0.1	0	Negligible
R10	4.8	4.8	0.0	0	Negligible
R11	5.1	5.1	0.0	0	Negligible
R12	5.7	5.8	+0.1	0	Negligible
R13	5.6	5.6	0.0	0	Negligible
R14	5.8	5.8	0.0	0	Negligible
R15	7.1	7.2	0.0	0	Negligible
R16	6.4	6.4	0.0	0	Negligible
R17	6.4	6.4	0.0	0	Negligible
R18	6.9	6.9	0.0	0	Negligible
R19	5.0	5.0	0.0	0	Negligible
R20	20.9	21.2	+0.3	1	Negligible

Receptor	Predicted NO_2 Concentration ($\mu g.m^{-3}$)				
	Scenario 5: 2028 Completion Year Without Development ($\mu g.m^{-3}$)	Scenario 6: 2028 Completion Year With Development ($\mu g.m^{-3}$)	Concentration Change* ($\mu g.m^{-3}$)	Change in Concentration Relative to Air Quality Assessment Level (%)	Impact
R21	19.3	19.6	+0.3	1	Negligible
R22	17.6	17.8	+0.2	0	Negligible
R23	21.3	21.8	+0.5	1	Negligible

* Discrepancies in changes due to rounding effects

Table 14.16: Predicted Annual Mean PM_{10} Concentrations in Scenarios 5: 2028 Completion Year without Development and Scenario 6: 2028 Completion Year with Development

Receptor	Predicted PM_{10} Concentration ($\mu g.m^{-3}$)				
	Scenario 5: 2028 Completion Year Without Development ($\mu g.m^{-3}$)	Scenario 6: 2028 Completion Year With Development ($\mu g.m^{-3}$)	Concentration Change* ($\mu g.m^{-3}$)	Change in Concentration Relative to Air Quality Assessment Level (%)	Impact
R1	9.8	9.9	+0.1	1	Negligible
R2	9.9	10.1	+0.2	1	Negligible
R3	9.5	9.7	+0.1	1	Negligible
R4	9.4	9.4	0.0	0	Negligible
R5	9.7	10.3	+0.6	3	Negligible
R6	9.4	9.7	+0.3	1	Negligible
R7	9.5	9.9	+0.4	2	Negligible
R8	8.9	9.2	+0.3	2	Negligible
R9	9.9	10.0	0.0	0	Negligible
R10	10.0	10.0	0.0	0	Negligible
R11	9.0	9.0	0.0	0	Negligible
R12	9.3	9.3	0.0	0	Negligible

Receptor	Predicted PM_{10} Concentration ($\mu g.m^{-3}$)				
	Scenario 5: 2028 Completion Year Without Development ($\mu g.m^{-3}$)	Scenario 6: 2028 Completion Year With Development ($\mu g.m^{-3}$)	Concentration Change* ($\mu g.m^{-3}$)	Change in Concentration Relative to Air Quality Assessment Level (%)	Impact
R13	9.4	9.5	0.0	0	Negligible
R14	9.5	9.6	0.0	0	Negligible
R15	10.2	10.3	0.0	0	Negligible
R16	9.9	9.9	0.0	0	Negligible
R17	9.9	9.9	0.0	0	Negligible
R18	10.2	10.2	0.0	0	Negligible
R19	9.0	9.0	0.0	0	Negligible
R20	17.0	17.1	+0.1	1	Negligible
R21	16.1	16.2	+0.2	1	Negligible
R22	15.1	15.2	+0.1	0	Negligible
R23	17.2	17.5	+0.3	1	Negligible

* Discrepancies in changes due to rounding effects

Table 14.17: Predicted Annual Mean PM2.5 Concentrations in in Scenarios 5: 2028 Completion Year without Development and Scenario 6: 2028 Completion Year with Development.

Receptor	Predicted $PM_{2.5}$ Concentration ($\mu g.m^{-3}$)				
	Scenario 5: 2028 Completion Year Without Development ($\mu g.m^{-3}$)	Scenario 6: 2028 Completion Year With Development ($\mu g.m^{-3}$)	Concentration Change* ($\mu g.m^{-3}$)	Change in Concentration Relative to Air Quality Assessment Level (%)	Impact
R1	6.2	6.3	+0.1	0	Negligible
R2	6.3	6.4	+0.1	0	Negligible
R3	6.1	6.2	+0.1	0	Negligible
R4	6.0	6.1	0.0	0	Negligible

Receptor	Predicted $PM_{2.5}$ Concentration ($\mu g.m^{-3}$)				
	Scenario 5: 2028 Completion Year Without Development ($\mu g.m^{-3}$)	Scenario 6: 2028 Completion Year With Development ($\mu g.m^{-3}$)	Concentration Change* ($\mu g.m^{-3}$)	Change in Concentration Relative to Air Quality Assessment Level (%)	Impact
R5	6.2	6.5	+0.3	1	Negligible
R6	6.0	6.2	+0.1	1	Negligible
R7	6.1	6.3	+0.2	1	Negligible
R8	5.8	6.0	+0.1	1	Negligible
R9	5.9	5.9	0.0	0	Negligible
R10	5.9	5.9	0.0	0	Negligible
R11	5.8	5.8	0.0	0	Negligible
R12	6.0	6.0	0.0	0	Negligible
R13	6.0	6.1	0.0	0	Negligible
R14	6.1	6.1	0.0	0	Negligible
R15	6.5	6.5	0.0	0	Negligible
R16	6.3	6.3	0.0	0	Negligible
R17	6.3	6.3	0.0	0	Negligible
R18	6.4	6.4	0.0	0	Negligible
R19	5.8	5.8	0.0	0	Negligible
R20	10.2	10.2	+0.1	0	Negligible
R21	9.7	9.8	+0.1	0	Negligible
R22	9.2	9.2	+0.1	0	Negligible
R23	10.3	10.4	+0.1	1	Negligible

* Discrepancies in changes due to rounding effects

14.68 The predicted annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations for Scenario 5: 2028 Completion Year Without Development and Scenario 6: 2028 Completion Year With Development are below the current relevant air quality objectives at all existing receptor

locations. Annual mean $PM_{2.5}$ concentrations are also below the 2028 interim target of 12 $\mu g.m^{-3}$ at all receptors in both Scenario 5 and 6. Two receptors, R20 and R23, exceed the 2040 future objective of 10 $\mu g.m^{-3}$ in both Scenario 5 and 6, however it should be noted that the proposed development does not lead to any new exceedances of the 2040 future objective.

14.69 The proposed development was predicted to have a negligible impact at all modelled receptor locations in accordance with IAQM and EPUK guidance. Overall, the impact of the proposed development on annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations at existing sensitive receptor locations in the Completion Year was considered to be negligible which is '**not significant**'.

14.70 With regard to short term objectives for NO_2 and PM_{10}, the predicted annual mean NO_2 concentrations are less than 60 $\mu g.m^{-3}$ and therefore in accordance with Defra guidance it may be assumed that exceedance of the 1-hour mean objective is unlikely. The calculation detailed in paragraph 14.21 was used to determine the potential exceedance of the 24-hour PM_{10} short term objective; no exceedances were predicted. This is in line with the findings of the June 2016 ES and as such remains '**not significant**'.

Impact Significance Summary

14.71 Relevant guidance, legislation and professional judgement was utilised to determine the significance of the findings of the air quality assessment. The air quality assessment was supervised by a full member of the Institute of Air Quality Management. A summary of the impact significance and justification of this are provided below.

14.72 The overall impact of the proposed development on air quality is considered to be '**not significant**':

- Consideration was given to local planning policy and the proposed development proposals are considered to be in accordance with these policies with regard to air quality.
- Concentrations of NOx, NO_2, PM_{10} and $PM_{2.5}$ in the study area are predicted to be below the relevant air quality objectives for all receptor locations considered.
- The air quality assessment undertaken utilised robust model inputs including slowing traffic sections at junctions, appropriate meteorological data and surface roughness.
- The proposed development is predicted to result in a 'negligible' impact at all modelled receptor locations and 'not significant' in accordance with IAQM and EPUK guidance.

Site Suitability Assessment

14.73 Concentrations of NO_2, PM_{10} and $PM_{2.5}$ were predicted across the Site for Scenario 4: 2025 Opening Year with Development and Scenario 6: 2028 Completion Year with Development. Predicted pollutant concentrations are detailed in Figures 14.5 – 14.6 and the highest pollutant concentrations predicted within the Site are detailed in Table 14.18.

Table 14.18: Highest Predicted Pollutant Concentrations across the Site

Pollutant	Highest Predicted Pollutant Concentration (µg.m^{-3}) across the Site	
	Scenario 4: 2025 Opening Year with Development	Scenario 6: 2028 Completion Year with Development
NO_2	7.0	6.2
PM_{10}	10.2	10.3
$PM_{2.5}$	6.2	6.2

14.74 The predicted NO_2, PM_{10} and $PM_{2.5}$ concentrations for Scenario 4: 2025 Opening Year with Development and Scenario 6: 2028 Completion Year with Development, indicate that pollutant concentrations at the Site will be below the respective current air quality objectives in 2025 and 2028, with the proposed development in place. Annual mean $PM_{2.5}$ concentrations are also predicted to be below the 2028 interim target of 12µg.$^{m-3}$ and the 2040 future objective of 10µg.$^{m-3}$ in both Scenario 4 and Scenario 6.

14.75 It should be noted that although annual mean NO_2 concentrations across the Site are predicted to decrease, annual mean PM_{10} concentrations are predicted to increase between Scenario 4 and Scenario 6. The increase in annual mean PM_{10} concentration is likely due to the small predicted decrease in background concentrations and vehicle fleet emissions within the Defra EFT, which are being outweighed by the increase in overall traffic flows from the proposed development within Scenario 6. Although there is a predicted increase in PM_{10} concentration between Scenario 4 to Scenario 6, this increase is negligible and overall PM_{10} concentration across the Site are predicted to remain well below the current annual mean air quality objective for PM_{10}.

14.76 With regard to short term air quality objectives for NO_2 and PM_{10} at the proposed development, the predicted annual mean NO_2 concentrations are less than 60µg.m^{-3} and therefore in accordance with Defra guidance it may be assumed that exceedance of the 1-hour mean NO_2 objective are unlikely. The calculation detailed in paragraph 14.21 was

used to determine potential exceedance of the 24-hour PM_{10} short term objective; no exceedances were predicted.

14.77 The proposed development is therefore considered suitable for the proposed end use with regard to the current air quality objectives and no mitigation is required to minimise pollutant concentrations across the Site.

Assessment for ecological receptors

14.78 In line with the June 2016 ES, the Whiston Eaves SSSI was assessed against the annual mean NOx objective of 30 µg.m^{-3}. A summary of the predicted NOx concentrations for the Whiston Eaves SSSI are detailed in Table 14.19below.

Table 14.19 Predicted Annual Mean NOx Concentrations for Ecological Receptors

Receptor	Predicted NOx Concentration					
	Scenario 3: Opening Year Without Development (µg.m^{-3})	Scenario 4: Opening Year With Development (Total PEC) (µg.m^{-3})	PC between Scenario 3 and Scenario 4 (µg.m^{-3})	Scenario 5: Completin Year Without Development (µg.m^{-3})	Scenario 6: Completion Year With Development (Total PEC) (µg.m^{-3})	PC between Scenario 5 and Scenario 6 (µg.m^{-3})
ER1	6.6	6.7	+0.1	6.3	6.3	+0.1

14.79 The total predicted PEC for both Scenario 4: 2025 Opening Year With Development and Scenario 6: Completion Year With Development are predicted to be below the Critical Level of 30 µg.$^{m-3}$. The PC of NOx from the proposed development is predicted to be 0.1 µg.$^{m-3}$ for both Scenario 4 and Scenario 6, which is the equivalent of more than 1% of the Critical Level. As there is an exceedance to only the PC, the impact on ecological receptors as a result of development generated traffic is anticipated negligible and therefore '**not significant**'. This is in line with the June 2016 ES.

Limitations to the Assessment

14.80 There are uncertainties associated with both measured and predicted pollutant concentrations. The model (ADMS-Roads) used in this assessment relies on input data, which are also subject to uncertainty. The model itself simplifies complex physical systems into a range of algorithms. In addition, local micro-climatic conditions may affect the concentrations of pollutants that the ADMS-Roads model will not take into account.

14.81 Traffic data was provided by Stantec, the Transport Consultants for the project, and processed into the necessary format for dispersion modelling by BWB. As such, any

assumptions made by the Transport Consultants will also influence the air quality assessment.

14.82 In future year scenarios, uncertainty relates to the projection of vehicle emissions and, in particular the rate at which emissions per vehicle will improve over time. This assessment utilised the most recent version of the Defra EFT to provide the most up to date estimate of current and future emission projections.

14.83 To reduce the uncertainty associated with predicted concentrations, model verification was carried out following guidance set out in Defra guidance. As the models were verified using local monitoring data and adjusted accordingly, there can be reasonable confidence in the predicted concentrations.

Summary of Previous Assessments

14.84 The conclusions from the previous applications June 2016 ES, December 2021 ES Addendum, Phase 1 Reserved Matters (SMD/2019/0646), May 2020 EIA SoC and October 2023 EIA SoC are outlined below in Table 14.20.

Table 14.20: Summary of Previous Assessments

Previous Assessments
Outline Planning Application (SMD/2016/0378) – June 2016 ES
The June 2016 ES stated a qualitative assessment of the potential effects on local air quality from construction activities has been carried out. This assessment identified that during construction works, the release of dust and PM_{10} were likely to occur. However, through good site practice and the implementation of suitable mitigation measures, the residual effect of dust and PM_{10} will be reduced to an acceptable level and be of negligible significance. A qualitative assessment of the potential effects of emissions from vehicles and plant associated with the construction phase has also been carried out. The effects of these emissions are considered to be of negligible significance before applying mitigation measures. The development of a construction traffic management plan will further reduce any impacts. In addition, a quantitative assessment of the potential effects once the proposed development is completed was undertaken using ADMS Roads dispersion model to predict the changes in NOx, NO_2 and PM_{10} concentrations at the assessment receptors in the local area. According to the assessment criteria, the effect of the proposed development is predicted to be direct, permanent, long-term and of negligible significance, without application of scheme specific mitigation measures. Furthermore, the assessment has been undertaken using worst case assumptions in relation to future improvements in vehicle technologies. It is, therefore, considered that the development proposals comply with national and local policy for air quality.

Water Outfall Application (SMD/2022/0014) – December 2021 ES Addendum
The December 2021 ES Addendum stated, taking the June 2016 ES into consideration and the conditions on the 2016 decision notice, it is not considered any further updates to the air quality assessment is considered necessary. The conditions and measures set out in the June 2016 ES provide sufficient environmental management and mitigation measures for the long-term protection of on and off-site receptors during the construction and operational phases of development. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the air quality effects of the development.
Phase 1 Reserved Matters (SMD/2019/0646) – May 2020 EIA SoC
The May 2020 EIA SoC stated, since the 2016 outline application was approved an AQMA has been designated at the Cellarhead Junction which is located approximately 8km west of the site. The AQMA was designated in July 2019 based upon the potential exceedance of the current annual mean NO_2 air quality objective. The Cellarhead Junction is the crossroads of the A520 Leek Road (north and south) and A52 Kingsley Road and A52 Cellarhead Road (east and west respectively). The AQMA was not designated at the time the June 2016 ES was prepared and therefore did not form part of the air quality assessment. As a result, BWB have been commissioned to undertake an air quality assessment at the Cellarhead Junction to determine the likely effects as a result of the proposed development. In summary, an air quality assessment has been undertaken at the Cellarhead Junction. The findings of which confirm that there are no significant effects as a result of the proposed development at this junction and the effects are considered to be negligible. A sensitivity analysis exercise has been undertaken which confirms that potential effects would be negligible to slight adverse, if NOx emissions were not to decrease in line with projected emission factors. Overall, no significant air quality effects are anticipated at the Cellarhead AQMA and the June 2016 ES remains valid and is adequate to assess the air quality effects of the development.
Phase 2 Reserved Matters (SMD/2023/0532) – October 2023 EIA SoC

The October 2023 EIA SoC concluded there are no proposed changes to the description of development or to the approved parameters. Therefore, the assessment of likely significant environmental effects remains as presented in the 2016 ES remains valid. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the air quality effects of the development.

In relation to the Cellarhead Junction AQMA assessed in the May 2020 EIA SoC, It is considered that the traffic flows associated with the Phase 2 reserved matters application will not result in material change in pollutant levels within the AQMA to require further air dispersion to be undertaken. Overall, no significant air quality effects are anticipated at the Cellarhead AQMA and the June 2016 ES remains valid and is adequate to assess the air quality effects of the development.

14.85 There are no additional effects to air quality within this Chapter compared to Chapter 14 within the June 2016 ES.

Mitigation, Enhancement and Residual Effects

14.86 The residual effects from the June 2016 ES are outlined below and have been confirmed if they have changed since the assessment was completed. Construction Phase mitigation measures are summarised in **Appendix 14.1**. In addition, any additional effects are also considered within the table.

Table 14.21: Residual Effects

Description of Effect	Potential Effect (inc. Significance)	Additional Mitigation / Enhancement Measures	How are Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
Dust Soiling	The June 2016 ES concluded the effects to be Negligible to Minor Adverse. The findings in this ES Addendum were Negligible to Major Adverse.	Mitigation measures are provided in Appendix 14.1. Mitigation measures will be provided within the CEMP and Dust Management Plan (DMP).	Condition	Negligible Not Significant	Mitigation measures have been provided in Appendix 14.1 and the residual effect remains 'not significant'. Changes in mitigation measures from the 2016 ES are due to updates to the guidance.
Human Health	The June 2016 ES concluded the effects to be Negligible. The findings in this ES Addendum were	Mitigation measures are provided in Appendix 14.1. Mitigation measures	Condition	Negligible Not Significant	Mitigation measures have been provided in Appendix 14.1, and the residual effect remains 'not significant'.

	Negligible to Minor Adverse.	will be provided within the CEMP and DMP.			Changes in mitigation measures from the 2016 ES are due to updates to the guidance.
Ecological receptors (Generation and deposition of dust and PM_{10} arising from on-site construction activities)	The findings in the June 2016 ES were Negligible to Minor Adverse. The findings in this ES Addendum were Negligible to Major Adverse	Mitigation measures are provided in Appendix 14.1. Mitigation measures will be provided within the CEMP and DMP.	Condition	Negligible Not Significant	Potential Effect has been updated to Negligible to Major Adverse. Mitigation measures have been provided in Appendix 14.1, and the residual effect remains 'not significant' Changes in mitigation measures from the 2016 ES are due to updates to the guidance.
Change in local pollutant concentrations (NO_2 and PM_{10})	Negligible	Construction Logistics Plan	Condition	Negligible Not Significant	$PM_{2.5}$ has also been assessed in the ES Addendum.

generated from construction traffic and plant exhaust emissions					The residual effect remains 'not significant'.
Impacts on Local Air Quality	The findings in the June 2016 ES were Negligible. The findings in this ES Addendum remain Negligible.	N/A	N/A	Negligible Not Significant	No changes to the outcome of the assessment were identified, therefore the residual effect remains 'not significant'.

Summary

14.87 An air quality ES Addendum was prepared to assess the air quality impacts from the proposed development at Moneystone Park. The assessment considers the potential impact of the construction and operation of the proposed development with regard to the current relevant air quality objectives at identified existing sensitive receptors following updates to traffic data along with legislation, policy, guidance and modelling tools since the June 2016 ES.

14.88 A qualitative construction phase assessment was undertaken in accordance with the most recent version of the IAQM guidance and measures were recommended to minimise emissions during construction activities. With the implementation of these mitigation measures the impact of construction phase dust emissions is considered to be '**not significant**' in accordance with IAQM guidance and is in line with the June 2016 ES. However, there are updates to the mitigation measures in line with the IAQM guidance which will need to be considered within the Construction and Environmental Management Plan (CEMP) and Dust Management Plan (DMP) as presented in Table 14.1.5 and Table 14.1.6 in Appendix 14.1.

14.89 A detailed operational road traffic emissions assessment was undertaken to consider the impact of development-generated road traffic on local air quality at identified existing human receptor locations. Road traffic emissions were modelled using the dispersion model ADMS-Roads and concentrations of NO_2, PM_{10} and $PM_{2.5}$ were predicted at identified sensitive human receptor locations within the study area. Changes in pollutant concentrations between without Development and with Development scenarios were determined. The impact of the proposed development with regard to current relevant air quality objectives at existing sensitive human receptor locations for both the 2025 Opening Year and 2028 Completion Year, was predicted to be 'negligible' and '**not significant**' in accordance with IAQM and EPUK guidance.

14.90 Pollutant concentrations of NO_2, PM_{10} and $PM_{2.5}$ were all predicted to be below the relevant air quality objectives across the Site with the proposed development in place and therefore the Site was considered to be suitable for the proposed use with regard to the current relevant air quality objectives.

14.91 NOx concentrations at the Whiston Eaves SSSI were predicted to exceed the PC of 1% for both Scenario 4: 2025 Opening Year With Development and Scenario 6: Completion Year With Development, however neither location exceeded the Critical Level of 30µg.m^{-3}. Therefore, the impact of the proposed development at the Whiston Eaves SSSI was

predicted to be 'negligible' and '**not significant**' in accordance with Natural England guidance.

Chapter 14 Figures

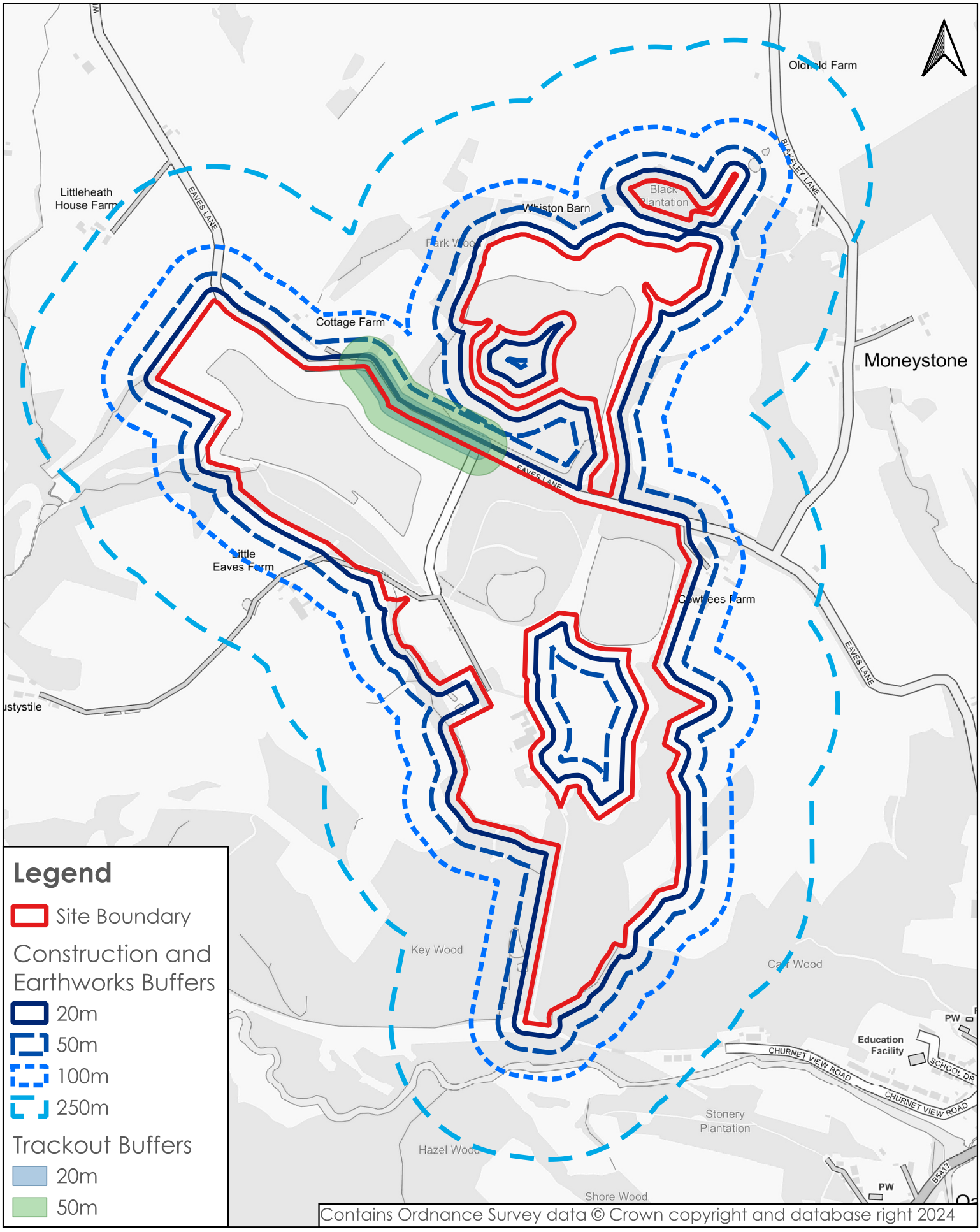

Figure 14.1 Constructon Phase Assessment Dust Distance Buffers

Drawn by: HL
Date: 16/08/2024

BWB
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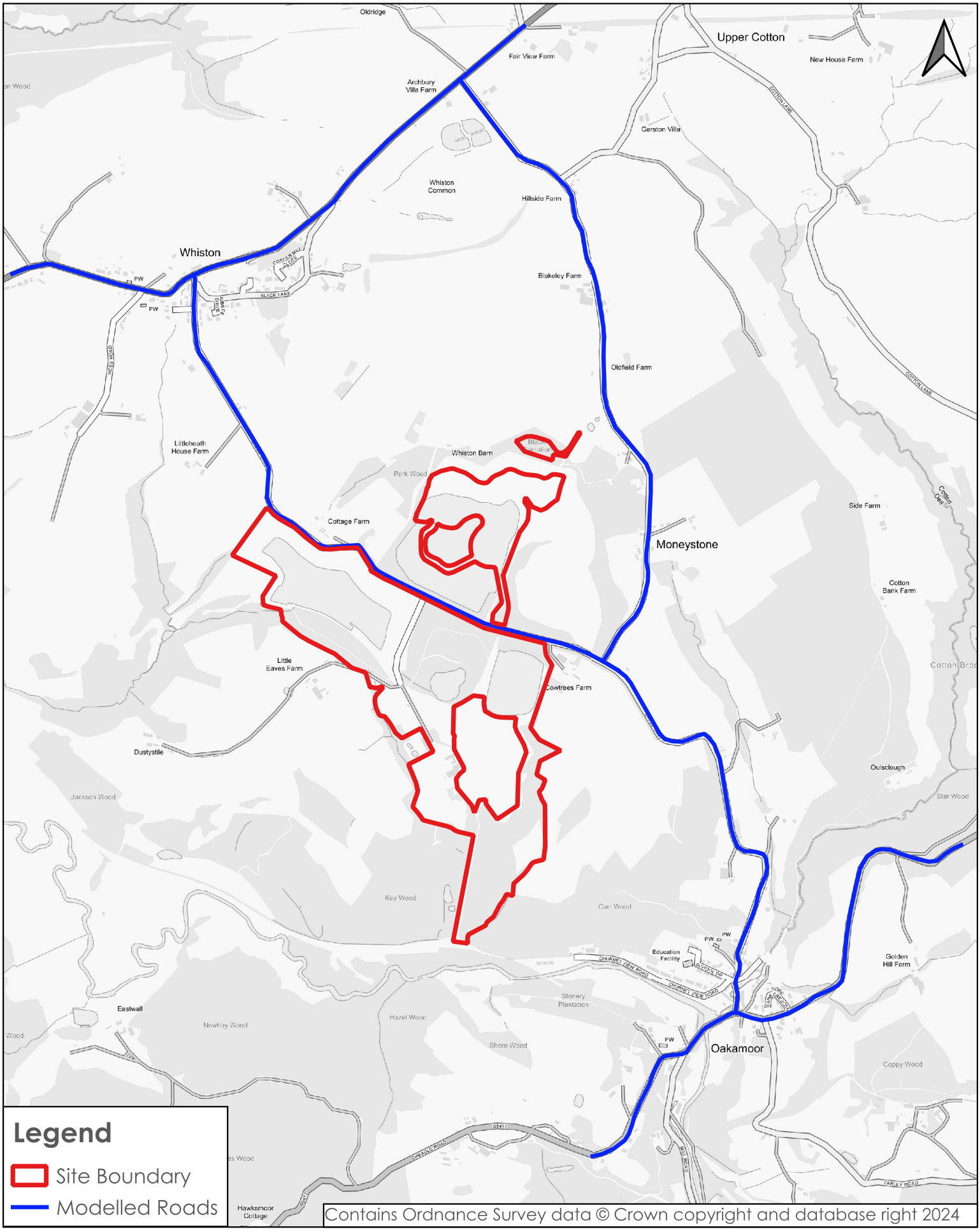

Figure 14.2: Road Links Near the Site Included in the ADMS-Roads Model

Drawn by: HL
Date: 16/08/2024

BWB
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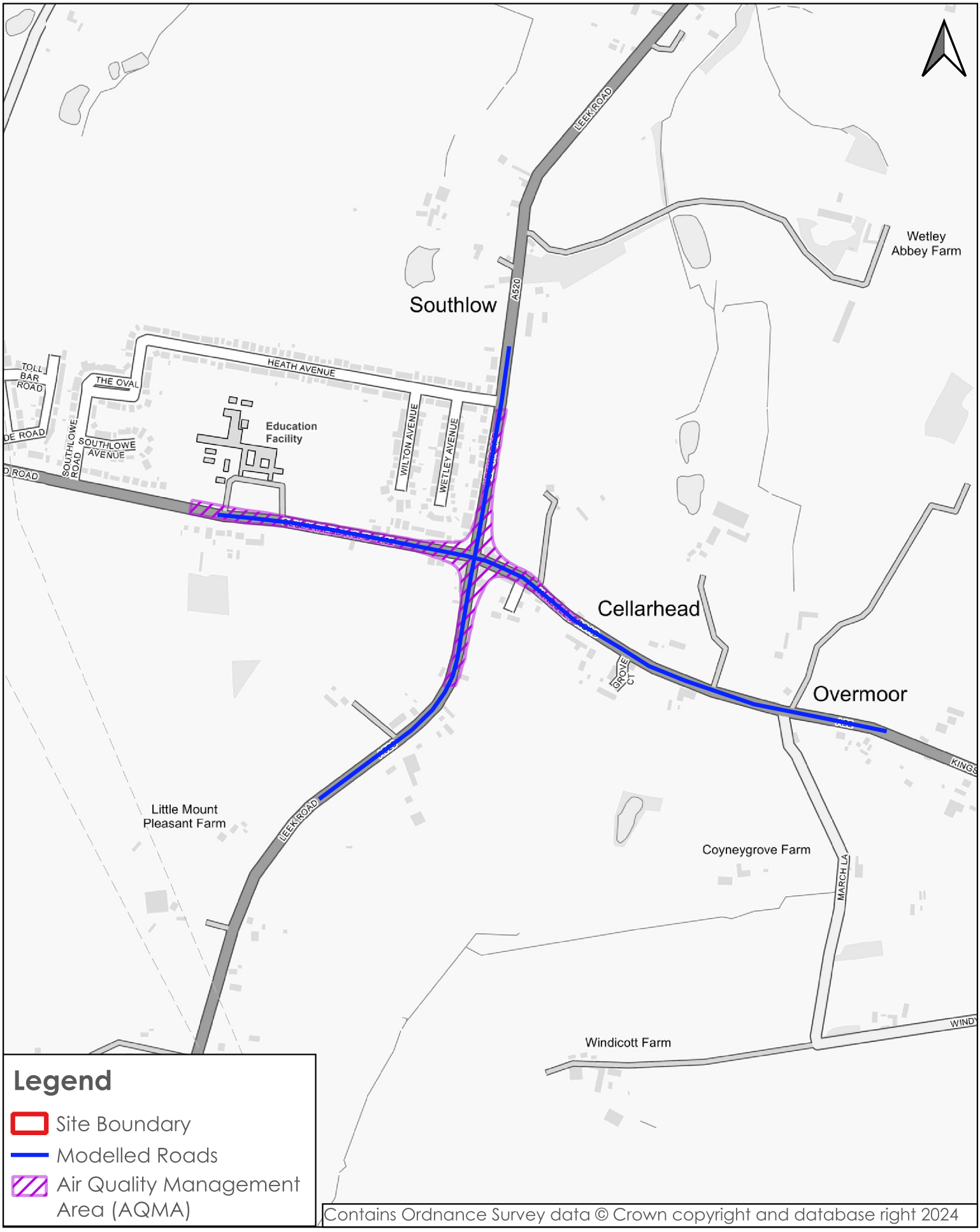

Figure 14.3: Road Links at the Cellarhead Junction Included in the ADMS-Roads Model

Drawn by: HL
Date: 16/08/2024

BWB
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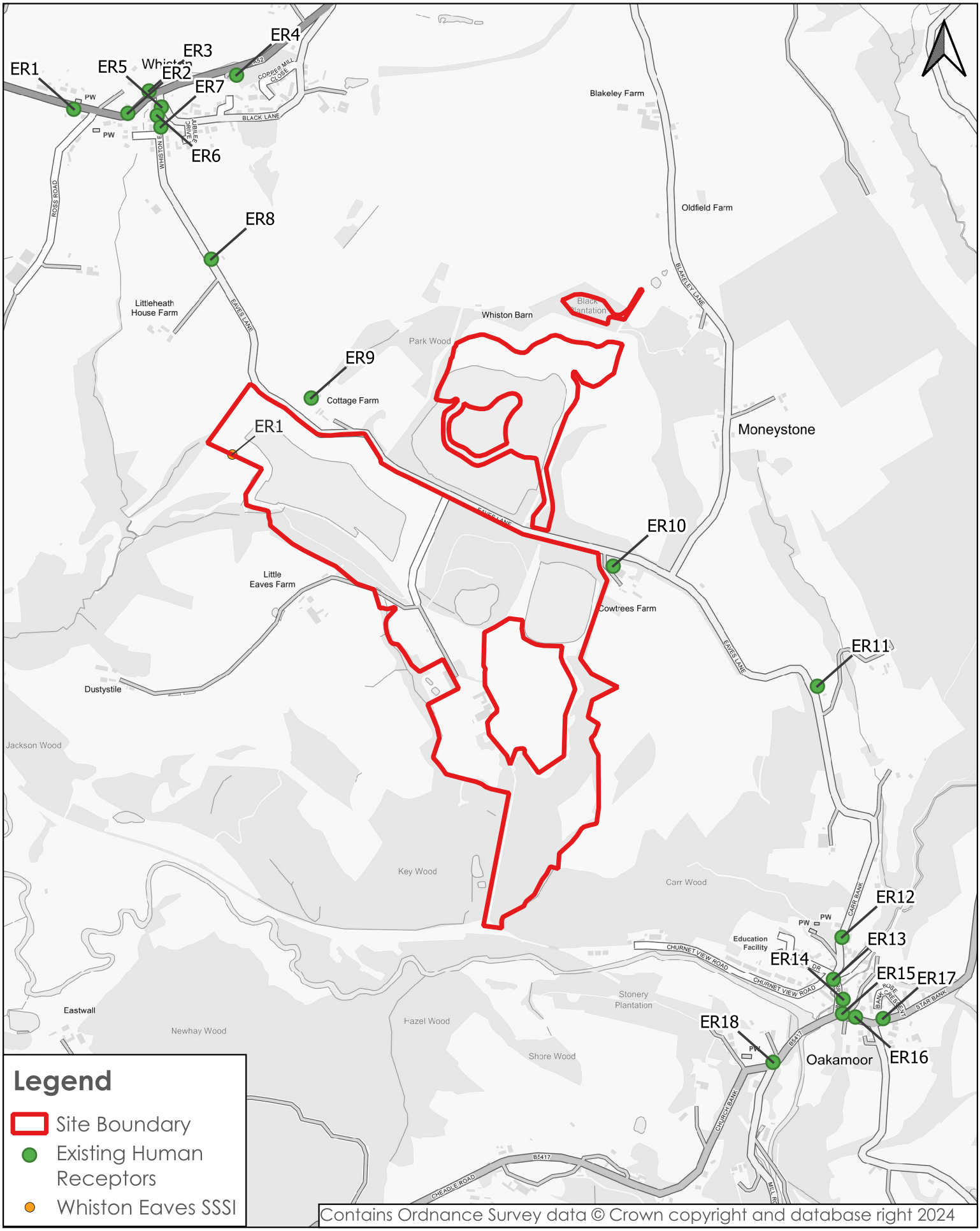

Figure 14.4: Existing Receptor Locations Near the Site

Drawn by: HL
Date: 16/08/2024

BWB
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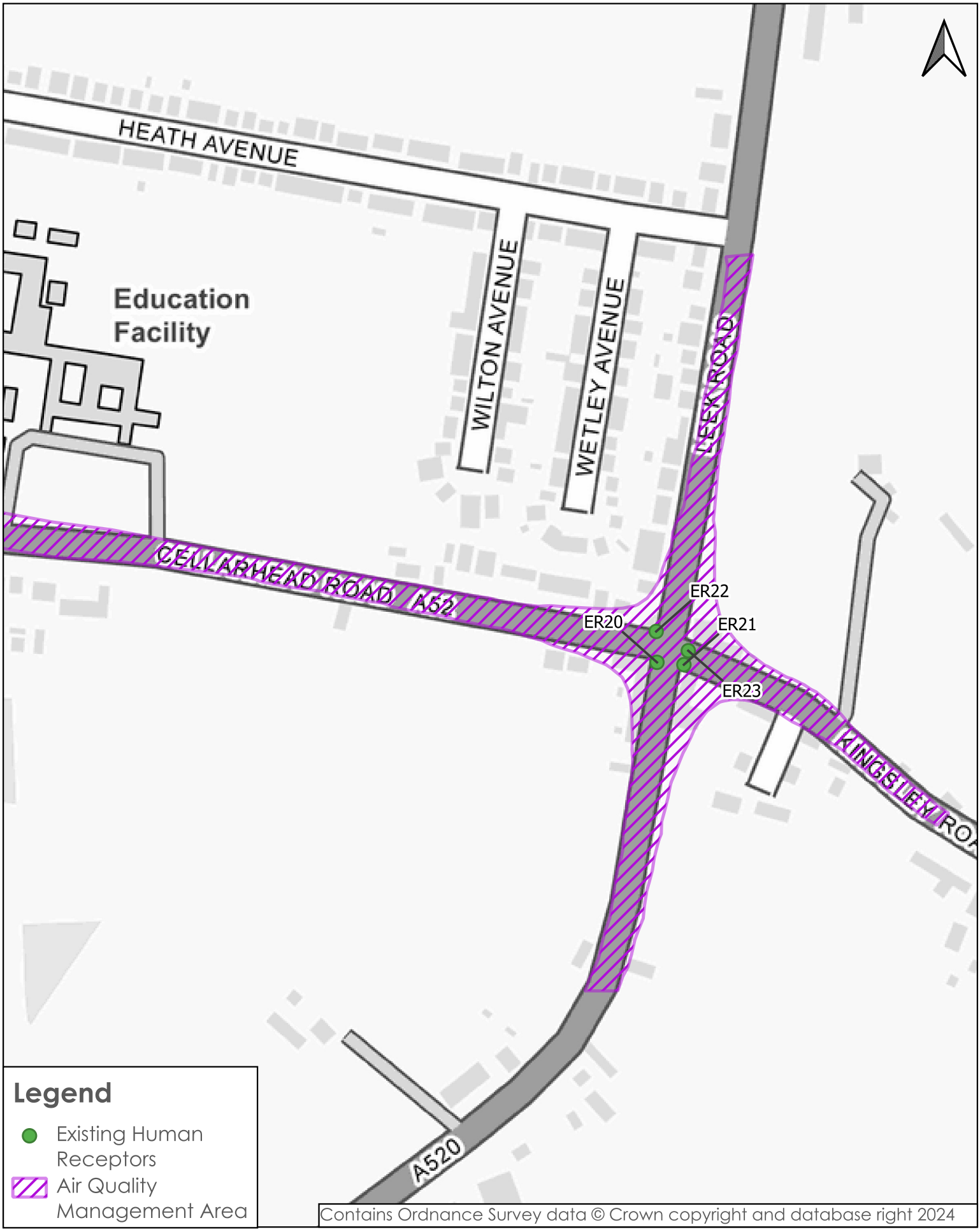

Figure 14.5: Existing Receptor Locations at Cellarhead Junction

Drawn by: HL
Date: 16/08/2024

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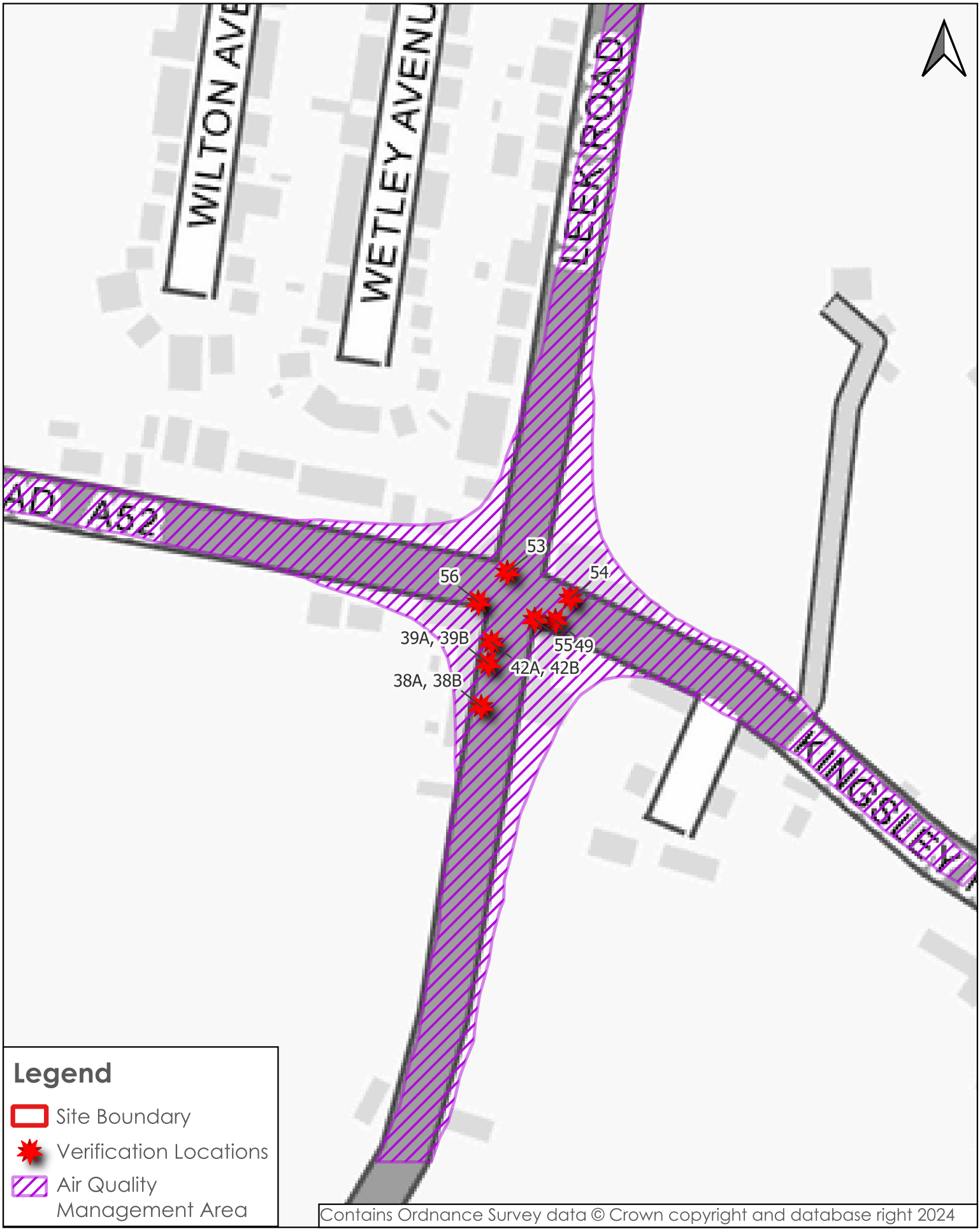

Figure 14.6: Monitoring Locations Utilised in the ADMS-Roads Model Verification Process

Drawn by: HL
Date: 16/08/2024

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15 NOISE AND VIBRATION

Introduction

15.1 This chapter assesses the potential effects of the Moneystone Park proposed development. Chapter 15 of the June 2016 ES comprised an assessment of the potential significant noise and vibration effects of the proposed development.

15.2 This Chapter provides an update to the previous noise and vibration assessment to identify any new or altered significant effects which could arise from that presented in the June 2016 ES. Where the assessment has not changed, it is referenced as such within this Chapter.

15.3 The approach to this assessment is set out within this Chapter and at Chapter 2 of the ES Addendum. This ES Addendum Chapter should be read in conjunction with Chapter 15 of the June 2016 ES submitted as part of the outline planning application (ref. SMD/2016/0378), which was approved in October 2016. The subsequent applications listed below are also considered as part of this assessment:

- Reserved Matters Application - SMD/2019/0646 (Appeal lodged May 2024)
    - May 2020 EIA Statement of Conformity (Avison Young)
- Water Outfall Application (SMD/2022/0014) (Approved November 2023)
    - December 2021 ES Addendum (Avison Young)
- Reserved Matters Application SMD/2023/0532 – (Awaiting determination)
    - October 2023 EIA Statement of Conformity (Asteer Planning)

15.4 Chapter 15 of the June 2016 ES has been written by WSP | Parsons Brinckerhoff.

15.5 Chapter 15 of this ES Addendum has been written by BWB Consulting.

Legislative and Policy Framework

15.6 A summary of where planning policy has been updated since submission of the June 2016 ES is presented below. Where planning policy presented in the June 2016 ES is not included it remains the same as was presented in the June 2016 ES. A summary of other relevant standards and guidance, as adopted as part of the completed assessment work, was presented in **Appendix 15.2** of the June 2016 ES. Where updates are required to this, this is presented within **Appendix 15.1**.

National Planning Policy Framework

15.7 The June 2016 ES references the National Planning Policy Framework (NPPF) published in March 2012. The NPPF was updated in December 2023. The June 2016 ES references paragraph 123 of the March 2012 NPPF, this has been updated to the text in paragraph 191 which states that:

"*Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

(a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life ;

(b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason"

15.8 As with the March 2012 version, the December 2023 also refers to the Explanatory Note to the Noise Policy Statement for England (NPSE), and the provisions of the Environmental Protection Act 1990 and other relevant law.

Local Planning Policy

15.9 The June 2016 ES references the Staffordshire Moorlands Core Strategy, this has been superseded by the Staffordshire Moorlands Local Plan adopted in September 2020.

15.10 Staffordshire Moorlands Local Plan

15.11 With specific reference to noise the Staffordshire Moorlands Local Plan states: in paragraph 7.18:

15.12 "*The NPPF directs Councils to proactively provide needed economic development - however decisions should ensure that new development is "appropriate for its location" in pollution/contamination terms; and more generally development should contribute to securing good standards of amenity and reducing pollution. On the other hand the NPPF recognises that industrial expansions resulting in 'some' additional noise should not be unfairly restricted. In accordance with the Government's noise policies including the Noise Policy Statement for England (NPSE) the Council will apply the principles in the following Policy to any development where pollution or contamination considerations may arise.*"

15.13 Additionally, it is stated in Policy SD4:

"*The Council will protect people and the environment from unsafe, unhealthy and polluted environments by ensuring proposals avoid potential adverse effects; and only permitting proposals that are deemed (individually or cumulatively) to result in pollution (including air/ water/ noise/ vibration/ light/ ground contamination) if after mitigation, potential adverse effects are deemed acceptable. This may be achieved by the imposition of planning conditions or through a planning obligation.*"

15.14 The Local Plan provides the following design considerations relating to noise:

15.15 "*All development shall be well designed and reinforce local distinctiveness by positively contributing to and complementing the special character and heritage of the area in line with the Council's Design Guide SPD. In particular, new development should:*

15.16 *(…) protect the amenity of the area, including creation of healthy active environments and residential amenity, in terms of satisfactory daylight, visual impact, sunlight, outlook, privacy, soft landscaping as well as noise, odour and light pollution*".

Assessment Approach

Scope of the Assessment

15.17 The scope of the assessment remains the same as the June 2016 ES.

Extent of the Study Area

15.18 The study area remains the same as the June 2016 ES.

Consultation

15.19 No additional consultation has been completed for this ES Addendum.

Method of Baseline Data Collation

15.20 Given the baseline sound survey for the June 2016 ES was completed in September 2014, an updated survey has been carried out to validate the findings of the original survey and ensure the assessment captures representative data of current conditions on the Site. The new noise survey exercise covered the same locations as used for the baseline sound survey carried out to inform the June 2016 ES.

15.21 The new baseline sound survey was completed between 26th July 2024 and 2nd August 2024. Measurements lasted at least two days at each measurement location.

15.22 Details of the Type 1 sound level monitoring equipment used during the survey are presented within Table 15.1. All sound level meters had been calibrated to traceable standards within the preceding two years and the hand held calibrators within the previous 12 months.

Table 15.1: Measurement Equipment

Equipment	Make and Model	Serial Number
Sound Level meter	01dB Fusion	14154
Sound Level meter	01dB Fusion	14156
Sound Level meter	01dB Fusion	14940
Calibrator	01 dB-Stell Cal 21	50241760

15.23 Weather conditions present during the noise measurement period were conducive to obtaining accurate and reliable measurements, being dry and calm (wind speeds below 5 m/s).

Identification of Sensitive Receptors

15.24 The sensitive receptors remain the same as identified in the June 2016 ES.

Significance Criteria

15.25 The significance criteria remain the same as the June 2016 ES.

Limitations to the Assessment

15.26 The limitations remain the same as identified in the June 2016 ES.

Baseline Conditions

15.27 An updated baseline survey has been completed from 26th July 2024 to 2nd August 2024 to form part of this ES Addendum.

15.28 The noise environment present within the vicinity of the Site predominantly consists of distant road traffic noise from the A52, intermittent road traffic noise from Eaves Lane and Blakely Lane, natural noise sources such as bird song and moving vegetation, and noise from agricultural activities. This is similar to the June 2016 ES, however on-site quarry activities were not identified at the measurement locations in the updated survey.

15.29 A summary of the measured daytime $LA_{eq,T}$ and night-time $LA_{eq,T}$ and L_{AFmax} noise levels recorded during the baseline noise survey is presented within Table 15.2 and Table 15.3.

Table 15.2: Summary of Daytime Baseline LAeq,16h Noise Measurement Results, 07:00 - 23:00, dB

Monitoring Location	Measured ambient sound level $L_{Aeq,16h}$
1	46
2	37
3	38
4	50
5	37
6	40

Table 15.3 Summary of Night time Baseline LAeq,8h and LAFmax Noise Measurement Results, 23:00 – 07:00, dB

Monitoring Location	Measured ambient sound level $L_{Aeq,8h}$	Typical L_{AFmax}*
1	36	52
2	37	54
3	38	55
4	42	55
5	37	55
6	40	59
* 10th highest L_{AFmax} noise event occurring in a typical night-time		

15.30 A detailed analysis of the measured $LA_{90,15\ minute}$ background noise levels obtained over the course of the survey has been undertaken in accordance with BS4142:2014+A1:2019. The full measurement results can be found in **Appendix 15.2**, with a summary of the determined background sound levels presented in Table 15.4.

Table 15.4 Representative Background Sound Levels, dB

Monitoring Location	Time period	Representative background sound level
1	Daytime (07:00 – 23:00)	28 dB $L_{A90,1h}$
	Night-time (23:00 – 07:00)	19 dB $L_{A90,15m}$
2	Daytime (07:00 – 23:00)	28 dB $L_{A90,1h}$
	Night-time (23:00 – 07:00)	21 dB $L_{A90,15m}$
3	Daytime (07:00 – 23:00)	27 dB $L_{A90,1h}$

	Night-time (23:00 – 07:00)	22 dB $L_{A90,15m}$
4	Daytime (07:00 – 23:00)	27 dB $L_{A90,1h}$
	Night-time (23:00 – 07:00)	20 dB $L_{A90,15m}$
5	Daytime (07:00 – 23:00)	29 dB $L_{A90,1h}$
	Night-time (23:00 – 07:00)	21 dB $L_{A90,15m}$
6	Daytime (07:00 – 23:00)	30 dB $L_{A90,1h}$
	Night-time (23:00 – 07:00)	23 dB $L_{A90,15m}$

15.31 The baseline noise measurements are broadly similar to those measured during the June 2016 ES. Current baseline noise levels within the locality of the site are low, generally consisting of natural noise sources, distant road traffic noise and intermittent road traffic noise from the local road network. Following full delivery of the site, it is not expected that the existing baseline noise environment will significantly change from that which is currently present.

Potential Impacts

Construction

Construction Noise Levels at Nearby Noise Sensitive Receptors

15.32 The construction noise predictions will remain the same as the June 2016 ES.

15.33 An updated earthworks sequence has been produced since the submission of the June 2016 ES. This has been reviewed and is in line with the assumptions made for the predictions in the June 2016 ES which represent a reasonable worst case for the construction works.

15.34 Following the updated baseline sound survey completed for this ES Addendum the same BS5228 ABC categories are assigned for each receptor. Therefore, the significance of effects remains as presented in the June 2016 ES.

Construction Vibration Levels at Nearby Vibration-Sensitive Receptors

15.35 The effects from construction vibration on nearby noise sensitive receptors remain the same as presented in the June 2016 ES.

Completed Development

Development Generated Road Traffic Noise on Existing Receptors

15.36 There has been no change in the road traffic expected to be generated by the proposed development and therefore it is considered that there is no change to the effects presented in the June 2016 ES.

Noise from Proposed Mechanical and Electrical Plant Items

15.37 The June 2016 ES has identified that as daytime background sound levels range between 23 and 28 dB $L_{A90,1h}$, whilst night-time levels range between 17 and 21 dB $L_{A90,15m}$ the background noise levels are low. Therefore, a proposed rating level limit of 35 dB $_{LAr,Tr}$ has been applied. In the updated 2024 survey the daytime background sound levels ranged from 27 to 30 dB $L_{A90,1h}$ and the night-time from 19 to 23 dB $L_{A90,15m}$. These are also considered low for the purposes of BS4142:2014+A1:2019 and so the same fixed limit of 35 dB $L_{Ar,Tr}$ can be applied as described in Table 15.10 of the June 2016 ES.

15.38 There has been no change to the effects presented in the June 2016 ES.

Existing baseline noise levels on proposed noise sensitive receptors

15.39 During attendance on site, it was noted that distant road traffic noise, agricultural activities and natural noise sources were the predominant noise sources.

15.40 In order to establish the suitability of the future on-site noise environment for the leisure aspects of the proposed development, it is necessary to establish the noise levels present across the Site. The Site has been assessed based on the noise survey measurement results obtained at Measurement Locations 1 – 5 (See Figure 15.1 in the June 2016 ES).

15.41 Table 15.1 and Table 15.2 present the daytime ($L_{Aeq,\ 16hour}$) and night-time ($L_{Aeq,\ 8hour}$) sound levels applicable at the Site. During the day, sound levels no greater than 50 dB $L_{Aeq,16h}$ have been measured. This sound level was measured at Measurement Location 4 adjacent to Crowtrees Farm / Eaves Lane. During the night sound levels no greater than 42 dB $L_{Aeq,8h}$ have been measured. This sound level was also measured at Measurement Location 4.

15.42 Based upon the night-time L_{AFmax} noise measurements recorded at Measurement Locations 1 - 5, L_{AFmax} noise levels are typically no greater than 59 dB during this period.

15.43 A summary of the internal noise criteria, the worst-case measured noise levels and the required noise level reductions is set out in Table 15.5.

Table 15.5 Existing Ambient Noise Levels and Required Sound Level Reduction for Holiday Cottages, dB

Time Period	Existing External Ambient Noise Level	Internal Target Noise Levels	Required Noise Level Reduction
Daytime ($L_{Aeq, 16\ hour}$)	50	35	15
Night-time ($L_{Aeq, 8\ hour}$)	42	30	12
Night-time ($L_{AF, max}$)	59	45	14

15.44 Existing noise levels present within and surrounding the site (even when considering worst case days / nights and locations) are relatively low. Furthermore, it is expected that the corresponding required noise level reductions can be achieved by adopting relatively standard façade construction components.

15.45 Considering the measured sound levels and the adopted assessment criteria presented within referenced guidance documents including the WHO guidelines and BS8233, the sensitivity of proposed Holiday Lodges is High, and the impact magnitude has the potential to be Low. Therefore, it is possible that a direct, permanent, long-term effect on proposed sensitive receptors of Minor adverse significance may arise prior to the implementation of mitigation.

Summary of Previous Assessments

15.46 The conclusions from the previous applications June 2016 ES, December 2021 ES Addendum, Phase 1 Reserved Matters (SMD/2019/0646), May 2020 EIA SoC and October 2023 EIA SoC are outlined below in Table 15.6.

Table 15.6: Summary of Previous Assessments

Previous Assessments
Outline Planning Application (SMD/2016/0378) – June 2016 ES
The June 2016 ES concluded, with respect to noise generated during the construction phase of the proposed development, it has been identified that significant effects have the potential to occur should piling activities be necessary at the closest site boundaries to existing noise sensitive receptors. A number of mitigation measures have been identified with a view to minimising the effects of any such works. Following implementation of the proposed mitigation measures residual noise effects are predicted to be of negligible significance. For groundborne vibration associated with site construction activities it has been identified that negligible to moderate adverse effects may arise in the absence of mitigation measures. However, following the implementation of appropriate control measures it is expected that residual effects of negligible to minor adverse significance would occur. Such effects will also be temporary in nature and will be dependent upon the precise operations undertaken at such locations. Vibration levels would be significantly below those required to generate even cosmetic building damage. An assessment of potential road traffic noise level changes from the proposed development on the local road network has identified that, for the majority of routes residual effects of negligible to minor adverse significance can be expected. The only exception is for residential receptors to the north of the site access on Eaves Lane for which an effect of Moderate significance at worst has been identified. However, when considering noise levels in absolute terms it is evident that measured / predicted noise levels are expected to be in the region of 50 dB L_{Aeq} or less described within BS8233: 2014 as being 'desirable'.

To reflect the application stage of this project, the assessment of noise from any proposed fixed and mechanical plant items has focussed on the determination of appropriate rating level limits for subsequent compliance with (which could be ensured through the use of appropriate planning conditions). Drawing on the results of the baseline noise survey, and the guidance contained within BS4142:2014, rating level limits have been specified, compliance with which would ensure a residual effect of Negligible significance. An assessment of noise effects during the operational phase has considered the impact of current ambient noise levels upon the noise sensitive aspects of the proposed development (holiday lodges). It has been identified that the prevailing noise environment across the proposed development site is generally low and therefore, noise levels can be appropriately controlled with the use of building fabric design. With such measures, internal noise levels can be controlled to within recognised criteria applicable to internal residential occupation. It has also been identified that external noise levels fall below those appropriate for the occupation of external living spaces, without need for further mitigation. Residual effects associated with the impact on the proposed development during the operational phase are therefore predicted to be Negligible.
Water Outfall Application (SMD/2022/0014) – December 2021 ES Addendum
The December 2021 ES Addendum stated, taking the June 2016 ES into consideration and the conditions on the 2016 decision notice, it is not considered any further updates to the noise and vibration assessment are necessary. The conditions and measures set out in the June 2016 ES provide sufficient environmental management and mitigation measures for the long-term protection of on and off-site receptors during the construction and operational phases of development. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the noise and vibration effects of the development.
Phase 1 Reserved Matters (SMD/2019/0646) – May 2020 EIA SoC
The May 2020 EIA SoC stated, taking the June 2016 ES into consideration and the conditions on the 2016 decision notice, it is not considered any further updates to the noise and vibration assessment are necessary. The conditions and measures set out in the June 2016 ES provide sufficient environmental management and mitigation measures for the long-term protection of on and off-site receptors during the construction and operational phases of development. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the noise and vibration effects of the development.

Phase 2 Reserved Matters (SMD/2023/0532) – October 2023 EIA SoC
Taking the June 2016 ES into consideration and the conditions on the 2016 decision notice, it is not considered any further updates to the noise and vibration assessment are necessary. The conditions and measures set out in the June 2016 ES provide sufficient environmental management and mitigation measures for the long-term protection of on and off-site receptors during the construction and operational phases of development. There are no proposed changes to the description of development or to the approved parameters. Therefore, the assessment of likely significant environmental effects remains as presented in the 2016 ES remains valid. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the noise and vibration effects of the development.

15.47 There are no additional significant effects to those presented in the June 2016 ES.

Mitigation, Enhancement and Residual Effects

15.48 The residual effects from the June 2016 ES are outlined below and have been confirmed if they have changed since the assessment was completed.

15.49 A series of conditions are attached to the 2016 outline planning permission, including:

- Condition 31 – Preparation of a scheme for the containment of operational noise at the site.
- Condition 32 – Noise insulation requirements for the lodges.
- Condition 33 – Restrictions on the amplification of music.
- Condition 34 – Preparation of a scheme setting out the plant to be installed at the site and any associated noise levels at sensitive receptors.
- Condition 35 – Preparation of a Construction Environmental Method Statement which includes noise and vibration mitigation measures set out within Chapter 15: Noise and Vibration of the June 2016 ES.

Table 15.7: Residual Effects

Description of Effect	Potential Effect (inc. Significance)	Additional Mitigation / Enhancement Measures	How are Additional Mitigation / Embedded Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
Construction Noise Levels at Nearby Noise-Sensitive Receptors	Negligible to Moderate Adverse	The June 2016 ES lists Best Practicable Means construction mitigation to be adopted. The measures will be included within a Construction Environmental Management Plan (CEMP) (supported by Condition 35)	Condition.	Negligible Not Significant	No change.
Construction Vibration Levels at Nearby Vibration-	Negligible to Moderate Adverse	The June 2016 ES lists physical and operational measures in order to reduce the potential effects resulting from	The measures will be included within a Construction Environmental	Negligible to Minor Adverse Not Significant	No change.

Sensitive Receptors		construction generated vibration.	Management Plan (CEMP).		
Development Generated Road Traffic Noise on Existing Receptors	Negligible to Moderate Adverse	The June 2016 ES states that mitigation is not warranted as the moderate adverse effect is at one property only and the predicted noise levels are within the range described by BS8233: 2014 as being 'desirable' within external areas used for amenity space.	N/A	Negligible to Moderate Adverse	No change.
Noise from Proposed Mechanical and Electrical Plant Items	Negligible	No additional mitigation required.	N/A	Negligible Not Significant	No change.
Existing baseline noise levels on proposed noise	Minor Adverse	The June 2016 ES lists appropriate acoustic attenuation measures, to provide a commensurate	The mitigation will be included in the design of the holiday lodges.	Negligible Not Significant	No change.

sensitive receptors		level of protection against noise for future occupants of proposed holiday lodges which may experience worst case measured noise levels (supported by Condition 32)			

Summary

15.50 For this ES Addendum an updated baseline sound survey has been completed and a review of updates to guidance since the submitted June 2016 ES has been carried out. The assessment has then been updated where necessary.

15.51 No changes have been identified in relation to the potential significant effects presented in the June 2016 ES.

15.52 No mitigation measures have been identified in addition to those already considered in the June 2016 ES.

15.53 No significant change to the derived residual significant effects presented in the June 2016 ES has been identified.

16 WASTE

Introduction

16.1 This chapter assesses the potential effects of the Moneystone Park proposed development. Chapter 16 of the June 2016 ES comprised an assessment of the potential significant effects of the proposed development on Waste effects.

16.2 This Chapter provides an update to the previous Waste assessment to identify any new or altered significant effects which could arise from that presented in the June 2016 ES. Where the assessment has not changed, it is referenced as such within this Chapter.

16.3 The approach to this assessment is set out within this Chapter and at Chapter 2 of the ES Addendum. This ES Addendum Chapter should be read in conjunction with Chapter 16 of the June 2016 ES submitted as part of the outline planning application (ref. SMD/2016/0378), which was approved in October 2016. The subsequent applications listed below are also considered as part of this assessment:

- Reserved Matters Application - SMD/2019/0646 **(Appeal lodged May 2024)**
    - May 2020 EIA Statement of Conformity (Avison Young)

- Water Outfall Application (SMD/2022/0014) **(Approved November 2023)**
    - December 2021 ES Addendum (Avison Young)

- Reserved Matters Application SMD/2023/0532 – **(Awaiting determination)**
    - October 2023 EIA Statement of Conformity (Asteer Planning)

16.4 Chapter 16 of the June 2016 ES was written by WSP | Parsons Brinckerhoff and Chapter 16 of this ES Addendum has been written by Asteer Planning.

Legislative and Policy Framework

National Planning Policy

NPPF (2023)

16.5 The NPPF was revised in December 2023 and sets out the government's planning policies for England and how these are expected to be applied. Since the June 2016 ES the NPPF still does not provide specific guidance on waste and specifically states:

"*The Framework should be read in conjunction with the Government's planning policy for traveller sites, and its planning policy for waste. When preparing plans or making decisions*

on applications for these types of development, regard should also be had to the policies in this Framework, where relevant."

Waste Management Plan for England (2021)

16.6 The June 2016 made reference to the Waste Management Plan for England (2013)[30] which has since been superseded by the Waste Management Plan for England (2021)[31]. The 2021 plan does not introduce new policies or change how waste is managed in England. Its aim is to bring current waste management policies together under one national plan, simply superseding the 2013 plan which superseded the 2007 plan.

16.7 The 2021 plan still contains the UK target under the Waste Framework Directive of recovering at least 70% by weight, of construction and demolition waste by 2020. The latest figures available show, in 2020, England and the UK achieved estimated 93.20% and 92.60% recovery rates[32] of construction and demolition waste, respectively. As with the June 2016 ES, the mitigation measures implemented for the proposed development by the Principal Contractor will have to keep this commitment in mind.

Local Planning Policy

Staffordshire Moorlands Local Plan (2020)

16.8 The Staffordshire Moorlands Core Strategy, previously considered within the June 2016 ES, was replaced in 2020 by the Staffordshire Moorlands Local Plan (2020). Policy SD 1 Sustainable Use of Resources in the local plan is relevant to this assessment:

"…

6. The Council will encourage developers to investigate the potential for re-using construction or construction waste materials, especially those sourced locally (which can include those minerals available on site, as appropriate) and integrates where possible on-site waste management facilities."

[30] Defra (2013) Waste Management Plan for England, Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/265810/pb14100-waste-management-plan-20131213.pdf
[31] Defra (2021) Waste Management Plan for England, Available at: https://assets.publishing.service.gov.uk/media/60103f71d3bf7f05bc42d294/waste-management-plan-for-england-2021.pdf
[32] ENV23 – UK statistics on waste (https://www.gov.uk/government/statistical-data-sets/env23-uk-waste-data-and-management)

Assessment Approach

Consultation

16.9 No additional consultation was required for this assessment.

Assessment of Significance

16.10 There are no changes to the assessment methodology since the June 2016 ES.

Limitations to the Assessment

16.11 No additional limitations to the June 2016 ES are identified.

Baseline Conditions

Construction Waste

16.12 The June 2016 ES utilised a 2005 survey[33] which was commissioned by the Department for Communities and Local Government (DCLG) and provided the most recent and comprehensive nationwide dataset currently available and offered an indicative assessment of methods used to manage inert Construction, Demolition & Excavation waste within the region. This has not been updated since, so this ES Addendum therefore considers the benchmarks to be representative.

Cut and Fill

16.13 Cut and fill exercises will be required, however the recontouring of the site will take place in accordance with the Moneystone Earthworks Proposed Phase 1 sequencing (Table E3 Earthworks Sequence). No importing or exporting of material is required given that the earthworks sequence has determined that a cut and fill balance can be achieved.

Household Waste

16.14 Defra statistics[34] highlight the average reuse, recycled / composted within SMDC slightly has increased in the years following the submission of the June 2016 ES, see Table 16.1.

[33] DCLG (2005) Survey of Arisings and Use of Alternatives to Primary Aggregates in England, 2005 Construction, Demolition and Excavation Waste
[34] Defra (2024) - Local authority collected waste management - annual results. Access: https://www.gov.uk/government/statistics/local-authority-collected-waste-management-annual-results

Table 16.1: Household waste figures for SMDC, in comparison to England average

Period	Household Waste	
	Reuse, Recycled / composted in SMDC	Average recycled / composted in England
2022-2023	53.2%	40.7%
2021-2022	54.5%	41.5%
2020-2021	57.7%	41.3%
2019-2020	56.4%	42.8%
2018-2019	56%	42.7%
2017-2018	56%	42.3%
2016-2017	57.4%	42.7%

16.15 The average household waste generation for Staffordshire Moorlands has minimally increased, the estimated mean waste generation per household per annum (tonnes) was 0.89 in the June 2016 ES which and is now 0.90, see Table 16.2.

Table 16.2: Average household waste generation for Staffordshire Moorlands

Total household waste generated within Staffordshire Moorlands in 2022-23 (tonnes)[31]	38,326
Total number of households within SMDC boundary [35]	42,355
Estimated mean waste generation per household per annum (tonnes)	0.90

Commercial Waste

16.16 The June 2016 ES utilised regional data which was published in 2010 outlining the West Midlands region generated 5.25 million tonnes of commercial (and industrial) waste in 2009.

16.17 It is not anticipated that the amount of commercial waste, on a regional scale, has changed to a degree in which there would be significant effects as a result of the proposed development.

[35] Office for National Statistics: Staffordshire Moorlands Local Authority 2021 Census Area Profile. https://www.nomisweb.co.uk/sources/census_2021/report?compare=E07000198#section_7

Assessment of Likely Significant Effects

16.18 The conclusions from the previous applications June 2016 ES, December 2021 ES Addendum, Phase 1 Reserved Matters (SMD/2019/0646), May 2020 EIA SoC and October 2023 EIA SoC are outlined below in Table 16.3.

Table 16.3: Summary of Previous Assessments

Previous Assessments
Outline Planning Application (SMD/2016/0378) – June 2016 Outline ES
The June 2016 ES stated the assessment of waste impacts has taken into account the generation of waste of both the construction and operation of the development. Once appropriate controls such as a SWMP and the sorting and recycling of waste are taken into account the impacts on waste generation have been evaluated to be of negligible to minor significance.
Water Outfall Application (SMD/2022/0014) – December 2021 ES Addendum
The December 2021 Addendum stated, taking the June 2016 ES into consideration, it is not considered any further updates to the waste assessment is considered necessary. The conditions and measures set out in the June 2016 ES provide sufficient environmental management and mitigation measures for the long-term protection of on and off-site receptors during the construction and operational phases of development. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the waste effects of the development
Phase 1 Reserved Matters (SMD/2019/0646) – May EIA 2020 SoC
The May 2020 SoC stated Taking the June 2016 ES into consideration and the condition 25 on the 2016 decision notice, it is not considered any further updates to the waste assessment is considered necessary. The conditions and measures set out in the June 2016 ES provide sufficient environmental management and mitigation

measures for the long-term protection of on and off-site receptors during the construction and operational phases of development. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the waste effects of the development.
Phase 2 Reserved Matters (SMD/2023/0532) – October 2023 EIA SoC
The October 2023 SoC stated the conditions and measures set out in the June 2016 ES provide sufficient environmental management and mitigation measures for the long-term protection of on and off-site receptors during the construction and operational phases of development. There are no proposed changes to the description of development or to the approved parameters. Therefore, the assessment of likely significant environmental effects remains as presented in the 2016 ES remains valid. Overall, it is considered that the June 2016 ES remains valid and is adequate to assess the waste effects of the development.

16.19 There are no additional significant effects to those presented in the June 2016 ES.

Mitigation, Enhancement and Residual Effects

16.20 The residual effects from the June 2016 ES are outlined below and have been confirmed if they have changed since the assessment was completed.

16.21 A series of conditions are attached to the 2016 outline planning permission one of which is relevant to this chapter:

- Condition 48 - No development shall commence until a Site Waste Management Plan has been submitted to and approved in writing by the Local Planning Authority.

Table 16.4: Residual Effects

Description of Effect	Potential Effect (inc. Significance)	Mitigation / Enhancement Measures	How are Additional Mitigation / Embedded Mitigation / Enhancement Measures secured?	Residual Effect (inc. Significance	Confirmation on whether the assessment has changed from previous ES
Construction					
Construction Waste	Minor Adverse	Best practice measures and recommendations for the minimisation and management of waste will be incorporated into a CEMP and a Site Waste Management Plan (Supported by Condition 48). All construction works will be undertaken in accordance with the Considerate Constructors Scheme.	Condition	Negligible to Minor Not Significant	No Change

Completed Development					
Operational Waste Arisings	Minor Adverse	Design measures including: Access to both internal and external refuse and recycling storage facilities; Containers will be located within the curtilage of each holiday lodge, easily accessible for both patrons and collection crews; The non-residential type elements of the proposed development will be provided with dedicated or shared waste storage areas to facilitate the segregation of recyclable materials; Retailers and commercial tenants will be encouraged to undertake their own 'waste audit' and create an Action Plan to set targets for preventing, reducing, reusing and recycling their waste streams;	Design	Negligible Not Significant	No Change

		It is assumed that collection of commercial waste will be undertaken via external waste management contractors. It will be the responsibility of the occupiers to arrange for refuse and recycling to be collected from their premises; The frequency of waste collection will be dependent upon several factors including the volume of waste generated; the storage method used; and the schedule of the appointed waste contractor; The opportunity for the segregation and off-site composting of organic waste generated from any landscaping and grounds maintenance activities will be provided by the external company contracted to undertake this work.			

Summary

16.22 For this ES Addendum a review of updates to guidance since the submitted June 2016 ES has been carried out. The assessment has then been updated where necessary.

16.23 No changes have been identified in relation to the potential significant effects presented in the June 2016 ES.

16.24 No mitigation measures have been identified in addition to those already considered in the June 2016 ES.

16.25 No significant change to the derived residual significant effects presented in the June 2016 ES has been identified.

17 CLIMATE CHANGE

Introduction

17.1 This chapter reports an assessment of the likely significant effects of the Moneystone Park proposed development on the global atmosphere through the emission of Greenhouse Gases (GHGs). The chapter is also supported by a Climate Change Resilience Risk Assessment, provided in Appendix 17.1, which sets out an assessment of the proposed development's resilience and adaptation to climate change. The chapter and supporting appendices have been prepared by Buro Happold.

17.2 This chapter describes the assessment methodology; the baseline conditions; the mitigation measures required to prevent, reduce or offset any significant adverse effects; and the likely residual effects after these measures have been employed. This assessment has been undertaken in line with the Institute of Environmental Management and Assessment (IEMA) Guide to Assessing GHG Emissions and Evaluating their Significance 2nd Edition (2022).

17.3 The Climate Change Resilience Risk Assessment, provided in Appendix 17.1, sets out an assessment of the Proposed Development's resilience and adaptation to climate change. This assessment follows a risk assessment approach, rather than a traditional assessment of effect significance. This assessment has been undertaken in line with the methodology advocated in the IEMA Guide to Climate Change Resilience and Adaptation 2nd Edition (2020).

17.4 Whilst this chapter forms part of the ES Addendum, it comprises a full additional chapter to the June 2016 ES. As outlined in Chapter 2 of this ES Addendum, the 2017 EIA Regulations, which came into force following submission of the June 2016 ES, introduced the requirement to consider Climate Change as a topic in the EIA process for the first time. Therefore, this is a new chapter which assesses the outline planning application (ref. SMD/2016/0378), which was approved in October 2016 and the subsequent applications listed below have also been considered as part of this assessment:

- Reserved Matters Application - SMD/2019/0646 (Appeal lodged May 2024):
    - May 2020 EIA Statement of Conformity (Avison Young);
- Water Outfall Application (SMD/2022/0014) (Approved November 2023):
    - December 2021 ES Addendum (Avison Young);
- Reserved Matters Application SMD/2023/0532 – (Awaiting determination):

- October 2023 EIA Statement of Conformity (Asteer Planning);

17.5 This chapter is supported by the following appendices:

- Appendix 17.1 Greenhouse Gas Calculation Inputs; and
- Appendix 17.2 Climate Change Resilience Risk Assessment.

Legislative and Planning Policy Context

Legislation

Paris Agreement 2015

17.6 Negotiations at the Conference of the Parties (COP) 21 led to the 2015 Paris Agreement, the aim of which is to maintain the increase in global average temperature at 'well below' 2oC and 'pursue efforts' to limit the temperature increase even further to 1.5oC.

17.7 A total of 160 parties, including the UK, made voluntary pledges to reduce emissions by 2030, however the cumulative effect of these would still lead to an estimated 3oC of warming or greater.

The Special Report on Global Warming of 1.5oC, International Panel on Climate Change (IPCC) 2018

17.8 The IPCC published a special report in response to the Paris Agreement, to present the impacts of the targeted 1.5oC temperature rise. The report highlighted that to achieve this, global emissions must decrease by 45% by 2030 (against a 1990 baseline), and that net zero global emissions (where emissions and removals from the atmosphere are balanced) must be achieved by 2050. This is noted to require rapid and far-reaching transitions of every sector on an unprecedented scale.

The Climate Change Act (2008) & The Climate Change Act 2008 (2050 Target Amendment) Order 2019

17.9 To support international efforts, the UK Climate Change Act set a legal GHG target for the year of 2050 for the reduction of GHG emissions. The target set by this Act is ‘at least 80% lower than the 1990 baseline’ by 2050.

17.10 The Act introduced a series of carbon ‘budgets’ to be implemented for succeeding five-year periods to gradually result in an overall reduction in GHGs.

17.11 In June 2019 the Climate Change Act was amended to set the overall reduction target by 2050 to ensure that the net UK carbon account is lower than the 1990 baseline.

17.12 According to the most recent Progress in reducing emissions (2021 Report to Parliament) the 'UK's record to date is strong in parts' (having outperformed its first and second budgets), '*but it has fallen behind on adapting to the changing climate and has not yet provided a coherent plan to reduce emissions in the critical decade ahead*'. Section 56 of the Climate Change Act requires the UK Government to undertake a Climate Change Risk Assessment (CCRA) on a five-yearly cycle, with the subsequent development of an adaptation programme to deliver resilience against these risks. This act stipulates that the Government must assess '*the risks for the United Kingdom from the current and predicted impacts of climate change*'.

Carbon Budgets Order

17.13 A series of Orders set the carbon budget for these five year budgetary periods. These carbon budgets set a cap on the maximum level of the net UK carbon 'account' for each five-year budgetary period. The net UK carbon account is defined in section 27 of the Climate Change Act 2008.

17.14 There are budgets currently set up to 2037. The UK is currently in the fourth carbon budgetary period (2023 - 2027), the budget for which is 1,950 MtCO2e. The UK cannot legally emit more GHGs than this within this budgetary period. The future carbon budgets set are:

- 2023–2027: 1,950 MtCO2e;
- 2028-2032: 1,725 MtCO2e; and
- 2032-2037: 965 MtCO2e.

17.15 Whilst budgets are not set beyond this, there is a legal requirement for the UK to reach 0 MtCO2e by 2050.

UK Climate Change Risk Assessment (HM Government, 2022)

17.16 The third and most recent UK-wide CCRA was published in 2022. The document sets out the risks identified and assessed in eight priority risk areas, which are as follows:

- Risks to the viability and diversity of terrestrial and freshwater habitats and species from multiple hazards (Priority Risk Area 1);
- Risks to soil health from increased flooding and drought (Priority Risk Area 2);
- Risks to natural carbon stores and sequestration from multiple hazards, leading to increased emissions (Priority Risk Area 3);

- Risks to crops, livestock and commercial trees from multiple climate hazards (Priority Risk Area 4);
- Risks to supply of food, goods and vital services due to climate-related collapse of supply chains and distribution networks (Priority Risk Area 5);
- Risks to people and the economy from climate-related failure of the power system (Priority Risk Area 6);
- Risks to human health, wellbeing and productivity form increased exposure to heat in homes and other buildings (Priority Risk Area 7);
- Multiple risks to the UK from climate change overseas (Priority Risk Area 8); and
- Additional More Action Needed Risks.

National Planning Policy

National Planning Policy Framework

17.17 The NPPF states the following in relation to GHG emissions:

'In determining planning applications, local planning authorities should expect new development to:

Comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and

Take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.'

17.18 Section 14 of the NPPF focuses on meeting the challenge of climate change, flooding and coastal change. New developments should be planned in ways that:

'Avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure.'

Any Other Relevant National Planning or Development Strategies

National Planning Practice Guidance (NPPG) (DLUHC (formerly MHCLG), 2023)

17.19 The Climate Change Guidance states the importance of planning to consider climate change:

'Effective spatial planning is an important part of a successful response to climate change as it can influence the emission of greenhouse gases. In doing so, local planning authorities should ensure that protecting the local environment is properly considered alongside the broader issues of protecting the global environment. Planning can also help increase resilience to climate change impact through the location, mix and design of development.'

The Building Regulations Part L 2021 Edition

17.20 Building regulations Part L1A and Part L2A set out minimum legal requirements for energy efficiency in residential (Part L1A) and non-residential (Part L2A) building construction. These regulations are typically updated every 3 years with new minimum performance benchmarks set. The proposed development will have to comply with the relevant version of Part L.

17.21 An additional update was issued in February 2023; however, the modifications made within this update are not relevant to the assessment reported in this ES chapter.

Net Zero Strategy: Build Back Greener

17.22 On 20 April 2021, the UK Government announced that it 'will set the world's most ambitious climate change target' to reduce emissions by 78% by 2035 compared to 1990 levels as part of its sixth carbon budget.

17.23 The Net Zero Strategy identifies the following commitments:

- Delivering a decarbonised power system by 2035;
- An ambition for 5 GW UK low carbon hydrogen production capacity by 2030;
- Ambition to deliver 6 MtCO2 per year of industrial Carbon Capture, Utilisation and Storage (CCUS) by 2030, and 9 MtCO2 per year by 2035;
- Making the transition to low carbon buildings affordable and achievable for all by:
    - Aiming to phase out the installation of new and replacement natural gas boilers by 2035;

- Making heat pumps as cheap to buy and run as a gas boiler by growing the heat pump market to support 600,000 installations per year by 2028 and expanding UK manufacturing;

- Consulting on phasing out the dirtiest and most expensive fossil fuels first – new oil, coal and liquefied petroleum gas heating - and replace with low carbon alternatives in non-domestic buildings from 2024 and homes from 2026, following natural appliance replacement cycles; and

- Ensure the UK's charging infrastructure network is reliable, accessible, and meets the demands of all motorists.

Local Planning Policy

Staffordshire Moorlands District Council, The Adopted Local Plan 2014 – 2033

17.24 Policy SD 1 Sustainable Use of Resources:

"The Council will require all development to make sustainable use of resources, and adapt to climate change. This will be achieved by:

- *Having regard to the BMV agricultural classification of the land, with a preference for the use of lower quality over higher quality agricultural land. Development should also aim to minimise soil disturbance and to retain ecological connectivity as far as possible;*

- *Supporting or promoting proposals that remediate brownfield sites affected by contamination;*

- *Re-use of sites affected by mining activity will be supported, provided that any mining legacy is appropriately addressed and it can be demonstrated that the site is safe and stable for the development proposed;*

- *Supporting development that is located and designed to minimise energy needs and to take advantage of maximised orientation (subject to design and landscape policies) to achieve energy savings in line with Policy SD;*

- *The Council will require applicants for all major-scale planning applications (10 or more residential units or 1,000+ square metres floor area) to demonstrate that they have considered the energy efficiency, water conservation, sourcing of construction materials, and site orientation aspects of the scheme, and where possible the feasibility of integrating micro-renewables. The degree of detail expected will depend on the scale/complexity of the proposal; and*

- *The Council will encourage developers to investigate the potential for re-using construction or construction waste materials, especially those sourced locally (which can include those minerals available on site, as appropriate) and integrates where possible on-site waste management facilities.*"

17.25 Policy SD 2 Renewable/Low-Carbon Energy:

"The Council will strive to meet part of the District's future energy demand through renewable or low-carbon energy sources (which could be through a variety of technologies, for example solar energy, biomass etc), in line with current evidence which identifies the feasibility of these forms of energy across the District. The Council will assess wind turbine schemes in line with the Government's specific policy on wind turbines. For all other forms of renewable energy the Council will support small- and large- scale stand alone renewable or low-carbon energy schemes subject to the following considerations:

- *the degree to which the scale and nature of a proposal impacts on the landscape, particularly having regard to relevant Landscape Character evidence and impact on the Peak District National Park (taking into account both individual and cumulative effects of similar proposals);*

- *the degree to which the developer has demonstrated any environmental/economic/social benefits of a scheme, as well as how any environmental or social impacts have been minimised (e.g. visual, noise or smell);*

- *the impact on designated sites of European (or successor), national and local biodiversity and geological importance in accordance with policy NE 1;*

- *the impact on the amenity of residents and other interests of acknowledged importance, including the historic environment;*

- *the degree to which individual proposals reflect current local evidence regarding the feasibility of different types of renewable or low-carbon energy at different locations across the District;*

- *in the case of solar energy proposals that are not affixed to buildings or structures, applicants will be expected to demonstrate that they have examined whether previously developed land is available before greenfield land. Where agricultural land is proposed, poorer quality land should be utilised before higher quality agricultural land.*"

17.26 Policy SD 3 Sustainability Measures in Development:

"The Council will support further carbon-saving or water-saving measures in both new and existing developments, in the following ways:

- *Supporting developers who propose exceeding the thermal efficiency or water conservation standards required by law for new buildings or extensions, at the time of the application. In the case of larger developments such as housing estates the Council will support measures such as 'communal' renewables, or District Heating installations.*
- *The Council will support measures by landowners/developers designed to contribute to existing or emerging District Heating networks (for example by connecting 'exporters', with receptors, of heat).*
- *The Council will support measures designed to improve the sustainability of existing buildings (such as improved thermal insulation, water conservation, or the installation of micro-renewables).*"

Other Relevant Policy, Standards and Guidance

IEMA EIA Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance 2nd Edition (IEMA, 2022)

17.27 This is the second edition of the IEMA EIA Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance, published in 2022, which replaces the previous edition, published in 2017 (hereafter referred to as the 'IEMA GHG Guidance'). The guidance sets out a best practice methodology for assessing the GHG emissions from a proposed development, across its lifecycle, including the assessment of effect significance.

17.28 The guidance document advises that "*GHG emissions should be assessed and reported as part of a good practice approach to EIA."* It provides the following justification for this position:

- *"All projects create GHG emissions that contribute to climate change;*
- *climate change has the potential to lead to significant environmental effects; and*
- *there is a GHG emission budget that defines a level of dangerous climate change whereby any GHG emissions within that budget can be considered as significant.*"

17.29 The document states that the following factors should be considered when determining a proportionate approach to the assessment of GHG emissions in EIA:

- "*The type, size, location and temporal scale of the proposed project;*

- *Whether other assessment work has already considered life cycle GHG emissions;*
- *Whether mitigation has already been agreed with the design team, particularly if this is beyond minimum policy requirements;*
- *Whether the proposed project has specific goals or aspirations (e.g. achieving BREEAM certification)"*

17.30 One of the major updates in this version of the guidance is that the recommended methodology now gives greater prominence to the consideration of mitigation in the assessment. It is no longer an element to be considered in the later stages of the EIA process but should rather be considered at the outset and throughout the project's lifetime. The approach to the assessment of effect significance now also includes a consideration of mitigation at its core.

IEMA EIA Guide to: Climate Change Resilience and Adaptation (IEMA, 2020)

17.31 This version of the IEMA EIA Guide to: Climate Change Resilience and Adaptation was published in 2020. It provides a framework for the effective consideration of climate change resilience and adaptation in the EIA process. This version replaces the previous version from 2015, with multiple updates made to reflect lessons learnt from emerging practice.

BS EN 15978 Sustainability of Construction Works – Assessment of Environmental Performance and Buildings – Calculation Method (BSI, 2011)

17.32 The purpose of this standard is to provide a consistent framework for the assessment of lifecycle GHG emissions from new and existing buildings. This follows a modular approach, breaking down the lifecycle of the development into the product stage, the construction stage, the in-use stage, the end-of-life stage, and elements beyond the building lifecycle.

Royal Institution of Chartered Surveyors (RICS) Whole Life Carbon Assessment for the Built Environment (RICS, 2023)

17.33 This guidance document aims to harmonise whole life carbon assessment by applying consistency to the interpretation and implementation of the methodology BS EN 15978 to achieve coherent and comparable results that can be used to benchmark whole lifecycle carbon performance of built assets across the industry.

UK Green Building Council (UKGBC) Embodied Carbon: Developing a Carbon Brief (UKGBC, 2017)

17.34 This document provides guidance on writing effective briefs for commissioning embodied carbon measurements and provides extensive information on the latest applications, standards and tools.

Waste and Resource Action Programme (WRAP) Cutting Embodied Carbon in Construction Projects (WRAP, 2011a)

17.35 This guidance document helps designers identify basic cost-effective actions to reduce the carbon impact of the materials used in construction projects.

WRAP Procurement Requirements for Carbon Efficiency (WRAP, 2011b)

17.36 This guidance document helps to set requirements for 'carbon efficiency' for low-carbon building projects and estates management when procuring design, construction, refurbishment and facilities management services for existing and new buildings.

Greater London Authority Construction Scope 3 (Embodied) Guidance on Greenhouse Gas Accounting and Reporting (GLA, 2013)

17.37 Although the proposed development is not located in London, this accounting and reporting guidance written for the Greater London Authority provides information on best practice that is relevant across the UK. The guidance contains a series of recommendations to improve the understanding and consistency of the accounting and reporting of embodied emissions within the construction sector from cradle-to-grave. The document provides guidance on how to carry out calculations to measure the embodied carbon impact of buildings.

Mayor of London Whole Life-Cycle Carbon Assessments Guidance (GLA, 2022)

17.38 Draft London Plan Policy SI 2 sets out a requirement for developments in London to calculate and reduce whole lifecycle carbon emissions. The guidance explains how the assessment of these carbon emissions should be approached and presented. Although the proposed development is not located in London, the best practice approach set out in the guidance is relevant across the UK.

Low Energy Transformation Initiative (LETI) Embodied Carbon Primer (LETI, 2020).

17.39 The Embodied Carbon Primer offers supplementary guidance to that already set out in the Climate Emergency Design Guide, for those exploring embodied carbon in more detail. There is a current lack of knowledge in the built environment industry surrounding embodied carbon reduction strategies and calculations. Therefore, the London Energy Transformation Initiative has produced this document to help project teams design

buildings that deliver ambitious embodied carbon reductions. Although the proposed development is not located in London, the best practice approach set out in the guidance is relevant across the UK.

LETI Climate Emergency Design Guide (2020)

17.40 The Climate Emergency Design Guide provides developers, designers and policy makers with a methodology to ensure that new developments meet the requirement for climate targets. It covers 5 key areas: operational energy, embodied carbon, the future of heat, demand response and data disclosure

ISO 14090:2019 Adaptation to Climate Change – Principles, Requirements and Guidelines (BSI, 2019)

17.41 The main purpose of this standard is to provide organisations and projects with a consistent, structured and pragmatic approach to prevent or minimise the harm that climate change could cause and also to take advantage of opportunities.

C40 Cities Climate Change Risk Assessment Guidance (C40 Cities, 2017)

17.42 This document aims to provide concise, easy-to-digest guidance, to help authorities responsible for city regions to undertake a climate risk assessment. It provides the methodology and components of the assessment, as well as a comprehensive list of possible effects relating to climate change.

Staffordshire Moorlands District Council, Growth Strategy for Staffordshire Moorlands

17.43 The Growth Strategy for Staffordshire Moorlands is a joint initiative between Staffordshire Moorlands District Council and Staffordshire County Council. The Strategy sets out a plan for sustainable growth and identifies development opportunities in the District for the next 15 years. It demonstrates the partners' commitment to regeneration as well as to the delivery of the Local Plan.

Assessment Methodology and Significance Criteria

Identification of the Study Area

17.44 GHG emission impacts and resulting effects are global. As such, the spatial scope of the assessment is global.

17.45 In line with the advice provided in the IEMA GHG Guidance, the proposed development's GHG emissions have been considered in the context of both the UK national carbon budgets and recommended energy-only carbon budgets for Staffordshire Moorlands. Further information is set out in the sections below.

Site Survey

17.46 No site survey has been undertaken as part of this assessment and is not considered necessary.

Assessment Methodology

Overview

17.47 The metric for assessing the climate change impacts of GHG emissions in this assessment is Global Warming Potential (GWP). This is expressed in units of CO2 equivalent (CO2e) over 100 years. This allows for the emissions of the seven key GHGs: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF3) and sulphur hexafluoride (SF6) expressed in terms of their equivalent global warming potential in mass of CO2e.

17.48 There is currently no standard methodology for quantifying GHG emissions within the EIA process. The IEMA GHG Guidance instead advocates for flexibility and proportionality to suit the specific development being assessed.

17.49 A GHG emissions assessment typically covers the whole life of a development. This can be broken down into 'lifecycle stages' or 'modules' of the proposed development, as set out in BS EN 15978 Sustainability of Construction Works - Assessment of Environmental Performance of Buildings - Calculation Method, as shown in Figure 17.1.

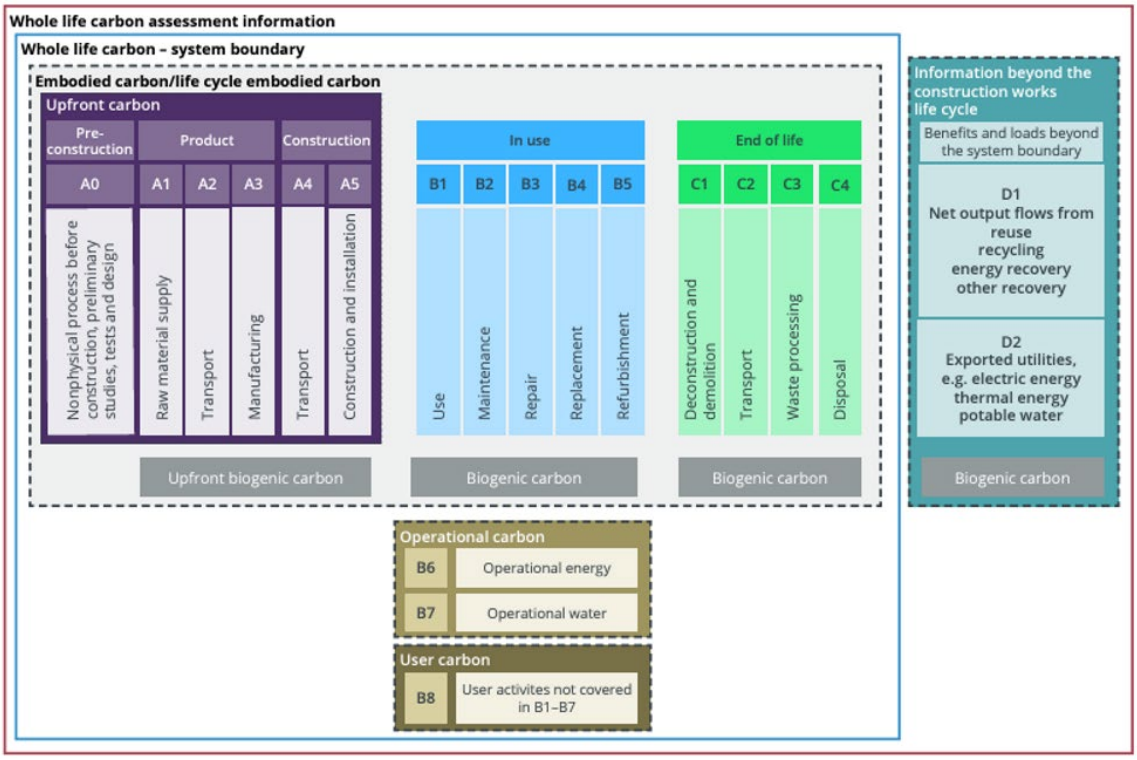

Figure 17.1 Diagram showing the stages of a lifecycle GHG emissions assessment, taken from Whole Life Carbon Assessment for the Built Environment (RICS, 2023), based on lifecycle stages set out in EN 15643:2021, EN 15978 and more.

17.50 All activities within lifecycle stages A, B and C have been included in this assessment. Any activities that have been excluded are explained and justified in the 'Sources of GHG emissions excluded from the assessment' section, included later in the methodology section of this part of the chapter. The assessment has taken into account the design detail currently available.

17.51 GHG emissions caused by an activity are often categorised into 'scope 1'. 'scope 2' or 'scope 3', following the guidance of the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Protocol suite of guidance documents (WRI and WBSCD, 2014).

17.52 The ES chapter does not refer to scope 1, 2 and 3 emissions throughout, instead referring to emissions by lifecycle stage. However, the following section provides an overview of which scope the assessed emissions fall within.

17.53 Scope 1 emissions include direct emissions from owner or controlled sources. With respect to the proposed development, this may include:

- Emissions from fleet vehicles e.g. heavy goods vehicles (HGV's).

17.54 Scope 2 emissions include indirect emissions from purchased energy. With respect to the proposed development this may include:

- Electricity, steam, heat or cooling generated offsite, purchased and consumed by the proposed development.

17.55 Scope 3 emissions include indirect value chain emissions, resulting from the activities of assets not controlled or owned by the proposed development occurring before or after they have control of an asset. With respect to the proposed development this may include:

- Upstream emissions related to the purchase of required goods and services; and
- Downstream emissions related to goods leaving the proposed development.

17.56 For the purpose of this assessment, in line with the principles set out in BS EN 15978, a Reference Study Period (RSP) of 60 years after opening (the opening year) has been used. For the purpose of the assessment, decommissioning has been assumed to take place in the final year of the RSP. However it should be noted that the Applicant does not necessarily propose to decommission the development at the end of this 60 year period.

Baseline GHG Emissions

17.57 The baseline is a reference point against which the effects of the proposed development can be compared. The IEMA GHG Guidance states that '*the ultimate goal of establishing a baseline is being able to assess and report the net GHG impact of the proposed project*.'

17.58 The only building currently occupying the site is an old office building, which is not currently operational. Given that no operations or activities are currently taking place at the site, the baseline GHG emissions are assumed to be zero.

17.59 Should the proposed development not come forward, for the purposes of this assessment, it is assumed that the current site activities and their associated annual GHG emissions would continue throughout the 60 year reference study period (RSP). As such, the future annual baseline GHG emissions are also considered to be zero.

Construction Stage GHG Emissions

17.60 Based on the criteria set out in Figure 17.1, the assessment of the construction stage takes into account the following sources of GHG emissions:

- A1-A3 Product stage: GHG emissions associated with the material extraction, transportation and manufacturing of construction products.; and

- A4-A5 Construction process stage: GHG emissions associated with product delivery to site and the installation process..

17.61 Embodied carbon associated with the construction stage of the proposed development has been estimated by applying appropriate embodied carbon benchmarks from various industry sources, based on proposed floor areas and building typologies. The benchmarks have been taken from the Atkins Carbon Critical Tool, WRAP Embodied Carbon Database, the University of Washington Embodied Carbon Benchmark Study, and the Building Research Establishment Green Guide. These are considered the best publicly available benchmarks at present. Further information on these benchmarks and how they have been applied in the assessment is provided in Appendix 17.1.

Operational Stage GHG Emissions

17.62 Based on the criteria set out in Figure 17.1, the assessment of the operational stage takes into account the following sources of GHG emissions:

- B1-B5 In-use stage: This stage captures GHG emissions associated with the operation of the built assets over their period of use, from practical completion to the end of their service life, including use, maintenance, repair, refurbishment and replacement. Embodied carbon associated with these activities has been estimated by applying appropriate embodied carbon benchmarks from various industry sources, based on proposed floor areas and building typologies. Further information on these benchmarks and how they have been applied in the assessment is provided in Appendix 17.1.

- B6 Operational energy: GHG emissions associated with the estimated total operational energy. Design emission rates ($kgCO_2e/m^2$) per square metre of floor area have been applied to the estimated floor area of the proposed lodge buildings, hub building, and activity building based on values from the Energy Strategy. In regard to the proposed lodges, the strategy outlines Building Emission Rates for two scenarios: one with an Air Source Heat Pump (ASHP) and no photovoltaic panels (PVs) and one with an all electric solution, with PVs. For this assessment, the figures for the ASHP solution without PVs scenario have been used to ensure the assessment is based on a worst-case scenario.

Energy use intensity per square metre of floor area has been applied to the floor area of the proposed watersports building, based on an energy use intensity figure provided separately by the project energy consultant, Futureserv. The BEIS Greenhouse Gas Reporting Conversion Factors 2023 have then been used to calculate the GHG emissions associated with the energy use of the building.

The proposed archery building is less than 50 sqm in floor area and is therefore exempt from the requirements of Approved Document Part L. Any operational energy emissions from this building are expected to be extremely low and, as such, operational energy emissions from this building have been scoped out of the assessment.

17.63 Further information on these figures and how they have been applied in the assessment is provided in Appendix 17.1.

- B7 Operational water: GHG emissions associated with operational water consumption and foul water. Estimated water occupancy of the proposed building typologies has been based on benchmarks set out in BREEAM UK New Construction, Version 6.1 (2023), and estimated water consumption has been established based on benchmarks set out in the Building Services Research and Information Association (BSRIA) BG 85/2024 Mechanical Criteria. Estimated foul water has been assumed to be equal to water consumption, in line with project experience. The BEIS Greenhouse Gas Reporting Conversion Factors 2023 have been used to calculate GHG emissions from operational water consumption. Additional information on the assumptions that have been made is provided in Appendix 17.1.

- Operational transport emissions, which are not included in Figure 17.1, have also been included in the assessment, due to the substantial role they play in the UK's total GHG emissions. Surface transport is the largest source of GHG emissions in the UK, accounting for 24% of 2019 emissions according to the Committee on Climate Change (2020). The GHG emissions associated with vehicles travelling to and from the proposed development during the operational stage have been estimated by applying a Department for Business, Energy & Industrial Strategy (BEIS) emissions factor for average vehicle use, to trip numbers provided by the project transport consultant, and an indicative trip distance figure, estimated by the Department for Transport. These emissions factors include wheel to tank emissions as well as tail pipe emissions. The number of HGV movements associated with the proposed development will be negligible, thus the assessment has only considered emissions expected to be generated by cars. Additional information on the assumptions that have been made is provided in Appendix 17.1.

Decommissioning Phase GHG Emissions

17.64 Based on the criteria set out in Figure 17.1, the assessment of the decommissioning stage takes into account the following sources of GHG emissions:

- C1-C4 End of Life Stage: GHG emissions associated with the demolition and disassembly of the proposed development at the end of its life. GHG emissions associated with this stage have been estimated by applying appropriate benchmarks from various industry sources, based on the proposed floor areas and building typologies. Further information on the assumptions that have been made when calculating the estimated GHG emissions from the decommissioning stage is provided in Appendix 17.1.

Sources of GHG emissions excluded from the assessment

17.65 The IEMA guidance states that '*certain life cycle modules (or stages) can be excluded if these exclusions are clearly highlighted and justified by the practitioner using professional judgement and in accordance with the materiality and cut-off guidance*.' The following sources of GHG emissions have been excluded from the scope of the assessment:

- Operational waste: The opportunities for design and construction decisions to significantly influence the reduction of GHG emissions associated with operational waste are low as it is highly dependent on occupant behaviour and waste processing at the city scale by the Local Authority. The emissions associated with operational waste are also not expected to be material in scale such that they could influence the overall significance of effects, and have therefore been scoped out;

- Carbon sequestration from green infrastructure: GHG emissions associated with carbon sequestration from proposed green infrastructure would be low relative to the total GHG emissions over the life of the proposed development. They would also ultimately reduce the emissions from the proposed development, rather than increase them. On the basis that the emissions would be small and would lead to an overall reduction in emissions, excluding them from the assessment is considered conservative and robust; and

- Module D: Beyond Asset Life Cycle' Stage: the 'Beyond Asset Life Cycle' stage, encompasses emissions associated with activities beyond the site boundary and life cycle of the proposed development. This module relates to the repurposing of discarded building elements or any energy recovered from beyond a project's lifecycle. Reliable information about how the components of the scheme could potentially be repurposed following its demolition at the end of its life is not currently available. Given

that Module D lies outside the proposed development's lifecycle and only covers GHG emissions that could potentially be avoided as a result of repurposing of discarded materials, it is considered that the proposed assessment of Modules A to C (only) comprises a conservative assessment. On this basis, consideration of Module D has not been included in the scope of the assessment.

- Inter-project cumulative effects: The atmospheric concentration of GHGs and the resulting effects on climate change are affected by all sources (anything emitting GHG) and sinks (anything absorbing GHG) globally, anthropogenic or otherwise. As GHG emission effects are global rather than affecting one localised area, the approach to the assessment of cumulative effects for GHGs differs to the approach used for other EIA topics, where only projects within a specific radius of the application site would be included. As stated in the IEMA Guidance, the effects of GHG emissions from specific 'cumulative schemes' should not be individually assessed, as there is no basis for selecting any particular cumulative scheme for assessment over any other. The Guidance goes on to advise that the contextualisation of GHG emissions should incorporate by its nature the cumulative contributions of other GHG sources which make up that context. An inter-project cumulative effects assessment has therefore not been undertaken on a specific cumulative scheme basis; however, the proposed development's GHG emissions have been considered in the context of both the UK national carbon budgets and the Tyndall Centre recommended energy only carbon budgets for Staffordshire Moorlands. As such, the cumulative contributions of other GHG sources that make up the national and Staffordshire Moorlands contexts have been considered within the assessment.

Consideration of Scope 3 emissions

Background

17.66 As previously stated, this Climate Change ES Addendum chapter has been undertaken in line with the IEMA Guidance and other best practice industry guidance. With some minor exceptions set out in the section above, the assessment has included a consideration of all scope 1, 2 and 3 GHG emissions from all activities within lifecycle stages A, B, and C of relevance to the proposed development, as set out in the Whole Life Carbon Assessment for the Built Environment (RICS, 2023) (the 'RICS 2023 Guidance') and BS EN 15978 Sustainability of Construction Works - Assessment of Environmental Performance of Buildings - Calculation Method ('BS EN 15978') guidance. This includes the following scope 3 emissions:

- Operational transport emissions associated with site visitors during the operational phase.

The IEMA Guidance advocates for flexibility and proportionality to suit the specific development being assessed. The guidance states that '*certain life cycle modules (or stages) can be excluded if these exclusions are clearly highlighted and justified by the practitioner using professional judgement and in accordance with the materiality and cut-off guidance.*' The sources of GHG emissions excluded from the assessment have been excluded on this basis.

17.67 The recent Supreme Court judgement on the application of Finch (on behalf of the Weald Action Group) v Surrey County Council and others (judgement given on 20 June 2024) has raised implications for the assessment of scope 3 emissions from development projects in the EIA process, potentially requiring the consideration of additional indirect emissions that do not, to date, require consideration under the relevant industry good practice guidance, including the IEMA GHG Guidance, the RICS 2023 Guidance and BS EN 15978.

Finch (on behalf of the Weald Action Group) v Surrey County Council Supreme Court judgement

17.68 In the case, the Supreme Court considered whether, under the EIA Directive and the EIA Regulations 2017, it was lawful for Surrey County Council to grant planning permission for the expansion of an oil drilling facility in the Surrey Hills where the EIA for the project had only considered emissions from sources within the control of the developer (scope 1 emissions). The EIA had not considered emissions arising as a consequence of the activities at the site – specifically from future combustion by downstream users of the fuel into which the extracted oil would be refined (scope 3 emissions).

17.69 In its decision, the Supreme Court unanimously rejected the approach taken by the Court of Appeal – that it was for a local authority to determine whether there was a "*sufficient causal connection*" between the project and the scope 3 emissions. The majority of the Court considered that scope 3 emissions were effects of the project (because it was an agreed fact that the oil would be refined; burnt as fuel and release greenhouse gases). The Council's failure to take this into account meant that the planning permission granted was unlawful. The appeal was therefore allowed.

17.70 Some of the core considerations that led to this judgement included:

- The EIA Directive and EIA Regulations 2017 require an assessment of *"likely"* effects. In this case, it was not only likely, but *"inevitable",* that the extraction of oil would lead to combustion and the emission of greenhouse gases into the atmosphere;

- Although the terms *"direct"* and *"indirect"* are not defined in the legislation itself, the European Commission's Guidance for use by EIA practitioners states that an *"indirect effect"* was one which occurred *"away from the immediate location or timing of the proposed action"*. The judge therefore concluded that scope 3 emissions are indirect effects of the operation of the scheme; and

- The Directive does not impose a geographical limit on the scope of the environmental effects of a project. The majority therefore considered that there was *"no justification"* for limiting the EIA in this case to emissions which only occurred at the site. Further, it would not have been in keeping with the challenge posed by climate change to have approached the matter in this way.

17.71 In the judgment, Lord Leggatt confirmed that these requirements should apply to projects such as this, where the fossil fuel commodity being extracted will not be used in the creation of a different type of object. There should be an *"inevitable pathway from extraction to combustion*", with no "*element of conjecture or speculation*" about what will ultimately happen to the commodity. "*It is agreed that it will inevitably be burnt as fuel. And a reasonable estimate can readily be made of the quantity of GHGs which will be released when that happens.*" As advised by the judge, this would therefore apply to projects such as oil extraction and coal mining projects but would not apply to projects such as facilities to manufacture iron or steel or to manufacture motor vehicle or aircraft components.

17.72 In the case of steel, the judge advised that it has "*many possible uses and can be incorporated into many different types of end product used for all sorts of different purposes. In the case of a facility to manufacture steel, it could reasonably be said that environmental effects of the use of products which the steel will be used to make are not effects of manufacturing the steel. That is because the manufacture of the steel is far from being sufficient to bring about those effects. Such effects will depend on innumerable decisions made 'downstream' about how the steel is used and how products made from the steel are used. This indeterminacy regarding future use would also make it impossible to identify any such effects as "likely" or to make any meaningful assessment of them at the time of the decision whether to grant development consent for the construction and operation of the steel factory.*"

17.73 In the case of manufacturing components for use in the construction of motor vehicles or aircraft, the judge advised that "*where a component is manufactured which forms a small part of a much larger object, such as a motor vehicle or aircraft, the view might reasonably be taken that the contribution of the component is not material enough to justify attributing the impact on the environment of the end product to the activity of manufacturing the component part. In any event, the number of motor vehicles or aircraft in which such parts will be incorporated and the use which will subsequently be made of them may be so conjectural that no realistic estimate could be made of GHG emissions arising from such use on which a reasoned conclusion could be based. I have discussed above that the EIA process does not require that attempts be made to measure or assess putative effects which are incapable of such assessment.*"

Implications for GHG Emissions Impact Assessments in EIA

17.74 Based on this judgement, it is considered that any additional assessment of upstream and downstream scope 3 GHG emissions in EIA, beyond those already recommended in current industry guidance, should be limited to situations where:

- The likely use of any products from the proposed development or likely nature/type and scale of any other upstream or downstream activities related to the proposed development can reasonably be determined, such that realistic estimates can be made of the GHG emissions arising from them; and

- In line with good EIA practice, where it is considered proportionate to scope them in (e.g. when they are expected to make a material contribution to a likely significant environmental effect).

17.75 Upstream scope 3 GHG emissions that did not require consideration in EIA, as set out in the industry guidance documents previously referenced, but which could now potentially require consideration, in line with the recent supreme court judgement, could include:

- GHG emissions associated with the manufacture of the plant and machinery used to construct the proposed development; and

17.76 Any plant and machinery used in the demolition and construction of the proposed development would not be manufactured and used solely for the proposed development. Each item of construction plant or machinery would typically be used in the construction of numerous other development projects over a number of years. The proportion of any embedded GHG emissions associated with the manufacture of such plant and machinery that could be attributed to the proposed development is therefore likely to be small. Given

the uncertainty regarding the type, quantity, and design life of the various items of plant and equipment that would be used in the demolition and construction process, it would also be extremely difficult to realistically estimate their embedded GHG emissions and what proportion could be attributed to the proposed development. On this basis, and given that GHG emissions from this source are not expected to be material in scale such that they could influence the overall significance of effects of the proposed development, this source has been scoped out.

17.77 As the proposed development, once complete and operational, is not expected to produce any 'products', no additional downstream scope 3 GHG emissions that have not already been scoped into the assessment, in line with the industry good practice guidance documents previously referenced, have been identified. As such, no additional downstream scope 3 GHG emissions have been considered in the assessment.

17.78 On this basis, the assessment methodology employed in this ES Addendum chapter is considered to align with the recent Finch (on behalf of the Weald Action Group) v Surrey County Council Supreme Court judgement.

Programme

17.79 It is anticipated that construction works will commence at the beginning of 2025, and final completion is expected at the end of 2027. It is anticipated that the proposed development will become operational at the beginning of 2028. Table 17.1 sets out the anticipated timing for the phases of development from the commencement of the construction phase to decommissioning of the proposed development, for the purposes of the assessment.

Table 17.1 Anticipated timing for the phases of development

Phase	Timing
Construction of the Proposed Development	2025-2027 (36 months)
Operation commences for the Proposed Development	2028-2088 (60 years)
Decommission of the Proposed Development	2088 (<1 year)

17.80 Both the baseline and proposed development GHG emissions have been assessed from the commencement of construction works in 2025 to the end of the 60 year RSP period, in 2088 (measured from completion of the construction works).

17.81 For this assessment, the operational stage GHG emissions have been distributed over the entire 60 year period, from 2028 to 2088. For the purposes of the assessment, it has also been assumed that the decommissioning will take place in 2088. With the assumption that both operational and decommissioning emission will occur in 2088, our approach is considered conservative.

Emissions factors

17.82 Emissions factors have been applied for energy use for the in-use stage (lifecycle stages B1-B5 and B6 (the water sports building)), and the end of life stage (C1-C4). BEIS 2023 Electricity Marginal Emissions factors to 2100, kgCO2e/kWh have been used.

17.83 The BEIS emissions factors applied 'include transmissional and distribution losses, including significant losses due to power station inefficiency'. They also assume that the power sector will change to 'meet the UK's targets for National Determined Contributions (NDC) in 2030, Carbon Budget 6 (CB6) in 2033-38, and net zero in 2050' including an increased contribution from low carbon energy sources (BEIS, 2023).

17.84 Emissions factors have also been used for operational transport GHG emissions. BEIS 2023 Emissions factors for the average car with unknown fuel have been used.

Determining effect significance

17.85 The assessment of the likely effects of the proposed development has taken into account both the enabling and construction stage, the operational stage, and the decommissioning stage.

Receptor Sensitivity & Impact Magnitude Criteria

17.86 The impacts and effects of GHG emissions are global, with the global atmosphere serving as the sensitive receptor. The IEMA GHG Guidance advises that '*the receptor has a high sensitivity, given the severe consequences of global climate change and the cumulative contributions of all GHG emission sources*.' The quantity of GHG emissions produced would inform the impact magnitude. However, in line with the methodology set out in the IEMA GHG Guidance, it is not considered necessary to explicitly determine the sensitivity of the receptor or the magnitude of the impact in order to assess the significance of GHG emissions effects. As such, this ES Chapter makes no further reference to receptor sensitivity or impact magnitude.

Significance of Effect Criteria

17.87 Specific criteria for assessing the significance of GHG emissions effects are provided in the IEMA GHG Guidance. The guidance also recommends that the context of the project's carbon footprint is determined in order to establish whether the project supports or undermines a trajectory towards net zero. This can help decision makers in their evaluation of the effects of the proposals. The IEMA GHG Guidance has been adapted and applied to this assessment, as outlined below.

Assessment of Effect Significance

17.88 Three overarching principles are set out in the IEMA GHG Guidance, which IEMA advise should be considered when looking to establish the effect significance of GHG emissions. These comprise:

- The GHG emissions from all projects will contribute to climate change, the largest interrelated cumulative environmental effect;
- The consequences of a changing climate have the potential to lead to significant environmental effects on all topics in the EIA Directive (e.g. human health, biodiversity, water, land use, air quality); and,
- GHG emissions have a combined environmental effect that is approaching a scientifically defined environmental limit; as such any GHG emissions or reductions from a project might be considered to be significant.

17.89 IEMA has further built on these principles in the guidance, as follows:

- *'When evaluating significance, all new GHG emissions contribute to a negative environmental impact; however, some projects will replace existing development or*

baseline activity that has a higher GHG profile. The significance of a project's emissions should therefore be based on its net impact over its lifetime, which may be positive, negative or negligible;

- *Where GHG emissions cannot be avoided, the goal of the EIA process should be to reduce the project's residual emissions at all stages; and*
- *Where GHG emissions remain significant, but cannot be further reduced, approaches to compensate the project's remaining emissions should be considered.'*

17.90 The goal of the Paris Agreement is to limit global temperature rise to well below 2°C, aiming for 1.5°C, compared with pre-industrial levels, in order to stand a greater chance of avoiding severe adverse effects from climate change. The UK has set a legally binding GHG reduction target for 2050 through the Climate Change Act, including interim five-yearly carbon budgets, which define a trajectory towards net zero. The Climate Change Committee (CCC) has confirmed that the 2050 target and interim budgets are compatible with the required magnitude and rate of GHG emissions reductions required in the UK to meet the goals of the Paris Agreement, thereby limiting severe adverse effects.

17.91 To meet the 2050 target and interim budgets, action is required to reduce GHG emissions from all sectors, including urban development projects. As stated in the IEMA GHG Guidance, 'EIA for any proposed project must therefore give proportionate consideration to whether and how that project will contribute to or jeopardise the achievement of these targets...the crux of significance therefore is not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050'.

17.92 Building on this, the IEMA GHG Guidance sets out an approach to the assessment of effect significance that comprises judgements on the proposed development's consistency with policy requirements (as these have been implemented to ensure the economy decarbonises in line with the UK's net zero target); and the extent to which the proposed development's GHG emissions have been mitigated.

17.93 Table 17.2 sets out the significance of effect criteria provided in the IEMA Guidance. The significance of effect scale is also shown in Figure 17.2 to illustrate how this relate to the 1.5ºC compliance trajectory.

Table 17.2 Criteria for determining significance of effect

Significance	Descriptor
Major adverse	The proposed development's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.
Moderate adverse	The proposed development's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero.
Minor adverse	The proposed development's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.
Negligible	The proposed development's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.
Beneficial	The proposed development's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.

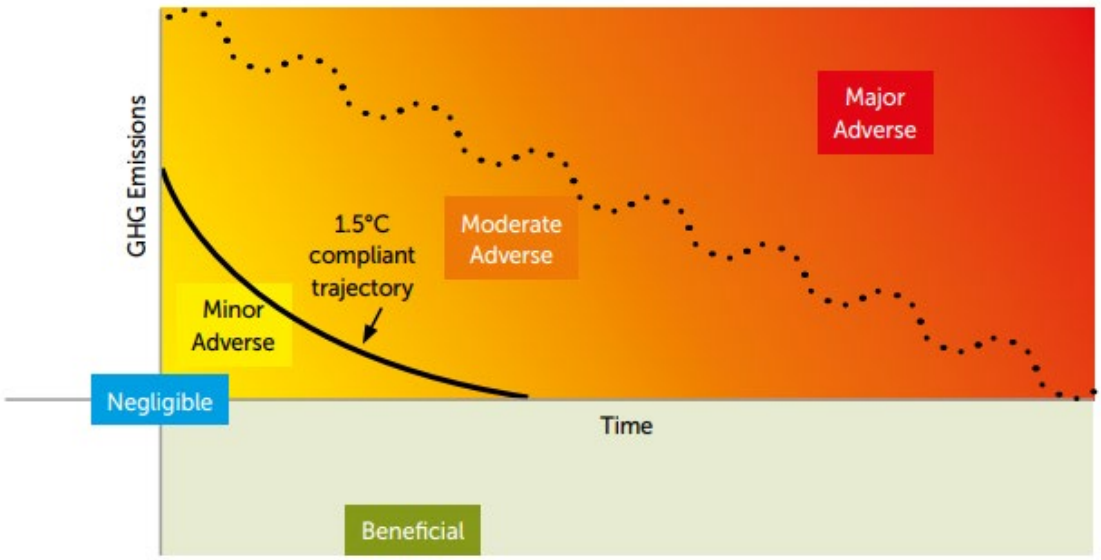

Figure 17.2 Different levels of significance plotted against the UK's net zero compatible trajectory. Source: IEMA guide to 'Assessing Greenhouse Gas Emissions and Evaluating their Significance' Second edition.

17.94 In line with the IEMA GHG Guidance, major and moderate adverse and beneficial effects are considered significant. Effects can also be described as:

- Beneficial or adverse;
- Permanent or temporary;
- Reversible or irreversible; and
- Short, medium or long term

17.95 The IEMA GHG Guidance advises that the approach should be modified for the very largest-scale developments, which can in themselves have magnitudes of GHG emissions that materially affect the UK's or a devolved administration's total carbon budget. In the case of such developments, irrespective of the level of mitigation proposed, if net GHG emissions exceed 5% of the relevant UK or devolved administration carbon budget, the effects of the development are likely to be significant.

17.96 The guidance also advises that "*Practitioners should note that existing policy and regulation may in some cases lag behind the necessary levels of GHG emission reductions (or types of actions to achieve those) that are compatible with the UK's or devolved administrations targets and with a science based 1.5°C compatible trajectory towards net zero. Meeting the minimum standards set through existing policy or regulation cannot necessarily be taken as evidence of avoiding a significant adverse effect, and it is recommended that practitioners consider and* have r*eference also to emerging policy/standards and the guidance of expert bodies such as the CCC on necessary policy developments, particularly for multi-phased projects with long timescales. This must be evaluated by the practitioner as part of the evidence base used in the assessment of effects. References to 'existing' and 'emerging' policy in the principles of significance and example criteria above must be interpreted with this in mind."*

Contextualisation of the GHG emissions

17.97 The IEMA Guidance also recommends that the context of the project's carbon footprint is determined in order to establish whether the project supports or undermines the trajectory towards net zero. This can help decision makers in their evaluation of the effects of the proposals.

17.98 As noted in the previous section, the UK has a defined national carbon budget and budgets have also been set by devolved administrations, which the CCC has confirmed are

compatible with net zero and international climate commitments. The IEMA GHG Guidance advised that the starting point for contextualising the project's GHG emissions should be the percentage contribution of the project to the relevant national or devolved administration carbon budget. However, it goes on to advise that the contribution of most individual projects to national-level budgets will be small and so this context will have limited value. In response, the guidance presents a good practice approach for contextualising a project's GHG emissions against pre-determined carbon budgets or against emerging policy and performance standards, where a budget is not available. This is shown in Figure 17.3.

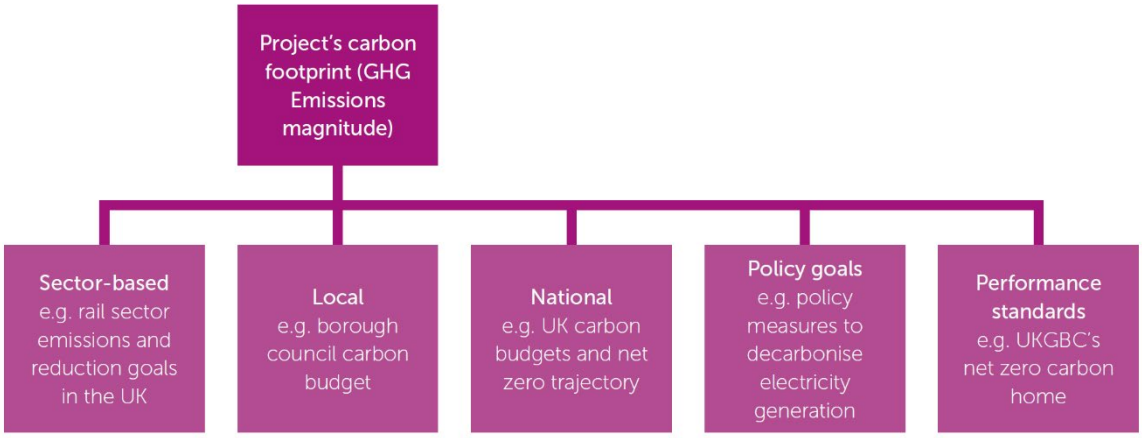

Figure 17.1 Good practice approaches for contextualising a project's GHG emissions Source: IEMA guide to 'Assessing Greenhouse Gas Emissions and Evaluating their Significance' Second Edition

17.99 Whilst Staffordshire Moorlands District Council ('SMDC') has not yet formally adopted a carbon budget. The Tyndall Centre for Climate Change Research has produced carbon budget reports (the 'Tyndall Carbon Budget Reports') that provided recommended climate change commitments for UK Local Authority areas that are aligned with the commitments in the Paris Agreement, informed by the latest science on climate change and defined by science based carbon budget setting. The Tyndall Carbon Budget Report for Staffordshire Moorlands provides SMDC with recommended budgets for CO2 emissions from the energy system for 2018 – 2100.

17.100 The net GHG emissions arising from the proposed development have been considered in the context of both the UK national carbon budgets and the Tyndall Centre recommended energy-only carbon budgets.

17.101 The UK national carbon budgets for the period over which the proposed development will be under construction and operational are presented in Table 17.3.

Table 17.3 UK National Carbon Budgets

Carbon budget	Carbon budget period	Million tonnes of CO2e
Fourth	2023-2027	1,950
Fifth	2028-2032	1,725
Sixth	2033-2037	965

17.102 The construction period for the proposed development is expected to fall entirely within the fourth carbon budget period. The operational stage will commence at the beginning of the fifth budget period and continue during the rest of the fifth and sixth budget periods.

17.103 The Tyndall Centre energy-only carbon budgets for Staffordshire Moorlands for the same period (2023 to 2037) are presented in Table 17.4.

Table 17.4 Tyndall Centre Energy-Only Carbon Budgets for Staffordshire Moorlands

Carbon budget period	Million tonnes of CO_2e
2023-2027	1.6
2028-2032	0.8
2033-2037	0.4

17.104 For the purpose of this assessment, the results of the emissions calculations have been presented in terms of their percentage contribution to the relevant UK or Staffordshire Moorlands carbon budget period, as set out above. Given that the Tyndall Centre carbon budgets are 'energy-only', the comparison of the proposed development's GHG emissions with these local budgets has been limited to the scheme's operational energy use GHG emissions to ensure consistency.

Inter-development Cumulative Effects

17.105 The atmospheric concentration of GHGs and the resulting effects on climate change are affected by all sources (anything emitting GHG) and sinks (anything absorbing GHG) globally, anthropogenic and otherwise. As GHG emission impacts and resulting effects are global rather than affecting one localised area, the approach to cumulative effects assessment for GHGs differs from that for many EIA topics where only projects within a geographically bounded study area would be included. As such, as stated in the IEMA Guidance, effects of GHG emissions from specific cumulative schemes should not be individually assessed, as there is no basis for selecting any particular (or more than one) cumulative project that has GHG emissions for assessment over any other. The Guidance goes on to advise that the contextualisation of GHG emissions should incorporate by its nature the cumulative contributions of other GHG sources which make up that context. As part of this assessment, an inter-development cumulative effects assessment has not

been undertaken on a specific cumulative scheme basis; however, the proposed development's GHG emissions have been considered in the context of both the UK national carbon budgets and recommended carbon budgets for Staffordshire Moorlands. As such, the cumulative contributions of other GHG sources that make up the national and local contexts have been considered within the assessment.

Assumptions/Limitations

17.106 In undertaking this assessment, there are a number of assumption and limitations affecting the outputs. These include:

- The assessment reported in this chapter is based on scheme information provided in the following documents:
    - The June 2016 ES;
    - Moneystone Park Sustainability Statement (WSP - Parsons Brinckerhoff, June 2016);
    - Design and Access Statement – Relating to Reserved Matters Application Following Outline Planning Approval SMD/2016/0378 (NBDA Architects, October 2019);
    - Moneystone Park Gross External Area (GEA) Schedule (Phase 1) (NBDA Architects, 2019);
    - Table comparing the proposed activity areas to those set out within Condition 6a (NBDA Architects, 22 September 2019);
    - Supporting Planning Statement - Phase 1 Reserved Matters Planning Application (Avison Young, October 2019);
    - Design and Access Statement – Relating to the Phase 2 Reserved Matters Application Following Outline Planning Approval SMD/2016/0378 (NBDA Architects, #### 20##);
    - Proposed Archery Centre and Watersports Building plans and elevations (NBDA Architects, 2023);
    - Energy Strategy – Statement (Phase 1) (Futureserv, May 2024);
    - Email from Paul Young (Futureserv) providing EUI figure for watersports building (July 2024);

  - Transport data provided by Stantec (July 2024); and
  - Email from Josh Thomas (Asteer Planning) providing information on construction programme length (July 2024);

- The assessment reported in this chapter is also based on various assumptions, set out in the Methodology section of this part of the chapter;
- The detailed scheme information required to undertake a full embodied carbon assessment of the proposed development, such as construction material quantities, is not yet available. As such, only estimates have been made to inform this ES chapter, based on benchmarks sourced from relevant industry publications. The assumptions that have been made are considered conservative;
- When calculating GHG emissions associated with the proposed development, energy and carbon benchmarks have been used based on expected floor areas and building uses. Whilst these benchmarks have given an estimate of the scale of GHG emissions associated with the proposed development, they will not be completely accurate due to variations between buildings, including geography, construction processes and construction materials used. However, these are considered the best available methods for estimating GHG emissions at this stage. Additionally, where there is uncertainty, a worst-case scenario approach has been taken;
- Proposed building floorspaces have only been available in Gross External Area (GEA), rather than Gross Internal Area (GIA), which assessments against benchmarks are normally undertaken. Due to the lack of an agreed direct conversion method for the floorspace quanta, the GEA figures have been used in these assessments without conversion. Adopting this approach is considered conservative;
- During the operational stage, it has been assumed that the Activity Building and Housekeeping/Maintenance Building will have the same design emission rates per square metre of floorspace as the Hub building;
- It is assumed that the Water Sports Building will have no fossil fuel energy supply;
- To inform the water use calculations, it has been assumed that all lodges will have two bedrooms;
- The Housekeeping/Maintenance Building has been excluded from the construction stage embodied carbon calculations as this building already exists (building previously used as an office but not currently in use);

- The energy strategy figures for the lodges for the ASHP solution without PVs, have been used to ensure the assessment is based on a worst-case scenario;

- The proposed archery building is less than 50 sqm in floor area and is therefore exempt from the requirements of Approved Document Part L. Any operational energy emissions from this building are expected to be extremely low and, as such, operational energy emissions from this building have been scoped out of the assessment; and

- There are some inherent uncertainty in the BEIS emissions factors. The emissions factors are in line with the UKs decarbonisation trajectory towards net zero in 2050, however this is an assumption, and the actual emissions trajectory is unknown.

Consultation

17.107 No specific consultations have been undertaken in regard to this chapter.

Existing & Future Baseline Conditions

17.108 The only building currently occupying the site is an old office building, which is not currently operational. Given that no operations or activities are currently taking place at the site, the baseline GHG emissions are assumed to be zero.

17.109 Should the proposed development not come forward, for the purposes of this assessment, it is assumed that the current site activities and their associated annual GHG emissions would continue throughout the 60 year RSP. As such, the future baseline GHG emissions across the 60 year RSP are also considered to be zero.

Embedded Mitigation

17.110 This section describes the measures which have been 'embedded' into the proposed development and primary mitigation (i.e where commitments are made) which are relevant to this Chapter.

Enabling and Construction Phase

17.111 The 2019 Design and Access Statement (DAS) sets out the following embedded mitigation measures which will reduce GHG emissions during the enabling and construction phase:

- The lodges will be constructed offsite, and delivered to the site by lorry; and

- Consideration will be given to the use of recycled building materials, in addition to the full reuse of all site won materials for the main civil ground works, such as crushed concrete, rubble, timber and topsoil; and

- Locally sources building materials will be promoted within the design of the external spaces.

17.112 A Construction Environmental Management Plan (CEMP), has been secured by condition, which will set out mitigation measures to minimise and reduce GHG emissions during the construction stage, in line with policy and best practice requirements.

17.113 The following mitigation measures will be included within the CEMP:

- The proposed development will endeavour to maximise the use of recycled materials on site;

- Where possible, recycled building materials will be used;

- Where new materials need to be used, they score well under The Green Guide to Specification; and,

- Consideration be given to the use of insulation materials and the global warming potential (GWP) and the Ozone Depletion Potential (ODP).

The Completed and Operational Development

17.114 A sustainability statement was submitted alongside the outline planning application in 2016 (WSP - Parsons Brinckerhoff, June 2016). An energy statement was also submitted alongside the outline planning application in 2016. However in the interim, the energy strategy for the proposed development has evolved. A new energy strategy report covering phase 1 of the proposed development (Futureserv, May 2024) has since been submitted. In due course a new energy strategy will also be submitted in regard to phase 2.

17.115 The following embedded mitigation measures relevant to the operational stage are set out in the sustainability report and energy statement for phase 1:

- the most efficient use of natural resources will be ensured, to reduce the overall consumption of clean water for non–potable uses;

- The proposed development will potentially benefit from receiving power from the adjacent 5 MW capacity solar farm;

- Both the materials for the buildings and the hard landscaping in phase 1 have been selected to be of a high quality, including natural stone and timber from accredited sources;

- The proposed buildings in phase 1 will be designed with a fabric first approach to minimise energy consumption through methods such as maximising airtightness, using super-high resistance insulation, optimising solar gain through the provision of openings and shading, and optimising natural ventilation;

- All internal lighting installations in phase 1 will make use of low energy technologies combined with presence and absence detection in conjunction with timed setbacks. 100% low energy lighting provision will be included within phase 1 of the development. Photo switching and automatic dimming will be specified to the communal areas of the Hub Building in order to improve the efficiency of the lighting system;

- Refrigerant Air Source Heat Pumps will be utilised for the main non-residential type areas and amenity areas of phase 1 of the development, where cooling as well as heating will be required due to the higher occupancy concentration. Hot water for the phase 1 lodges has the potential to utilise heat pumps to meet demand, each phase 1 lodge will have a pressurised hot water cylinder. The Hub building will have underfloor heating and hot water served by an Air Source Heat Pump (ASHP); and

- The roof areas of some of the phase 1 lodge buildings could be used to accommodate a photovoltaic system, depending on the orientation of the roof.

Assessment of Likely Significant Effects

17.116 Table 17.5 sets out the total GHG emissions (tCO_2e) produced by the proposed development across the 60 year RSP.

Table 17.5 Estimated total GHG emissions (tCO2e)

Lifecycle Stage / Module	Total GHG emissions (tCO2e)
Construction stage (A1-A5)	42,497
In use stage embodied carbon (B1-B5)	38,255
In use stage operational energy use (B6)	44,452
Use stage operational water use (B7)	582
Use stage operational transport	42,819
End of life stage (C1-C4)	373
Total	**168,978**

17.117 Table 17.6 considers the GHG emissions arising as a result of the proposed development in the context of the UK Carbon Budgets.

Table 17.6 Comparison of the GHG emissions arising from the proposed development with the UK Carbon Budgets

UK Carbon Budgets		Impact			
UK Carbon Budget Period	UK Carbon Budget (MtCO2e)	Total baseline emissions (tCO2e)	GHG emissions from the Proposed Development	Baseline % of UK Carbon Budget	Proposed Development % of UK Carbon Budget
Fourth (2023-2027)	1,950	0	42,497	0	0.002179
Fifth (2028-2032)	1,725	0	10,509	0	0.000601
Sixth (2033-2037)	965	0	10,509	0	0.001089

17.118 Table 17.7 sets out a consideration of the energy only GHG emissions arising from the proposed development in the context of the Tyndall Centre Energy Only Carbon Budgets for Staffordshire Moorland.

Table 17.7 Comparison of the energy only GHG emissions arising from the proposed development with the Tyndall Centre Energy Only Carbon Budgets for Staffordshire Moorland

Staffordshire Moorland Carbon Budget			Impact		
Carbon Budget period	Energy-Only Carbon Budget for Staffordshire Moorland (MtCO2e)	Total baseline emissions (tCO2e)	Energy-only GHG Emissions from the Proposed Development (tCO2e)	Baseline % of carbon budget	Proposed Development energy only % of carbon budget
Fourth (2023-2027)	1.6	0	0	0	0
Fifth (2028-2032)	0.8	0	740.8	0	0.0926
Sixth (2033-2037)	0.4	0	740.8	0	0.1852

17.119 In accordance with the stated methodology, the assessment of effect significance is based on the proposed mitigation measures and their consistency with policy requirements (as these have been implemented to ensure the economy decarbonises in line with the UK's net zero target). As such, the assessment of effect significance has been reported in the 'Residual Effects' section of this chapter, allowing all embedded mitigation set out above and additional mitigation set out in the following section to be considered in the assessment.

Additional Mitigation / Enhancement Measures

17.120 This section describes any additional measures proposed with regard to climate change.

Enabling and Construction Phase

17.121 Table 17.8 provides a summary of the additional mitigation measures relating to enabling and construction GHG emissions associated with the proposed development.

Table 17.8 Summary of construction supplementary mitigation measures

Adverse effect	Mitigation measure	Mechanism for implementation	Timing
Increase in the concentration of GHGs in the global atmosphere, resulting from the release of GHGs during the construction phase of the proposed development (Embodied carbon associated with the product stage (lifecycle stages A1-A3))	A CEMP will be prepared and will contain measured to, where possible: Reduce the demand where possible for materials with a high carbon footprint (such as concrete), especially in the production and transport stages of the lifecycle of the proposed development; and Preference for materials and components that are locally sourced to minimise transportation distances.	CEMP secured by condition	Prior to the commencement of site enabling works
Increase in the concentration of GHGs in the global atmosphere, resulting from the release of GHGs during the construction phase of the proposed development (Embodied carbon associated with the construction process stage (lifecycle stages A4-A5))	A CEMP will be prepared and will contain measured to, where possible: Review opportunities to reduce energy association with construction installation processes; Review opportunities to reduce the number and distance of construction transport trips; Explore the use of energy efficient assembly and minimising site installation process;	CEMP secured by condition	Prior to the commencement of site enabling works

	Implement a travel plan for site staff; Utilise a temporary electrical supply connection to minimise the use of on-site diesel generators if possible; and Implement a site energy monitoring and improvement programme as part of CEMP.		
	Circular economy principles should be considered where possible for the proposed development to identify opportunities to minimise resource demand during construction.	CEMP secured by condition	Prior to the commencement of site enabling works

The Completed and Operational Development

17.122 Table 17.9 provides a summary of the additional mitigation measures relating to operational GHG emissions associated with the proposed development.

Table 17.1 Summary of operational supplementary mitigation measures

Adverse effect	Mitigation measure	Mechanism for implementation	Timing
Increase in the concentration of GHGs in the global atmosphere, resulting from the release of GHGs, associated with embodied carbon during the operational phase of the proposed development: Embodied carbon associated with the in-use stage for the proposed development (lifecycle stage B1-B5));	• In due course a new energy strategy will be submitted in regard to Phase 2 of the proposed development. It is expected to propose the same mitigation measures that have been embedded into Phase 1 of the scheme (as set out in the Phase 1 energy strategy report). These measures are as follows: • The most efficient use of natural resources will be ensured, to reduce the overall consumption of clean water for non–potable uses; • The proposed development will potentially benefit from receiving power from the	Energy Strategy for Phase 2 to be secured by condition	Prior to the commencement of construction

GHG emissions associated with operational energy for the proposed development (lifecycle stage B6)); GHG emissions associated with operational water (lifecycle stage B7); and GHG emissions associated with the end-of-life stage (lifecycle stage C1-C5)	adjacent 5 MW capacity solar farm; • Both the materials for the buildings and the hard landscaping in phase 2 will be selected to be of a high quality, including natural stone and timber from accredited sources; • The proposed buildings in phase 2 will be designed with a fabric first approach to minimise energy consumption through methods such as maximising airtightness, using super-high resistance insulation, optimising solar gain through the provision of openings and shading, and optimising natural ventilation; • All internal lighting installations in phase 2 will make use of low energy technologies combined with presence and absence detection in conjunction with timed setbacks. 100% low energy lighting provision will be included within phase 2 of the development. Photo switching and automatic dimming will be specified to internal communal areas in order to improve the efficiency of the lighting system; • Refrigerant Air Source Heat Pumps will be utilised for the main non-residential type areas and amenity areas of phase 2 of the development, where cooling as well as heating will be required due to the higher occupancy concentration. Hot water for the phase 2 lodges has the potential to utilise heat pumps to meet demand, each phase 2 lodge will have a pressurised hot water cylinder. The ### buildings will have underfloor heating and hot water served by an Air Source Heat Pump (ASHP); and • The roof areas of some of the phase 2 lodge buildings could be used to accommodate a		

	photovoltaic system, depending on the orientation of the roof.		
Increase in the concentration of GHGs in the global atmosphere, resulting from the release of GHGs, associated with transport, during the operational phase of the proposed development (GHG emissions associated with operational transport	The detailed Travel Plan to be prepared for the proposed development, will include measures, where possible to: Encourage more sustainable transport practices for staff: Encouraging car shares. Encouraging cycling to work. Schedule arrival and departure times to minimise interference with peak traffic times to minimise time spent at idle, where possible.	Detailed Travel Plan secured by condition	Prior to the commencement of operation

Residual Effects

Comparison with UK National Carbon Budgets and Tyndall Centre Energy Only Carbon Budgets for North Warwickshire

17.123 Table 17.10 and Table 17.11 set out a consideration of the net GHG emissions arising from the proposed development in the context of the UK national carbon budgets and the Tyndall Centre Energy Only Carbon Budgets for Staffordshire Moorland, taking into account both the embedded and additional mitigation.

Table 17.10 Post-mitigation comparison with UK national Carbon Budgets

UK Carbon Budget Period	Residual Effect
Fourth (2023-2027)	During the fourth budget period, the proposed development would generate GHG emissions from the construction process (lifecycle stage A1-A5). This equates to 0.002179% of the total carbon budget. It is likely that the proposed embedded mitigation and additional mitigation measures would reduce these GHG emissions; however, it has not been possible to quantify these reductions at this stage. **It is not considered that the proposed development would have a material impact on the UK's ability to meet this carbon budget.**
Fifth (2028-2032)	During the fifth budget period, the proposed development would generate GHG emissions from the in use stage embodied carbon (B1-B5), operational energy (lifecycle stage B6), operational water consumption (lifecycle stage B7), and operational transport stage. This equates to 0.000601% of the total carbon budget. It is likely that the proposed embedded mitigation and additional mitigation measures would reduce these GHG emissions; however, it has not been possible to quantify these reductions at this stage. **It is not considered that the proposed development would have a material impact on the UK's ability to meet this carbon budget.**
Sixth (2033-2037)	During the sixth budget period, the proposed development would generate GHG emissions from the in use stage embodied carbon (B1-B5), operational energy (lifecycle stage B6), operational water consumption (lifecycle stage B7), and operational transport stage. This equates to 0.001089% of the total carbon budget. It is likely that the proposed embedded mitigation and additional mitigation measures would reduce

	these GHG emissions; however, it has not been possible to quantify these reductions at this stage. **It is not considered that the proposed development would have a material impact on the UK's ability to meet this carbon budget.**

Table 17.11 Post mitigation comparison with Tyndall Centre Energy Only Carbon Budgets for Staffordshire Moorland

UK Carbon Budget Period	Residual Effect
Fourth (2023-2027)	During this budget period, the proposed development would not be operational. It would therefore not generated any operational GHG emissions. **It is not considered that the proposed development would have a material impact on Staffordshire Moorlands's ability to meet this energy-only carbon budget.**
Fifth (2028-2032)	During this budget period, the proposed development would generate operational energy GHG emissions (lifecycle stage B6), equating to 0.0926% of the total energy only carbon budget. It is likely that the proposed embedded mitigation and additional mitigation measures would further reduce these GHG emissions; however, it has not been possible to quantify these reductions at this stage. **It is not considered that the proposed development would have a material impact on Staffordshire Moorlands's ability to meet this energy-only carbon budget.**
Sixth (2033-2037)	During this budget period, the proposed development would generate operational energy GHG emissions (lifecycle stage B6), equating to 0.1852% of the total energy only carbon budget. It is likely that the proposed embedded mitigation and additional mitigation measures would further reduce these GHG emissions; however, it has not been possible to quantify these reductions at this stage. **It is not considered that the proposed development would have a material impact on Staffordshire Moorlands's ability to meet this energy-only carbon budget.**

Significance of effects assessment

17.124 Table 17.12 sets out the assessment of residual effect significance for the construction and operational stages respectively in accordance with the IEMA GHG Guidance and taking into account both the embedded and additional mitigation measures.

Table 17.12: Residual Effects Assessment

Description of Effect	Embedded Mitigation	Additional Mitigation / Enhancement Measures	v are Additional Mitigation / Embedded Mitigation / Enhancement Measures secured?	esidual Effect (inc. Significance
Construction				
Embodied carbon associated with the product stage (lifecycle stage A1-A3) and the construction process stage (lifecycle stages A4-A5)	• The lodges will be constructed offsite, and delivered to the site by lorry; and • Consideration will be given to the use of recycled building materials, in addition to the full reuse of all site won materials for the main civil ground works, such as crushed concrete, rubble, timber and topsoil; and • Locally sources building materials will be promoted within the design of the external spaces. The proposed development will endeavour to maximise the use of recycled materials on site; • Where possible, recycled building materials will be used; • Where new materials need to be used, they score well under The Green Guide to Specification; and,	GHG emissions released to the global atmosphere, increasing atmospheric GHG concentrations.	A CEMP will be prepared and will contain measured to, where possible: • Reduce the demand where possible for materials with a high carbon footprint (such as concrete), especially in the production and transport stages of the lifecycle of the proposed development; and • Preference for materials and components that are locally sourced to minimise transportation distances. • Review opportunities to reduce energy association with	It is considered that the proposed development is consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. Therefore in line with the IEMA GHG Guidance, this is considered to be a **minor adverse** long-term effect. In line with the guidance, this effect is considered to be **not significant**.

	• Consideration be given to the use of insulation materials and the global warming potential (GWP) and the Ozone Depletion Potential (ODP).		construction installation processes; • Review opportunities to reduce the number and distance of construction transport trips; • Explore the use of energy efficient assembly and minimising site installation process; • Implement a travel plan for site staff; • Utilise a temporary electrical supply connection to minimise the use of on-site diesel generators if possible; and • Implement a site energy monitoring and improvement programme as part of CEMP. • Circular economy principles should be considered where possible for the proposed development to	

			identify opportunities to minimise resource demand during construction.	
Completed & Operational				
Embodied carbon associated with the in-use stage for the proposed development (lifecycle stage B1-B5); operational energy (lifecycle stage B6); operational water (lifecycle stage B7); operational transport; and the end-of-life stage (lifecycle stage C1-C5)	• The most efficient use of natural resources will be ensured, to reduce the overall consumption of clean water for non–potable uses; • The proposed development will potentially benefit from receiving power from the adjacent 5 MW capacity solar farm; • Both the materials for the buildings and the hard landscaping in phase 1 have been selected to be of a high quality, including natural stone and timber from accredited sources; • The proposed buildings in phase 1 will be designed with a fabric first approach to minimise energy consumption through methods such as maximising airtightness, using super-high resistance insulation, optimising solar gain through the provision of	GHG emissions released to the global atmosphere, increasing atmospheric GHG concentrations.	In due course a new energy strategy will be submitted in regard to Phase 2 of the proposed development. It is expected to propose the same mitigation measures that have been embedded into Phase 1 of the scheme (as set out in the Phase 1 energy strategy report). These measures are as follows: • The most efficient use of natural resources will be ensured, to reduce the overall consumption of clean water for non–potable uses; • The proposed development will potentially benefit from receiving power from the adjacent 5 MW capacity solar farm; • Both the materials for the buildings and the	It is considered that the proposed development is consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. Therefore in line with the IEMA GHG Guidance, this is considered to be a **minor adverse** long-term effect. In line with the guidance, this effect is considered to be **not significant**.

	openings and shading, and optimising natural ventilation; • All internal lighting installations in phase 1 will make use of low energy technologies combined with presence and absence detection in conjunction with timed setbacks. 100% low energy lighting provision will be included within phase 1 of the development. Photo switching and automatic dimming will be specified to the communal areas of the Hub Building in order to improve the efficiency of the lighting system; • Refrigerant Air Source Heat Pumps will be utilised for the main non-residential areas and amenity areas of phase 1 of the development, where cooling as well as heating will be required due to the higher occupancy concentration. Hot water for the phase 1 lodges has the potential to utilise heat pumps to meet demand, each phase 1 lodge will have a pressurised hot water cylinder. The Hub building will have underfloor heating and hot water served by an Air Source Heat Pump (ASHP); and • The roof areas of some of the phase 1 lodge buildings could		hard landscaping in phase 2 will be selected to be of a high quality, including natural stone and timber from accredited sources; • The proposed buildings in phase 2 will be designed with a fabric first approach to minimise energy consumption through methods such as maximising airtightness, using super-high resistance insulation, optimising solar gain through the provision of openings and shading, and optimising natural ventilation; • All internal lighting installations in phase 2 will make use of low energy technologies combined with presence and absence detection in conjunction with timed setbacks. 100% low energy lighting provision will be included within phase 2 of the development.	

	be used to accommodate a photovoltaic system, depending on the orientation of the roof.		Photo switching and automatic dimming will be specified to internal communal areas in order to improve the efficiency of the lighting system; • Refrigerant Air Source Heat Pumps will be utilised for the main non-residential type areas and amenity areas of phase 2 of the development, where cooling as well as heating will be required due to the higher occupancy concentration. Hot water for the phase 2 lodges has the potential to utilise heat pumps to meet demand, each phase 2 lodge will have a pressurised hot water cylinder. The ### buildings will have underfloor heating and hot water served by an Air Source Heat Pump (ASHP); and The roof areas of some of the phase 2 lodge buildings could be used to accommodate a	

			photovoltaic system, depending on the orientation of the roof.	

Assessment of Cumulative Effects

Inter-development Cumulative Effects

17.125 As stated in the methodology section, an inter-development cumulative effects assessment has not been undertaken on a specific cumulative scheme basis; however, the proposed development's GHG emissions have been considered in the context of both the UK national carbon budgets and recommended carbon budgets for Staffordshire Moorland. As such, the cumulative contributions of other GHG sources that make up the national and local contexts have been considered within the assessment.

Conclusions

17.126 The assessment of GHG Emissions and Climate Change focuses on the emissions of GHGs (typically measured in carbon dioxide equivalent (CO_2e)) from the proposed development during construction, operation and decommissioning, and what measures can be taken to mitigate these effects. The receptor for this assessment is the global atmosphere.

Summary of Baseline

17.127 The only building currently occupying the site is an old office building, which is not currently operational. Given that no operations or activities are currently taking place at the site, the baseline GHG emissions are assumed to be zero.

17.128 Should the proposed development not come forward, for the purposes of this assessment, it is assumed that the current site activities and their associated annual GHG emissions would continue throughout the 60 year RSP. As such, the future baseline GHG emissions across the 60 year RSP are also considered to be zero.

Summary of Likely Significant Effect

17.129 The potential significant effect of the proposed development on the global atmosphere arise due to GHG emissions from the following sources:

- Embodied carbon associated with construction;
- Embodied carbon associated with the in-use stage;
- Operational energy use;
- Operational water use;
- Operational transport; and

- Decommissioning.

Summary of Mitigation and Residual Effects

17.130 Mitigation measures to reduce GHG emissions associated with the construction and operational stage are/will be set out in the following documents, secured by planning condition:

- CEMP;
- Sustainability Strategy;
- Energy Strategy (Phase 1);
- Energy Strategy (Phase 2); and
- Travel Plan.

17.131 The assessment has concluded that the proposed development is consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. Therefore in line with the IEMA GHG Guidance, this is considered to be a minor adverse long-term effect. In line with the guidance, this effect is considered to be not significant.

Conclusion

17.132 In conclusion, this assessment has shown that the potential environmental effects resulting from the release of GHG emissions to the global atmosphere from the construction, operation and decommissioning of the proposed development are expected to be Minor Adverse and long term, and are not significant.

18 CUMULATIVE EFFECTS

18.1 The June 2016 ES included a cumulative effects assessment which considered the potential environmental effects of the proposed development in conjunction with any other committed developments. The June 2016 ES identified potential cumulative effects associated with two schemes:

- Moneystone Solar farm (ref. SMD/2015/022); and,
- Bolton Copperworks, Froghall (ref. SMD/2014/0668 – request for Scoping Opinion only).

18.2 Following its approval, the Moneystone Solar Farm has now been constructed and is operational (therefore forms part of the baseline environment). In terms of Bolton Copperworks, no further planning application was made and therefore this is scoped-out of the cumulative assessment. There were however two additional planning applications (ref. SMD/2016/0246 and SMD/2016/0567) on or adjacent to the Bolton Copperworks site for the change of use of the existing industrial units from manufacturing to storage and distribution. These are however both minor planning applications which have since been approved and are not likely to result in significant environmental effects given the scale of each development.

18.3 Through consultation with SMDC, two residential developments were identified for consideration (ref. SMD/2019/0723 and SMD/2018/0180) located within the town of Cheadle approximately 3km southwest of the proposed development. Following a review of these developments, it is not anticipated there would be additional significant cumulative effects associated with the proposed development in combination with these developments.

18.4 In addition to the 2019 reserved matters application, three full planning applications were also submitted at the Moneystone site which are detailed below.

18.5 An application for a Change of Use (CoU) of the former laboratory building to house a number of leisure facilities associated with Moneystone Park was submitted to SMDC on 27 November 2019 and was granted permission 10/01/2024 (SMD/2019/0716). No significant effects have been identified in this ES Addendum in considering the CoU proposals.

18.6 A full planning application (SMD/2019/0725) was submitted to SMDC on 29 November 2019 for the construction of a surface water outfall. Following the submission of this planning application, there was extensive dialogue involving Natural England, the

Environment Agency, Laver Leisure and their advisors JBA, Abbeydale BEC and Bowland Ecology to discuss the technical requirements, design, and location of the surface water outfall. This resulted in the location of the outfall being moved further east when compared to the principle for the outfall location proposed as part of the original application. Application SMD/2019/0725 was subsequently withdrawn and a revised application for the surface water outfall (SMD/2022/0014) was submitted (as outlined in Chapter 1) on 11 January 2022 and was granted permission on 28 November 2023. No significant effects have been identified in this ES Addendum in considering the outfall proposals.

18.7 An updated cumulative site search has been undertaken to support this ES Addendum, in accordance with the methodology set out in the 2016 ES. No other cumulative schemes have been identified which require consideration within an assessment of likely cumulative effects.

18.8 On this basis, it is considered that a revised cumulative effects assessment is not required and the 2016 ES remains valid in its assessment of cumulative effects.

19 SUMMARY

19.1 An appeal has been lodged (APP/B3438/W/24/3344014) and this ES Addendum has been prepared in order to respond to a request for 'Further Information' pursuant to Regulation 25 of the Town and Country Planning Environmental Impact Assessment (EIA) 2017 Regulations (as amended) from the Planning Inspectorate, see Appendix 1.1.

19.2 This August 2024 ES Addendum is a supplementary report to the Environmental Statement (ES) prepared in support of the June 2016 Outline Planning Application and should be read in conjunction with this Environmental Statement and associated Addendum.

Availability and Comments

19.3 This ES Addendum can be viewed online on SMDCs website (https://www.staffsmoorlands.gov.uk/article/568/Search-and-track-planning-applications) and at their offices; Staffordshire Moorlands District Council, Moorlands House, Stockwell Street, Leek, Staffordshire, ST13 6HQ.

19.4 Additional copies of the Non-Technical Summary ("NTS") (no charge) of the August ES Addendum (£125 plus postage) are available from Asteer Planning, Mynshulls House, 14 Cateaton Street, Manchester, M3 1SQ.

19.5 The complete ES can also be obtained in USB format for £10 from the same address.

19.6 Comments on the planning application should be sent to SMDC Planning Department.

The Environmental Statement Scope and Methodology

19.7 The approach to the ES Addendum has utilised the same standard methodology in terms of defining 'significance' and reference should be made to the June 2016 ES where relevant. However, where specific chapter methodologies have been updated, this is reflected within the chapters within this ES Addendum.

19.8 The scope of the EIA remains as per that presented in the June 2016 ES, including the addition of a Climate Change chapter.

Summary of Updated Technical Assessments

19.9 The Appellant and their design team have undertaken further technical survey work, modelling and assessments. The updated assessments have not identified any new or altered residual effects which were not reported in the June 2016 ES or subsequent Addendum.

19.10 Overall, there are no changes to the any significant residual effects previously identified. As such, the conclusions set out within the June 2016 ES and subsequent Addendum remain valid in terms of the likely significant effects. Additionally, no significant residual effects were identified within the Climate Change ES chapter.

Summary of Mitigation Measures

19.11 As outlined above in each technical chapter, there are no changes to proposed mitigation measures nor are there any additional mitigation measures proposed which are not already proposed to be secured by way of condition or planning obligation.

Summary and Conclusions

19.12 This ES Addendum has been prepared in accordance with the 2017 EIA Regulations.

19.13 The Addendum confirms that the assessment of likely significant effects as set out in the June 2016 ES and subsequent EIA related assessments remains valid and unchanged.

20 GLOSSARY

Acronym	Definition
AADT	Annual Average Daily Traffic
AIA	Arboricultural Impact Assessment
AOD	Above Ordnance Datum
AQMA	Air Quality Management Areas
ASR	Annual Status Report
ATC	Automatic Traffic Count
Baseline conditions	The baseline conditions are the physical, chemical, biological, social, economic, and cultural setting in which the proposed project is to be located, and where local impacts (both positive and negative) might be expected to occur.
BMV	Best and Most Versatile
BNG	Biodiversity Net Gain
BREEAM	Building Research Establishment Environmental Assessment Method
BRES	Business Register and Employment Survey
BS	British Standard
BSI	British Standards Institute
CCC	Climate Change Committee
CEMP	Construction Environmental Management Plan
CLP	Construction Logistics Plan
DAS	Design Access Statement
DEFRA	Department for Environment, Food and Rural Affairs
Designated Heritage Asset	A World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated as such under the relevant legislation
DMP	Dust Management Plan
DMRB	Design Manual for Roads and Bridges
EA	Environment Agency
EFT	Emission Factor Toolkit
Embedded mitigation	Where mitigation measures are proposed that are specific to an environmental theme (e.g. ecological measures incorporated into the landscaping scheme etc) and are purposely incorporated into the design
Environmental Impact Assessment (EIA)	Process for identifying the likely significance of environmental effects (beneficial or adverse) arising from a Proposed Development, by comparing the existing environmental conditions prior to development (the baseline) with the environmental conditions during/following the construction and operation phases of a development should it proceed.
Environmental Statement (ES)	The document setting out the findings of an Environmental Impact Assessment
FRA	Flood Risk Assessment
FTE	Full Time Equivalent
GHG	Greenhouse Gase
HDV	Heavy Duty Vehicles
Heritage Asset	An element of the historic environment that has a degree of significance. Heritage assets may be found in a variety of forms – buildings; standing, buried or submerged remains; settlements, places and landscapes.

HER	Historic Environment Record
HGV	Heavy goods vehicle
HMSO	Her Majesty's Stationery Office
IAQM	Institute of Air Quality Management
IEMA	Institute of Environmental Management and Assessment
Inter-project Cumulative Effects	The combined effects of development schemes which may, on an individual basis be insignificant but, cumulatively, have significant effect
Intra-project Cumulative Effects	The combined effect of individual effects (for example noise, airborne dust or traffic) on a single receptor where deemed potentially significant (referred to as "in-combination" in the Design Manual for Roads and Bridges (DMRB) Volume 11 Environmental Assessment)
IUCN	International Union for Conservation of Nature
Landscape and Visual Impact Assessment (LVIA)	Assessment which considers likely effects on landscape character and visual amenity arising from the Proposed Development.
LAQM	Local Air Quality Management
Listed Building	A building of special architectural or historic interest. The Planning (Listed Buildings and Conservation Area) Act 1990 gives the Department of Culture, Media and Sport on advice from Historic England, powers to list buildings of special architectural or historical interest. Listed buildings are graded I, II* or II with grade I being the highest. Listing includes the interior as well as the exterior of the building, and any buildings or permanent structures (for example, walls within its curtilage)
LPA	Local planning authority
MAGIC	Multi-Agency Geographic Information for the Countryside
National Planning Policy Framework (NPPF)	The NPPF replaces the majority of national planning policy documents (PPG/PPS) and many circulars, streamlining them all into one document. It sets out the Government's planning policies for England and how these are expected to be applied. It provides a framework within which local and neighbourhood plans can be produced reflecting the needs and priorities of the local area.
National Character Area (NCA)	Natural England has identified 159 separate National Character Areas (NCA) within England. The NCA follow natural lines in the landscape, rather than administrative boundaries, and share similar landscape characteristics. NCA profiles are guidance documents which can help to inform the decision-making process.
NPSE	Noise Policy Statement for England
NTS	Non-Technical Summary
ONS	Office for National Statistics
PPG	Planning Practice Guidance
PPS	Planning Policy Statement
Public Rights of Way (PROW)	Routes on which the public have a legally protected right to pass and re-pass.
Residual Effects	Impacts that remain following the implementation of mitigation measures
SBEM	Simplified Building Energy Model
SOAEL	Significant Observed Adverse Effect Level
SPD	Supplementary Planning Document

SSSI	Site of Special Scientific Interest
Statutory	A legal requirement.
SuDS	Sustainable Urban Drainage System
SWMP	Site Waste Management Plan
TA	Transport Assessment
WHS	World Heritage Site