ES VOLUME 1

Environmental Statement

Proposed Sand & Gravel Quarry with Progressive Restoration Using Site Derived & Imported Inert Material to Agricultural Parkland, Public Access & Nature Enhancement

Lea Castle Farm, Wolverley

December 2019

NRS Aggregates Ltd

KEDD Limited

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1 Introduction

1.1 Purpose of the Environmental Statement

1.1.1 This document comprises an Environmental Statement (ES) as defined on the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (The EIA Regulations).

1.1.2 The ES accompanies an application for planning permission (the Planning Application) by NRS Aggregates Ltd to Worcestershire County Council for a proposed sand and gravel quarry with progressive restoration using site derived and imported inert material to agricultural parkland, public access and nature enhancement at Lea Castle Farm, Wolverley Road, Broadwaters, Kidderminster, Worcestershire. The application site at Lea Castle Farm is hereafter referred to as 'the site'.

1.1.3 The proposed development consists of two areas of current agricultural land for descriptive purposes to be known as Lea Castle Farm West and Lea Castle Farm East. The development proposal a sequence of 6 phases of progressive mineral extraction and sequential restoration. Three in each of the two areas. A full description of the site and a description of the development proposals are provided in Chapters 2 and 4 of this ES respectively.

1.1.4 The sites appropriateness for mineral extraction was considered by Worcestershire County Council (WCC) with public consultations and statutory bodies input within 2016/2017 and was allocated a 'Preferred Area' status within the Third Stage Consultation of the Worcestershire Minerals Local Plan (Reference Land North of Wolverley Road – D026-2397). Preferred Area Status being defined as "areas of known resources where planning permission might reasonably be anticipated. Such areas may also include essential operations associated with mineral extractions". Subsequently, WCC have called for and are considering a Fourth Stage Consultation to address the shortfall in mineral sites and available mineral tonnages within the County.

1.1.5 The purpose of an EIA is to ensure that the environmental impacts of a proposed development are fully understood prior to granting consent. The procedure provides for the systematic assessment of environmental impacts, the development of measures to avoid and mitigate these effects and the incorporation of such measures into the design. This ensures that reliable information is available to the public and the planning authority during the decision-making process.

1.1.6 The requirement for an EIA is set out in an EU directive (Council Directive 85/3337/EEC) and is transposed into English and Welsh law by section 71A of the Town and Country Planning Act 1990, as amended. The procedure for carrying out an EIA is regulated by the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (EIA regulations).

1.1.7 The characteristics of the proposed development have been assessed against Schedule 1 of the EIA Regulations 2017. Schedule 1 of the Regulations outlines a range of development

types for which Environmental Impact Assessment will automatically be required.

1.1.8 The ES details the results of an Environmental Impact Assessment (EIA) of the potential significant effects of the proposed development. The overall aim of the ES is to:

- Provide in a systematic way, an assessment of the likely significant environmental effects arising from the proposed development;
- Describe the baseline conditions at the Planning Application site (the Site) and local area against which changes and effects can be assessed;
- Describe the various elements of the development scheme;
- Consider the potential significant effects of the development;
- Describe the measures which are available to mitigate those effects; and
- Assess the likely effectiveness of mitigation measures and identify any residual environmental effects.

1.1.9 This ES should be read in conjunction with the following documents and plans:

- Environmental Statement Non Technical Summary;
- Planning Statement; and
- ES Volume 2 Technical Appendices comprising:
    - Landscape and Visual Considerations (Technical Appendix A);
    - Nature Conservation and Ecology (Technical Appendix B);
    - Arboriculture (Technical Appendix C);
    - Noise (Technical Appendix D);
    - Air Quality and Dust (Technical Appendix E);
    - Transport, Movement and Access (Technical Appendix F);
    - Agricultural Land Classification and Soils (Technical Appendix G);
    - Archaeology and Cultural Heritage (Technical Appendix H);
        - Archaeological Desk-based Assessment (Technical Appendix H.1)
        - Written Scheme of Investigation (Technical Appendix H.2)
    - Hydrological and Hydrogeological Impact Assessment (Technical Appendix I);
    - Leisure and Recreation (Technical Appendix J); and
    - Health and Wellbeing (Technical Appendix K).

1.1.10 In addition to the above supporting documentation the following plans are also submitted as

part of the application in ES Volume 3 Drawings and Forms:

- Planning Application Drawing No. 1 – Location Plan;
- Planning Application Drawing No. 2 – Land Under the Control of the Applicant
- Planning Application Drawing No. 3 – Current Situation;
- Planning Application Drawing No. 4 – Proposals Plan;
- Planning Application Drawing No. 5 – Disturbed Land;
- Planning Application Drawing No. 6 – Plant Site – Plan & Elevations;
- Planning Application Drawing No. 7 – Plant Site – Sections;
- Planning Application Drawing No. 8 – Initial Works;
- Planning Application Drawing No. 9 – Phase 1;
- Planning Application Drawing No. 10 – Phase 2;
- Planning Application Drawing No. 11 – Phase 3;
- Planning Application Drawing No. 12 – Phase 4;
- Planning Application Drawing No. 13 – Phase 5;
- Planning Application Drawing No. 14 – Final Works;
- Planning Application Drawing No. 15 – Concept Restoration; and
- Planning Application Drawing No. 16 – Restoration Sections.

1.2 The Applicant

1.2.1 NRS group of companies are one of the largest independent suppliers of aggregates and waste management operators within the Midlands.

1.2.2 Following the Applicant's formation in 2005, NRS now operate across the Midlands with over 70 people employed by the business in the haulage, road sweeper, waste management and quarrying facets of the business. NRS's registered offices are at White Gate Farm, Mytle Lane, Witherley, Atherstone, Warwickshire, CV9 3NU.

1.2.3 The Applicant supplies over 1 million tonnes of aggregates per annum to customers and runs a large fleet of vehicles ranging from tippers to concrete mixers, and also runs some of the largest inert tipping facilities, quarrying and recycling aggregate production operations in the Midlands. The Applicant supplies primary and recycled crushed rock, gravel and ballast aggregates to market along with primary and recycled sharp sand, building sand and fill sand

from their Midlands quarries. Clay soil and building clays are also sold, sourced from NRS quarries at Meriden and Saredon.

1.2.4 The Lea Castle Farm Quarry site would provide a key south western location and source of supply to help meet existing and new demand for aggregates for the company.

1.2.5 NRS is committed to undertaking their operations in an efficient and sustainable manner meeting the highest quality standards with associated certification and accreditation which include IS09001,17001 and 18001 and appropriate licences.

1.2.6 For more information on NRS visit www.nrs.ltd.

1.3 The EIA Project Team

1.3.1 The EIA has been undertaken by Kedd Limited in partnership with other specialist consultancies. The ES has been prepared by Kedd Limited.

1.3.2 The irritative design of the scheme being produced by NRS, Kedd Limited and Greenfield Environmental. This included the operational requirements, mitigation and enhancement measures which have been incorporated within the phased working and restoration scheme.

1.3.3 The team assembled for the assessment of this scheme comprise environmental and amenity consultants with specialist knowledge and understanding of the minerals and restoration industry and its wider context.

1.3.4 These technical consultants being appropriately experienced/ qualified within their disciplines in the following areas:

- Planning and Management of Environmental Impact Assessment – Kedd Limited;
    - The preparation and submission of Environmental Statements and Non-Technical Summaries including the following ES chapters: alternatives, rights of way, lighting, climate change adaption, socio economic assessment and cumulative impact assessment have been carried out by Robin Smithyman and Liam Toland BA(Hons) MSc MRTPI. The team has worked on and developed planning applications for mineral and imported restoration materials sites for both large and small schemes and for a wide variety of clients and operators throughout the UK.
- Geological Investigation and Quarry Design - Greenfield Environmental;
    - Greenfield enviro have 25 years of experience in the search for land and development of mineral deposits. Works include desk top and field works, exploratory investigations, assessment of drilling results to understand geology and the associated aggregate products, and the mineral reserve together with quarry design, quarry geotechnics and ground engineering.
- Landscape and Visual Assessment and Restoration – Kedd Limited;

- The Landscape and Visual Assessment and restoration input has been prepared by Robin Smithyman Bsc (Hons), PG DipLA CMLI, PG DipTP, PG DipUD, PG Dip SI, MIQ, of Kedd Limited.
- Robin has over 25 years' experience working with operators and planning authorities on minerals extraction and restoration schemes, their landscape and visual assessment, mitigation and enhancement. He has been directly employed by mineral operating companies where practical hands on experience was gained within the industry and also acted as an independent consultant on over 150 mineral schemes assessments and applications. Robin also works with local authorities and community groups on Green Infrastructure and Masterplanning for quality and sustainable living.

- Ecology - Pleydell Smithyman Limited;
  - The ecological surveys were undertaken by a team of experienced and qualified ecologists from Pleydell Smithyman and comprised Nick Staples, Kelly Hopkins and Steven Pagett.
  - The team was guided by Principal Ecologist Nick Staples, B.Sc., (Hons.) Zoology, M.Sc., and Diploma of Imperial College in, Advanced Methods in Biodiversity and Taxonomy and, a Chartered Biologist of 15 years and a full member of the Royal Society of Biology. A field ecologist experienced in conducting zoological and botanical surveys of 19 years standing, he has considerable experience of working on and supervising projects including mitigating and compensating for European Protected Species. These have been on large scale residential, industrial, infrastructure and mineral extraction projects in the UK and abroad with extensive experience in writing technical reports and EcIAs and, with experience as an expert witness.
  - Kelly Hopkins B.Sc., (Hons.) Zoology, ACIEEM also has extensive field and technical experience in zoological and botanical surveys and exceptional organisational skills with six years' experience of writing, contributing to and compiling reports and EcIAs.
  - Steven Pagett, B.Sc., (Hons.) Geography, GradCIEEM is a highly experienced and qualified ornithologist, with five years' experience of field and technical skills in zoological and botanical surveys and the associated detailed reports and EcIA submissions.
  - The team is particularly experienced in assessing the ecological values of mineral extraction projects and associated restoration.

- Arboriculture - access2trees Limited;
    - The Arboriculture survey was carried out by NPTC (National Proficiency Tests Council) qualified James Plaskett who also holds the Lantra Professional Tree Inspectors Certificate.
    - The survey was carried in accordance with requirements set out in British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction: Recommendations'. The BS 5837:2012 survey includes all individual trees and tree groups within the site boundary, along with those present at the edges of the site, which may be adversely affected by the development proposals.
- Noise - WBM;
    - A Noise Assessment Report has been carried out by WBM Acoustic Consultants. The Author is Paul Cockcroft BEng PhD CEng MIMMM FIOA (Senior Partner) who has been practising in mining engineering and acoustics since 1983. He joined WBM in 1989, became a Partner in 1997 and Senior Partner in 2004. Paul has worked for many of the major mineral extraction and waste disposal companies in the UK and Mineral Planning Authorities on a wide range of surface mineral workings, aggregate related plant sites, waste disposal and recycling projects, including advising safeguarded wharf operators to protect vital industrial operations. He also specialises in the measurement and prediction of environmental, industrial and transportation noise and acoustic aspects of site development, road schemes, rail-linked sites, traincare depots and commercial and residential developments. Paul has prepared and presented evidence at planning appeals and for court cases, including Judicial Review applications, Breach of Condition Notices, nuisance cases and is known for his rigorous approach.
    - The Surveyor was Robert Storey BEng PhD MIOA (Consultant) who obtained his degree in Mining Engineering from the University of Leeds in 1993 before going on to complete a PhD in "The Acoustic Response of Structures to Blast Induced Ground Vibration" in 1998. He joined WBM in 2007 after working in acoustic consultancy and environmental health since 1999. Robert is involved mainly in environmental noise, working closely with the Senior Partner on mineral extraction, waste and industrial projects, including surveys, routine noise monitoring and assessments. He is experienced in noise modelling using SoundPlan for transportation, industrial and environmental sources.
- Dust and Air Quality – Vibrock Limited and EnviroCentre Limited;
    - A Dust Impact Assessment has been prepared by Vibrock Limited and can be

found at Technical Appendix E. An air quality assessment (Appendix 4 of Technical Appendix E) was undertaken by Envirocentre.

- The dust impact assessment has been prepared by Aaron Gutteridge, of Vibrock Limited. Aaron Gutteridge BSc (Hons) MSc AMIOA AFOH has an MSc Applied Acoustics graduate joined Vibrock Ltd May 2015, where he has worked in an Environmental Consultant role specialising in Environmental Acoustics and Air Quality. Aaron regularly undertakes various environmental assessments, such as air quality studies for environmental impact assessments, industrial noise assessments and environmental noise assessments. Mr Gutteridge has completed an 'International Environmental Policy and Law Certificate of Credit' as part of the Postgraduate Certificate in Environmental Management and has recently finished studying an 'Environmental Impact Assessment Certificate of Credit', also part of the Postgraduate Certificate in Environmental Management. Aaron holds memberships to both the Institute of Acoustics, and BOHS Faculty of Occupational Hygiene.
- The dust impact assessment has been reviewed by Daniel Williams, of Vibrock Limited. Daniel Williams BSc MIQ, MIAQM, MIEXPE joined the Vibrock team in 1998, employed as an Environmental Consultant. With 20 years of experience, Daniel has undertaken noise, air quality and vibration monitoring on a wide range of projects across the UK, specialising in the measurement and assessment of air quality and vibration for planning applications, including those requiring EIA, across the civil engineering, construction/demolition, waste disposal and mineral extraction sectors. Mr Williams holds membership to the Institute of Quarrying, the Institute of Air Quality Management and the Institute of Explosive Engineers.
- The air quality assessment was prepared by Bryan Cassidy BSc (Hons) MSc. Bryan Cassidy is a Senior Environmental Consultant at EnviroCentre with over 6 years of experience in Environmental Management. Bryan has been involved in the provision of Air Quality Dispersion Modelling and Management Plans (including dust) for a range of developments including quarries, leisure, mixed use and residential developments. He has a solid understanding of Air Quality Legislation at a national and regional level and the requirements they place upon both local councils and developers.

- Transport - The Hurlstone Partnership;
  - A Transport Statement (TS) has been prepared by Jeremy Hurlstone of The Hurlestone Partnership to assess the traffic and transport implications of the development proposal.

- Jeremy Hurlstone is the Managing Director of The Hurlstone Partnership Limited, which provides specialist highway advice to developers and Local Authorities. He holds a BSc (Hons) in Civil Engineering Management, is a Member of the Chartered Institution of Highways and Transportation (MCIHT) and a Chartered Member of The Institute of Logistics and Transport (CMILT). He has over 32 years of experience in the transportation industry, during which time he has been involved in many projects for varying development types. He has been involved with mineral sites and the assessment of their transport impacts throughout his career.

- Agriculture - Richard Stock (Richard Stock, Soils and Agriculture);
  - An Agricultural Land Classification and Soil Resource Report has been prepared by Richard Stock (Richard Stock, Soils and Agriculture) in order to assess the baseline ground conditions at the application site and provide recommendations for soil storage and handling.
  - Richard Stock BSc (Hons) Agricultural Science, PG Dip Agricultural Engineering has over 35 years' experience of the minerals industry in statutory, commercial and advisory organisations, working with operators and planning authorities primarily in relation to agricultural soils, restoration and post-restoration aftercare. He has been an independent adviser in Soils and Agriculture since 1991 when he has acted as a consultant on over 100 mineral schemes.
- Archaeology and Cultural Heritage - Worcestershire Archaeology;
  - An Assessment of the site's archaeological potential and the prospect of the proposal's impact on cultural heritage has been undertaken by Worcestershire Archaeology. Worcestershire Archaeology is a Registered Archaeological Organisation, regulated by the Chartered Institute for Archaeologists. Geophysical survey works were carried out by SUMO Geophysics who have over 30 years' experience in geophysics for archaeology and engineering. SUMO Geophysics was created in January 2017, from the merger of Stratascan Limited and GSB Prospection Limited.
- Hydrology and Hydrogeology - BCL Consultant Hydrogeologists Limited;
  - BCL Hydro have carried out a Hydrological and Hydrogeological Impact Assessment including a Flood Risk Assessment. The report provides a thorough assessment of the potential effects of the proposed mineral extraction, mineral operations and site restoration on the surface water and groundwater environment, and flood regime.
  - BCL is an independent consultancy specialising in all aspects of hydrogeology

and hydrology as they relate to minerals extraction, waste disposal, water supply and related industries. Gavin Chaplin (the author of this report) holds a joint honours Bachelor of Science Degree (Geology & Management Science B.Sc.) conferred by Keele University, Staffordshire, United Kingdom (UK) in 1990 and a Master of Science Degree (Groundwater Engineering M.Sc.) received in 1993 from the Civil Engineering Department of Newcastle University, Newcastle upon Tyne, UK.

  - BCL has provided specialist services, advice and reporting to the extractive, waste and related industries since 1990. During this time a collective 100+ years of experienced has been earned from involvement with wide variety of assignments.

- Leisure / Recreation / Health and Wellbeing– Kedd Limited; and
  - Kedd Limited and its staff members are working on and have worked on a wide variety of leisure and recreation provision and development projects and the impact of specific development interventions on general and specific activities and user groups for small scale local use to National Sports Centres. Health and Wellbeing forming a guidance tool and provision setting device within these schemes.
- Consultation Community Engagement – EQ Communications.
  - Under Lucy James, stakeholder engagement and public consultation has taken place to seek to involve the local communities in understanding the proposals and evolving the design of the scheme. EQ work with a variety of clients and development proposals including energy and mineral throughout the UK to promote dialogue.

1.4 Technical Difficulties in Undertaking the EIA

1.4.1 The EIA Regulations require an ES to identify the difficulties (technical deficiencies or lack of know-how) encountered in compiling the required information when undertaking the EIA. The various technical appendices to this ES describe the scope and limitations of those particular assessments undertaken. No overriding technical difficulty has been encountered that undermines the conclusions drawn in any particular assessment.

2 Site Context

2.1 Site Location

2.1.1 This chapter provides a description of the existing physical and environmental characteristics of the site and identifies the features in and around the site that may be affected by the proposed development.

2.1.2 The site at present consists of agricultural land and is located approximately 2.3 kilometres to the north of the centre of Kidderminster, 0.7 kilometres to the east of Wolverley, and 0.37 kilometres south of the closest residential properties at Cookley. The site is located within the Wyre Forest District of Worcestershire, with Wyre Forest District Council (WFDC) the local planning authority for the site and Worcestershire County Council (WCC) the minerals planning authority.

2.1.3 The site is located immediately to the north of the B4189 Wolverley Road and immediately to the west of the A449 Wolverhampton Road.

2.1.4 The site measures approximately 46 hectares in area and is mainly comprised of agricultural land within the historic parkland setting of Lea Castle, which was built around 1762 and demolished in 1945.

2.1.5 The site is bounded to the south west, west, and north west by woodland. The irregularly shaped northern boundary is mainly comprised of agricultural fields interspersed with farm buildings and residential properties. The eastern boundary is comprised of the A449, beyond which lie agricultural fields. The southern boundary is comprised of a wall adjacent to the B4189, individual areas of vegetation and trees, and residential properties.

2.1.6 The site is located within the vicinity of several residential and commercial properties. The nearest properties include South Lodge and Broom Lodge on the southern boundary, Castle Barns and Lea Castle Equestrian Centre on the northern boundary, and residential properties at Brown Westhead Park on the western boundary.

2.1.7 The site is located wholly within the Green Belt.

2.1.8 The site is located in Environment Agency Flood Risk Zone 1 (comprising land at lowest risk of flooding from fluvial sources).

2.2 Topography and Land Uses

2.2.1 The site is generally undulating with a slight valley feature to the central west area at c.60 m above Ordnance Datum (m aOD) running eastwards to a track at c.69-70 m aOD. Levels to the south, central and northern portions of the western area are around 67m aOD. The site's eastern area features a central knoll at c.83m aOD with land levels falling to the west to c.69m

aOD, to the north to c.72m aOD and to the east to c.53m aOD. Land levels to the south of the knoll are at approximately 80m aOD.

2.2.2 A Public Right of Way (PRoW) (Bridleway no. WC-624) runs across the western section of the site. Bridleway no. WC-626 runs on a north-south alignment from the southern boundary to the centre of the site, and then to the north eastern corner of the site along existing tracks.

2.3 Roads and Public Access

2.3.1 The B4189 Wolverley Road runs to the south of the site connecting at its eastern end onto the traffic light junction and the A449 Wolverhampton Road which leads north south connecting Kidderminster to Stourbridge and the West Midlands. To the west of the junction Park Gate Road connects onto the A451 Stourbridge Road.

2.3.2 An assessment of the suitability of the proposed new quarry vehicle access onto the Wolverley Road and wider highway matters is provided in Chapter 12 of this ES.

2.3.3 Two sections of Public Rights of Way pass through the site. Public Right of Way 62 6(B) runs along the track which separates the western and eastern parts of the site and progresses northwards adjacent to the northern boundary of the EA and onto Cookley. Whilst the southern connection onto a footpath at the junction of Wolverley Road and Sion Hill Road. Footpath ref (62 4 (B)) is accessed off 62 6(B) where it passes through the WA to join with 62 2(C) which heads north to Lea Lane and south to Wolverley Road.

2.3.4 An assessment of the suitability of the impact on the Public Right of Way network is provided within Chapter 16 of the ES.

2.4 Natural and Built Heritage Designations

2.4.1 There are no statutory national heritage, landscape, built heritage or other local designations over the Application Site. There are, however, a number of Listed Buildings within the vicinity of the site. The Grade II listed North Lodges and Gateway of Lea Castle lies approximately 275 m to the north east of the site. The Grade II Listed Sion Hill House lies approximately 260 metres to the south west of the site. The Grade II Listed Wolverley Court is located approximately 545 m to the west of the site. The majority of the site is located within the Sionhill House Bartholomew Park and Garden.

2.4.2 The Staffordshire and Worcestershire Canal Conservation Area is located approximately 625 metres to the west of the site. The Wolverley Conservation Area is located approximately 700 metres to the west of the site. An assessment of the impact of these designated built heritage structures is provide within Chapter 14 of the ES.

2.4.3 There are no statutory nature conservation designations over the Application Site. There are, however, a number of local areas of wildlife interest and Sites of Special Scientific Interest. These include:

- Stourvale Marsh SSSI is located ~ 930m to the south of the site
- Puxton Marshes SSSI is located ~ 1080m to the south of the site
- Hurcott Pasture SSSI is located ~ 665m to the south east of the site
- Hurcott and Podmore pools SSSI is located ~ 660m to the south of the site
- The River Stour LWS is located ~ 520m to the west of the site
- The Gloucster Coppice LWS is located ~ 330m to the north west of the site
- The Staffordshire and Worcestershire Canal LWS is located ~ 450m to the west of the site
- The Wolverley Marsh LWS is located ~ 680m to the west of the site
- The Wolverley Court Lock Carr LWS is located ~ 800m to the south west of the site
- The Hurcott and Podmore Pools (Pastures) LWS is located ~670m to the south of the site
- The Island Pool LWS is located ~ 1.3 km to the north east of the site
- The Caunsall Marsh LWS is located ~ 1.4km to the north east of the site

2.4.4 In addition, Gloucester Coppice Ancient Semi-Natural Woodland is located c.310m to the north west of the site. There are 30 trees with Tree Preservation Orders (TPOs) located across the site.

2.4.5 The south eastern corner of the site is located in Source Protection Zone 3. The site is also categorised as Best and Most Versatile Agricultural Land.

2.5 Planning History

2.5.1 Historically, the site formed a part of the c.220ha grounds of Lea Castle, which was built around 1762 and demolished in 1945.

2.5.2 Planning permission was granted at Lea Castle Farm in May 1997 (WFDC ref.WF/0648/96) for the conversion of barns into eight dwellings, the erection of garages, construction of driveways, parking areas and new sewage treatment plant along with alterations to the existing access. In July 2001 planning permission was granted (WFDC ref. WF/0437/01) for the change of use of barns to 11 dwellings with the associated erection of garages, construction of hardstandings and new access drive.

2.5.3 A planning application for the construction of two golf courses at Lea Castle Farm was first submitted to WFDC in March 1999. The application included the proposed construction of one 18-hole and one 9-hole golf courses, the erection of a clubhouse with ancillary facilities, the construction of a new vehicular access onto Castle Road, new driveways and parking facilities, a golf practice area, and the diversion of a public footpath. The application (WFDC

ref. WF/0260/99) was refused at Planning Committee on 14th March 2000 and a subsequent appeal was withdrawn. However, an application (WFDC ref. WF/0211/01) was permitted by Committee on 17th July 2001 for 'construction of two new golf courses (18 hole and 9 hole), new clubhouse and ancillary facilities, new access to Castle Road, Cookley, new driveways and parking facilities, golf practice area and diversion of public footpaths'.

2.5.4 No permission for the construction of golf courses at the application site were implemented. Similarly, neither permission for the conversion of barns to residential uses at the site were implemented. The July 2001 permission (WF/0437/01) remains the most recent significant permission issued for the application site.

2.5.5 East of Wolverhampton Road, at approximately 450m from of the easternmost extent of proposed mineral extraction, is a significant previously developed site which formerly housed Lea Castle Hospital. The redevelopment of the former hospital site for up to 600 new dwellings and up to 3,500 square metres of employment floorspace was approved subject to the signing of a S106 agreement (Ref: 17/0205/OUTL) at Wyre Forest's Planning Committee on 21st November 2017.

2.5.6 The parcel of land between Wolverhampton Road and the former Lea Castle Hospital site benefitting from outline planning permission is proposed to be allocated for a new sustainable community known as Lea Castle Village along with other land parcels surrounding the former hospital site which are proposed to be access via Wolverhampton Road, Stourbridge Road, and Axborough Lane. The proposed allocations are shown within the latest iteration of the emerging Wyre Forest Local Plan (the Pre-submission publication version, published October 2018).

2.5.7 In terms of mineral development, the site was promoted within the emerging Worcestershire Minerals Local Plan- Third Stage Consultation where it was assessed and considered appropriate to be allocated 'Preferred Area Status' under the title of Land North of Wolverley Road (submission reference DO26-2397). Representations were also made in respect of the fourth Call for Sites.

2.6 Geology

2.6.1 Detailed geological investigations behalf of the land owner (Strong Farms Ltd) were carried out in October 2015 and January 2016. An overview of the geological conditions found following detailed investigations is provided below, with the full Geological Investigation and Mineral Reserve Assessment considered further in the ES.

2.6.2 The land comprises agricultural land at Lea Castle Farm, Wolverley that covers approximately 45 hectares. These investigations involved the drilling of 11 shell and auger, and 11 rotary boreholes across the site to determine overburden thickness and mineral thickness and mineral quality.

2.6.3 The results from the investigations have confirmed that workable deposits of sand and gravel are present across the site, together with substantial reserves of weathered bedrock sandstone (Solid Sand), which could be worked on the site. The sand and gravel deposit comprises brown to orange-brown and comprises quartz sands with fine to coarse grained rounded gravel. The weathered Solid Sand is comprised mainly fine to medium grained quartz sands with occasional gravel units present. The investigations proved a variable thickness of soil and silt/clay overburden generally about 0.7m in thickness, within the central part of the site having a thicker (up to 2.2m in thickness) unit of overburden present.

2.6.4 Laboratory testing of the sand and gravel samples collected during the borehole drilling investigations confirms that the sand and gravel would be suitable for a range of construction and ready mix concrete products. The 12 samples tested confirm that the deposit is generally sand rich (54%), with a mean gravel content (+4mm) of 37%, ranging from 20% to 60%. Testing indicates that material greater than 20mm is present and oversize (+40mm) materials form 7% of the samples. The sand fraction is mainly comprised of medium sized grains (50%), while the fine and coarse fractions make up 19% and 17% of the samples respectively. Laboratory testing of Solid Sand confirms that the material is mainly fine to medium grained and would be suitable for a range of mortar, concrete and building sand end uses.

2.6.5 It is estimated that total potential saleable reserves of about 1.57million tonnes of sand and gravel may be present with about 1.43 million tonnes of Solid Sand within a total potential extraction area of about 26.6 hectares.

2.6.6 In 2008, the British Geological Survey in their report “the need for indigenous aggregates production”, estimate that each new home built in England including an associated proportion of roads and utilities requires as much as 400 tonnes of aggregates. Given the relative proximity of the proposed quarry site to the nearby Lea Castle Village housing and mixed-use allocation, the quarry could offer significant sustainability benefits in transportation/ highway limiting distance of journeys and time and flexibility with construction.

2.6.7 The nature of the geology of the quarry also with a variety of sand and gravel and solid sand, offers the wide product range for construction including building sand, concrete, mortar and drainage material from a sustainable location for supplying the site.

3 Statement of Community Involvement

3.1 Public and Community Consultation

3.1.1 Both formal and informal consultation in respect of the proposed development has taken place over the past two years. Formal consultation to establish the scope of the ES, with Worcestershire County Council and other statutory bodies including the Environment Agency, Natural England and Public Health England along with Wyre Forest District Council.

3.1.2 Community consultation has involved liaison with residents that are most local to the proposals, along with local schools and leisure and recreation providers. In addition, the Applicants agent has engaged with County and District Councillor(s) and the landowner and tenant farmer. Meetings with Wolverley and Cookley Parish Council, residents of Castle Barns and residents / owners of the Lea Castle Equestrian Centre, residents of Broom Cottage (property now under the control of the applicant), residents of Brown Westhead Park Road, tenants of South and North Lodges and representatives of Heathfield Knoll School and First Steps Day Nursery have also taken place to present the draft proposals and to listen to concerns and opinions as to the nature of the proposed mineral extraction and restoration scheme in respect of health and wellbeing and other matters and to receive comments and suggestions as to the proposal appropriateness and potential for inclusion of further mitigation and enhancement measures.

3.2 Public Information Exhibitions

3.2.1 In June 2019, NRS Aggregates ran a series of public consultation events to present draft proposals to local residents and the wider community. The public consultation events took place on;

- Friday 14th June 2019, Cookley and Wolverley Village Hall, Cookley; and
- Monday 17th June 2019, Wolverley Memorial Hall, Wolverley.

3.2.2 Across the two events a total of 400 people attended.

3.2.3 In summary of those who provided feedback, 45% were retired, 39% were in full time employment, 13% part-time, 2% student and 1% self-employed.

3.2.4 Age;

- Over 79 – 6%;
- 60-79 – 42%;
- 40-59 – 35%;

- 20-39 – 15%; and
- 0-19 – 2%.

3.2.5 Sentiment and Frequency of comment/concerns (negative concerns)

- Traffic and Transport – 98;
- Dust and Air Quality – 81;
- Noise – 61;
- Trust – 48;
- General Health – 46; and
- Other – 30.

3.2.6 The main comments received being;

- Traffic – Concern for congestion, possible increase in accidents, increased emissions from HGV's;
- Dust and Air Quality – concern for potential increase in air pollution particularly in relation to school children and those with respiratory problems, adverse impact on health from quarrying;
- Noise – levels of noise in the area will increase;
- Trust – Concern that the operator would not perform the agreed standards as had been observed at other quarries, lack of trust in consultation process, lack of trust in landowner;
- General Health – two levels of concern;
    - General concern about health and the potential of the quarry and its restoration degrading, physical and mental health of local residents and the wider community; and
    - Specific – local residents and an action group had been told by a third party that sand and gravel quarries result in silicosis.
- Other;
    - Public Access – concern that the quarry would result in the closure of local footpaths and bridleways and/or result in a change in the nature and ambience of the local PROW network;

- Concern that property prices would fall which could lead to stress of residents who may wish to leave the area during the quarry operations (10-11 years); and
- Respondents expressed concerns about the operations happening at the same time as the delivery of the new permitted housing development (cumulative impact).

3.3 Proposed Mitigation and Enhancement Measures

3.3.1 To address concerns raised at the consultation events, the following aspects have been integrated within the scheme.

Issue	Mitigation Measures
To mitigate against potential noise, dust and air quality	1. Standoffs to extraction areas of a minimum of 75m to the Bungalow, 120m to the northern edge of Castle Barns and 110m to the north west of the occupied South Lodge (which is under the control of the applicant); 2. Temporary grass seeded and maintained soil screening bunds to be in place in-between the residential properties above and the limit of mineral extraction; 3. Tree and shrub planting is to be established between Phase 5 of the proposed development, temporary attenuation bund and Castle Barns/ White House. Planting to take place ~7years in advance of working behind the temporary bund; 4. The quarry plant site will be located a minimum of 7m below adjacent ground levels and further contained by a temporary bund and existing topography landform; 5. The plant site has been located in proximity to the Wolverley Road to limit traffic movements within the Site; 6. HGV's visiting and leaving the Site will meet emission standards- checked and monitored by the operator; 7. When leaving the site, a no right hand turn will be in operation. This will both physically prevent and monitor via a CCTV traffic to ensure HGVs head directly to the main highway network and do not travel through the village of Wolverley; and 8. The scheme will be worked progressively i.e. only relatively small areas of the landscape, will be required for quarry operations (mineral extraction and plant site). Less than 10Ha at any one end of phase period.
To mitigate against a potential loss of public access	1. Two sets of PROW will be temporarily diverted. FP 626 (B) for 2 weeks and FP ref 62 4(B) for ~ 2 years. Advanced notice of the proposed diversions and alternative routes will be in place before the temporary diversions are instigated. These PROW's will be reinstated along their current routes post the specific reasons for the temporary diversions.

3.3.2 Three perceptual/ social aspects of physical and mental health were raised.

Issue	Mitigation Measures
A fall in house prices	This aspect is generally common to all changes associated with new development. We could not find any direct evidence of this change in house prices resulting from quarry activities. It is acknowledged that the perception is unsettling. Broom Cottage was placed on the market for sale after details of the proposed quarry were announced and known. Although interest appeared to decline the property was sold for the asking price with two parties interested to proceed. Mitigation measure include the short-term nature of the overall scheme, limiting mineral extraction in location and duration, screening proposals and progressive restoration.
An identified lack of trust in the landowner	A relatively large number of people have mentioned through the consultation process that they did not have trust in the landowner to carry out the proposals in accordance with the proposed scheme and to maintain the restoration landscape and community enhancement elements of it. The mitigation to provide certainty that the scheme will be adhered to will come from both monitored and enforceable planning conditions and secondly via legal agreement between the landowner and Worcestershire County Council where by the landowner will be legally committed to provide long term After Care and Management to establish, manage and maintain all aspects of the restoration scheme. It is also proposed to establish a local community liaison group who will be updated on the progress of the Site and who will be able to help design the detailed public land use elements and features and monitor the scheme.
A rumour emanated at the public consultation that Sand and Gravel quarries can result in Silicosis to members of the local community	The extraction of silica sand does not generate significant quantities of dust. The sand is generally damp on extraction and there are not large quantities of smaller particles within the sand. Silica dust is usually generated from operations which work stone, such as masonry, demolition or blasting operations at hard rock quarries, where stone is pulverised. None of these operations will take place at Lea Castle Farm. The Health and Safety Executive have stated that *"no cases of Silicosis have been documented among members of the general public in Great Britain, indicating that environmental exposure to silica dust are not sufficiently high to cause this occupational disease"* (Source: HSE Guidance: http://www.hse.gov.uk/quarries/silica.htm)

Proposed Enhancement Measures

3.3.3 As part of the scheme the following enhancement measures have been integrated into the proposals as part of a Green Infrastructure Strategy.

Issue	Mitigation Measures
Public Access	Approximately 1.8km of new public access will be provided within the Site in advance of any other development activities to be used as footpaths, bridleways and cycleways. On the completion of restoration this figure will rise to 2.3km. The new routes will connect with the wider PROW network, linking routes both north to south and east to west through the Site. It is also proposed to upgrade a further 12km of existing footpaths within the ownership of the application to bridleways/ cycleways.
Pocket parks	5 new public use open spaces (pocket parks) are to be created across the Site. The parks are to be designed with local input from the proposed Community Liaison Group and subject to conditional details. The parks will be accessed from both the existing and proposed new PROW routes. They will include activities and information on play, health and wellbeing, historic and educational material, as well as places to sit.
Agriculturally managed parkland	The Site will be progressively enhanced and restored to reflect the Lea Castle House Parkland (house demolished c1945). This will include replanting ~200 Avenue Trees, 8500 native parkland trees and shrubs and ~3500 new hedgerow plants. This planting/ landscaping will create a strong visual character and increase the overall visual amenity to users/receptors of the Site.
Habitat Creation Biodiversity	It is proposed to restore land within Phase 1 and around the periphery of the Site to species rich acidic grassland. This habitat being a Biodiversity Target Habitat. It will not only form a buffer to agricultural operations it will be concentrated to form a simple strong management unit. This new resource will also provide wellbeing and education opportunities.

4 Description of Proposals

4.1 Introduction

4.1.1 This chapter describes the way in which the proposed Lea Castle Quarry would be progressively worked and restored including a description of the approach and actions in achieving a sustainable development.

4.2 Development Overview

4.2.1 The proposed development is for a proposed sand and gravel quarry with progressive restoration using site derived ad imported inert material to agricultural parkland, public access and nature enhancement over approximately 26 hectares of land at Lea Castle Farm.

4.2.2 A development overview is shown on Planning Application Drawing No. 4 – Proposals Plan.

4.2.3 The quarry establishment, its operations and restoration can be described in seven interrelated and concurrent parts, comprising:

- Initial Works;
- Stripping of soils and overburden;
- Extraction of sand and gravel/ solid sand;
- Transfer of extracted material for processing;
- Material processing, stocking and dispatch;
- Progressive and final restoration; and
- Aftercare and Management.

4.2.4 In addition, the application proposes to enable the establishment of a new temporary access on to the A4189 Wolverley Road from the proposed site which would feature the plant area and areas of phased mineral extraction with concurrent restoration utilising both in situ site soils and overburden and imported inert materials.

4.2.5 A total of 3 million saleable tonnes (comprising c.1.57 million tonnes of sand and gravel and c.1.43 million tonnes of solid sand) will be extracted across an initial works period and five subsequent phases over the course of approximately 10 years. The mineral will be transported to the plant site for processing utilising both dump trucks and a conveyor system. This scheme has been designed based on an annual processed tonnage of 300,000 saleable tonnes. This will provide a source of mineral to supply the building and construction industries with aggregates for products such as building sand, mortar sand, drainage materials and concreting sand and gravel supplying local and midland markets.

4.2.6 The phased extraction of all mineral would take place above the natural water table. The

development will also include the restoration and enhancement of the site/local landscape setting and green infrastructure. A new agricultural parkland will be created designed to enhance local access, amenity and wellbeing with the provision of an agricultural parkland, provision of approximately 2.3km of new routes of public footpaths, cycleways, bridleways and pocket parks. Native woodland blocks will be re-established to reflect previous social historic land uses, hedges will be strengthened, and new acidic rich meadow grassland will be developed to promote biodiversity and educational opportunities.

4.2.7 No recycling operations would take place. The development will also include the restoration and enhancement of the site/local landscape setting and green/blue infrastructure associated with an agricultural parkland, provision of c.2km of new routes of public footpaths, cycleways and bridleways, pocket parks, strengthening of existing woodland and diversifying habitats to promote biodiversity and local amenity opportunities.

4.2.8 To aid in this process c. 60,000 m^3 of inert material will be imported onto site per annum, c. 600,000 m^3 in total, to help create restoration formation levels onto which the original site soil profile will be placed. The Western Area of the site is proposed to be fully restored within 5 years of extraction commencing with the Eastern Area restoration being fully completed within one year after the cessation of mineral extraction.

4.2.9 Land Aftercare and Management agreements will be established to ensure the restoration/enhancement measures are financially sustainable and permanent.

4.3 Proposed Working Methods

Plant Site, Processing and Stocking

4.3.1 The footprint of the operational plant site area will be 2.5 hectares, and is proposed to comprise the following:

- The processing plant;
- Office and weighbridge and wheel wash;
- Stocks of product;
- 2 cylinders for a silt management/water cleansing system; and
- Staff and visitor car parking.

4.3.2 The layout and elevation of the plant site can be seen on Planning Application Drawing No. 6 – Plant Site – Plan & Elevations.

4.3.3 The plant will be erected below surrounding ground level of c.70m aOD at a floor base of 63.5m aOD and contained by soil storage/ screening bund to the south, west and north and higher ground to the east up to c.80m aOD.

4.3.4 The aggregate processing plant will comprise a hopper (4m in height) to receive ‘as dug’

mineral, the processing plant (9m in height) with a surge bin overflow, feed conveyors leading to a screen which will sort and convey sand and gravel into product of 20mm, 10mm, course sand, fine sand and ultra-fine sand stockpiles of c.5m in height.

4.3.5 The process of on-site sand and gravel processing operations entails the crushing, screening and sorting of the extracted material into marketable materials. This process starts with all gravel and larger particle sized material being reduced in size before the material is then fed into a series of screens that would sort the material into different grades depending on their particle size. Geological borehole and test pitting investigations have determined that there is only a small proportion of oversized (large gravel boulders) within the deposit. A large crusher section within the plant is therefore not required.

4.3.6 The processed sand and gravel would be stocked within the existing plant site, in piles of the various products, pending their subsequent loading into road going vehicles for dispatch from the quarry.

4.3.7 2 cylinders for a silt management/water cleansing system will be constructed lined to efficiently manage and contain silt and water requirements.

Stripping of Soil and Overburden

4.3.8 The first stage of the extraction process would involve the removal of soil and unsaleable materials such as clay or un-saleable silty sand (overburden) to expose the extractable sand and gravel underneath. The soil and overburden stripping would be undertaken in approximately annual blocks over a period of up to 8 weeks during the spring, summer and autumn months each year. The extent of soil removed at any time would be limited as far as possible to maintain a maximum of 1 year's production at any time. The remaining unstripped parts of the Extraction Area would remain in agricultural use as far as possible.

4.3.9 The nature of the soils in the Extraction Area is described in more detail in Chapter 13 of this ES. The soil handling would be in accordance with published guidance and the recommendations contained within ES Chapter 13. The development scheme has been designed to maximise the direct placement of stripped soils to final restoration. The stripped soils would be loaded on to dump trucks for either direct placement in previous extraction areas as part of ongoing restoration or stored temporarily in stores (bunds) pending their subsequent reuse in the final restoration of the site.

4.3.10 The location and form of the soil bunds has been determined based on temporary storage requirements as part of the phased operations and/or through the EIA process for acoustic and visual screening purposes. Bunds would be temporary in nature, only being retained for the period required to secure the storage or environmental mitigation that they are intended for. The planned movement of soil throughout the operations are described in this Chapter and the accompanying phasing drawings. (Planning Application Drawing Numbers 8-13).

4.3.11 The phasing drawings also show the phased construction of the soil storage bunds, which are

summarised below. Soil bunds will be constructed to a maximum outer batter slope of 1:3 and an inner batter slope of 1:2. Topsoil bunds will be no higher than 3 metres in height, subsoil bunds no higher than 5 metres in height and overburden bunds no higher than 6 metres. A total of 20 soil bunds are numbered and labelled on the accompanying plans (Planning Application Drawing Numbers 8-13).

4.3.12 Soil storage bunds associated with the development proposals include:

Bund 1	(3m high) – 3,300m³ - formed using Topsoil from the Initial Works area. Bund 1 is located to the south of the proposed plant site and north of South Lodge. The bund would remain in place throughout the duration of the development (c.10 to 11 years) when the soils will be used to restore Phase 5 / Final Restoration.
Bund 2	(3m high) – 1,900m³ - formed using Topsoil from the Initial Works area. Bund 2 is located to the south east of the plant site and north of Broom Cottage. The bund would remain in place throughout the duration of the development (c.10 years) when the soils would be used to restore Phase 5 / Final Restoration.
Bund 3	(4 - 5m high) – 14,100m³ - formed using Subsoil, and 10,900m³ (6m high) - formed of Overburden from the Initial Works area. Bund 3 is located immediately to the west of the plant site. The bund would remain in place throughout the duration of the development (c.10 to 11 years) when the soils will be used to restore Phase 5 / Final Restoration.
Bund 4	(3m high) – 2,300m³ - formed using Topsoil from the Initial Works area. Bund 4 is located to the north east of the plant site. The bund would remain in place throughout the duration of the development (c.10 to 11 years) when the soils will be used to restore Phase 5 / Final Restoration.
Bund 5	(6m high) – 8,200m³ - formed of Overburden from the Initial Works area. Bund 5 is located within the north of the plant site. The bund will be in place throughout the duration of the development (~10 – 11 years) when the Overburden will be used to restore Phase 5 / Final Restoration.
Bund 6	(0.3m high) – 5,100m³ - to be spread on Phase 4 to then restore Phase 5 / Final Restoration.
Bund 7	(6m high) – 17,700m³ - formed of Subsoil from Phase 1 soil strip. Bund 7 is located to the west of the Bungalow. The bund will only be on place during Phase 1 mineral extraction and restoration period (c.1.5years) when 16,900m³ of soil would be used to restore the Phase 1 Area and 800m³ to restore Phase 2.
Bund 8	(5m high) – 23,900m³ - formed of Overburden from Phase 1 soil strip. Bund 8 is located along the central western boundary of the site. The bund will be in place in full for the duration of Phase 1 and part in place for phase 2 and 3 as the extraction area progresses southwards (c.1.5 to 3.5 years) when the soils would be used to restore land in Phases 1 and 3.
Bund 9	(3m high) – 3,100m³ - formed of Topsoil from Phase 1 soil strip. Bund 9 is located to the south and east of the Western Area's as dug mineral stockpile/

	field hopper. The bund will be in place during the mineral extraction period of Phases 1,2 and 3 (3 years) when soils would be used to restore the Phase 3 Area.
Bund 10	(3m high) – 600m³ - formed of Topsoil from Phase 1 soil strip. Bund 10 is located to the east of the Western Area's as dug mineral stockpile/ filed hopper. The bund will be in place during the mineral extraction period of Phases 1,2 and 3 (3 years) when soils would be used to restore the Phase 3 Area
Bund 11	(3m high) – 12,100m³ - formed of Topsoil from the progressive Phase 1 soil strip. Bund 11 is located within the north of the Phase 1 void, post extraction. The bund will be in place during the mid and latter stags of Phase 1 extraction (~0.75 years) when the Topsoil will be used to restore Phase 1.
Bund 12	(3m high) – 7,200m³ - formed of Topsoil from Phase 2 soils strip. Bund 12 is located along the northern boundary of Phase 2. The bund will be in place during the mineral extraction and restoration period of Phase 2 (c.1 to 2 years) when soils would be used to restore Phase 2 Area.
Bund 13	(4m high) – 5,600m³ - formed of subsoil from Phase 3 soils strip. Bund 13 is located north of the as dug mineral stockpile/field hopper. The bund will be in place during mineral extraction and restoration period of Phase 3 (c.1.5 years) when soils would be used to restore the Phase 3 Area.
Bund 14	(4m high) – 2,700m³ - formed of Subsoil from Phase 3 soils strip. Bund 14 is located north of the unoccupied south Lodge (west) property. The bund will be in place during the mineral extraction and restoration period of Phase 3 (c.1.5 years) when soils would be used to restore the Phase 3 Area.
Bund 15	(3m high) – 2,400m³ - formed of Topsoil from Phase 3 soils strip. Bund 15 is located along the southern boundary of Phase 3. The bund will be place during the mineral extraction and restoration period of Phase 3 (c.1.5 -2 years) when soils would be used to restore the Phase 3 Area.
Bund 16	(4m high) – 8,500m³ - formed of Subsoil from Phase 3. Bund 16 is located along the western boundary of Phase 3. The bund would remain in place during the mineral extraction and restoration period of Phase 3 (~ 1.5 – 2 years) when soils will be used to restore.
Bund 17	(3m high) – 17,200m³ - formed of Topsoil from Phase 4. Bund 17 is located along the north and eastern boundaries of Phase 4. The bund would remain in place until the end of Phase 5 Phase 5 / Final Restoration (~ 6.5 years).
Bund 18	(4 - 5m high) – 19,200m³ - formed of Subsoil from Phase 4. Bund 18 is located along the eastern boundary of Phase 4. The bund would remain in place throughout the extraction period for Phases 4 and 5 (c.6 years) where upon the soils will be used to restore Phase 5.
Bund 19	(4m high) – 3,000m³ - formed of Overburden from Phase 4 soil strip. Bund 19 is located along the south eastern boundary of Phase 4. The bund will be in place for approximately 6 years.
Bund 20	(6m high) – 7,000m³ - formed of progressively stripped Overburden from Phase 4 soil strip. Bund 20 is located within the north western area of Phase

	4. The bund will be in place for 3 to 4 years when it will be used to restore Phase 5 / Final Restoration,

4.3.13 To allow for the efficient placement of soils and overburden for restoration there may also be the need as in general quarry operations to place small volumes of material in temporary bunds within the actual extraction areas. These bunds would generally be stripped overburden temporarily stored until a sufficient area of land has been extracted within a phase to allow placement and regrading of this material within a restoration profile.

4.3.14 Once soils have been stripped from a sufficient area of any phase, any exposed overburden would be separately stripped and loaded into dump trucks using hydraulic excavators. The material would be transported either for direct placement for restoration or for storage in temporary overburden storage mounds in preparation of being redistributed for use in future restoration. Bunds/ soil stores which are to remain in-situ for more than three months will be seeded with a low maintenance grass seed mix. The bunds will be managed by cutting at least two times per year and, if growth is excessive, the arisings will be removed. Weed growth will be controlled by cutting or spraying with approved herbicide, and weeds will not be allowed to go to seed.

Extraction of Sand and Gravel

4.3.15 Once the overlying soils and overburden are removed, the exposed sand and gravel would be extracted and removed for processing. The area where extraction takes place is referred to as the quarry face and the base of the quarry is referred to as the quarry floor.

4.3.16 Hydrogeological analysis has identified that both the proposed extraction depths of sand and gravel and solid sand extraction areas are well above (over 20m) the water table. The whole deposit would therefore be worked dry.

4.3.17 The extraction process would use either a tracked excavator or rubber tyred loading shovel. The material would be excavated from the quarry face using the shovel or excavator. The uncompacted nature of the sand and gravel and weak structure of the solid sand means that the material can be dug freely from the face without the requirement to blast or break the material using explosives. As the extraction of sand and gravel progresses, the operations might encounter areas of overburden within the deposit that were not evident at the time of soil stripping. Where such overburden occurs, it would be excavated separately from the sand and gravel and placed in restoration or temporary storage, in much the same way as the overburden removed at the same time as soil stripping.

Transfer of Extracted Material

4.3.18 In general, within the western part of the site (phase's 1,2 and 3). Once excavated, the mineral would be loaded into dump trucks at the quarry face to be carried and loaded on to a field hopper positioned within the eastern area of Phase 2 where it would be conveyed under the existing access track (PROW Ref 62 6(B)) via a small conveyor tunnel to the plant site for

processing into the different grades of product and materials for sale from the quarry. The location of the field hopper and small conveyor tunnel are illustrated on Planning Application Drawing No. 9 – Phase 1.

The Conveyor Tunnel Section

4.3.19 The conveyor tunnel section will be a simple structure comprising pre-cast concrete box sections which will be laid c.1m below the current ground level. The siting of the conveyor tunnel is located to avoid any of the remaining avenue of trees along PROW 62 6(B). The field conveyor will be a standard flow and return rubber conveyor belt of approximately 900mm width. It will have the capability to be fixed and withdrawn from the short tunnel section for management and maintenance. The length of the tunnel section for management and maintenance. The length of the tunnel section will be c.60m.

4.3.20 The tunnel construction will involve the temporary diversion of a section of approximately 30 linear metres of PROW 62 6(B) to run parallel with its existing route and approximately 30 m to the west within the adjacent field for a period of approximately 1 week. Alternative arrangements will also be provided for vehicle access to the Bungalow and Lea Castle Equestrian Centre either from Castle Road/ North Lodge access or again running parallel with the existing track accessed from South Lodge off Wolverley Road. These minor temporary works will be publicised and discussed with users of the track to ensure appropriate measures are in place.

4.3.21 An excavation along a linear strip from the western area to the Plant Site will be dug approximately 2m wide and 2.5m deep into which the pre-cast box sections for the conveyor will be placed, set within a compacted granular base. Original dug material and/or further granular material will be placed above the conveyor tunnel and the track surface made good. The section of track/ PROW will then be reopened on its original route.

Dispatch of Product from Site

4.3.22 Upon completion of the crushing, screening and sorting operations required to bring about sorted marketable materials of differing grades depending on their particle size, all products are to be dispatched from the site by way of road worthy lorries and light commercial vehicles. Unladen vehicles arriving at the quarry for loading would be weighed in at the weighbridge upon arrival, before progressing to the stocking area where they are loaded by a wheel shovel loader and then weighed back out at the weighbridge passing through a wheel wash and then being sheeted before leaving the quarry.

Outputs

4.3.23 The duration of the proposed quarry development is 10 years for mineral extraction based upon an annual tonnage of 300,000 tonnes and a further period of 1 year to complete restoration, giving a project life of 11 years. It is important to note that the quarry will be

extracted and restored progressively i.e. the full footprint of the quarry will never be disturbed at any one point in time. The largest area of phased operations is contained within the initial plant site and extraction area, which is around 10 ha.

Hours of Operation

4.3.24 The quarry would operate between the hours of 0700 to 1900 Monday to Friday and between the hours of 0700 and 1300 on Saturdays. No mineral operations are proposed for Sundays or Bank / Public Holidays. It is anticipated that these operating hours would be regulated by a planning condition.

4.4 Potential for Vibration

4.4.1 Please note that there will be **NO** blasting associated with the proposals. The in-situ sand and gravel and solid sand will be extracted by an excavator and transferred to the plant site via a dump truck and / or small section of field conveyor. The nature of the mineral means that that there is no requirement for a large crusher as part of the fixed plant as the deposit contains minimal oversize gravel. The processing plant will be located a minimum of 7m below adjacent ground levels and contained. These items of plant will not result in any adverse vibration to local residents.

4.5 Proposed Phasing of Extraction and Progressive Restoration

4.5.1 Site investigation work has enabled the production of detailed assessments of the soils, overburden, silts and saleable mineral that will be encountered. The anticipated volumes of materials can therefore be calculated. The depth of the quarry floor will vary as the base of deposit undulates and extraction is anticipated to be typically between ~6m to ~7m in the west and ~7m to ~12m in the east.

4.5.2 The phasing of extraction has been prepared based on operational requirements with a view to reducing the amount of land that is taken out of agricultural use at any point in time and to keep the areas of exposed working to a minimum, whilst maintaining sufficient accessible mineral reserves. Planning Application Drawing No. 4 – Proposals Plan illustrates the operational plant site and mineral extraction/ progressive restoration areas associated with Initial Works to Phase 5. The hectarage and material characteristics of each phase are summarised the table below.

Phase	Area (Hectares)	Soils/ Overburden (m^3)	Mineral Tonnages	Anticipated Extraction Duration (years)
Initial Works	3.3	45,800	450,000	1.5
Phase 1	4.65	57,400	225,000	0.75

Phase 2	3.78	37,000	300,000	1
Phase 3	4.45	54,500	375,000	1.25
Phase 4	5.97	62,400	975,000	3.25
Phase 5	3.83	52,700	675,000	2.25
TOTALS	**25.98**	**309,800**	**3,000,000**	**10**

4.5.3 Further explanation of the materials movements from Initial Works to Final Restoration of the Site is provided on a phase by phase basis set out below.

Initial Works – Illustrated on Planning Application Drawing No. 8

4.5.4 Works will commence with the creation of a new vehicle access onto Wolverley Road with a short site internal road into the proposed plant site. 60 linear metres of an existing boundary wall will be temporarily dismantled to allow appropriate access and visibility. The bricks to be stored and used to rebuild the wall on its original alignment on completion of quarry extraction and restoration.

4.5.5 Soils will be stripped from the plant site area and used to create soil storage/ screening bunds around the plant site. These bunds will be seeded/planted and maintained. Mineral from within the southern half of the plant site will be extracted and transferred off site to another point of sale or one of the other operators quarry units for processing. This will allow the mineral processing plant to be constructed at a low-level c. 7m below current ground levels. Both the low-level plant site and bunding helping to contain and screen this part of the operation.

4.5.6 The proposed site internal access road will be graded down from the east to the lower Plant Site level. Both the low-level plant site and adjacent bunding helping to screen this part of the operation.

4.5.7 Other Initial Works activities will include the creation of approximately 2km of new public access away from local roads and connecting sections of the existing local PROW network both north south and east west. Approximately 200 avenue trees will be planted to help recreate the Lea Castle parkland. A parkland woodland block will also be planted within the north eastern corner of the site (W1) along with the strengthening and species diversification of hedgerows (H1, H2 and H3).

Phase 1 – Illustrated on Planning Application Drawing No. 9

4.5.8 A short section of conveyor tunnel will be installed beneath PROW 62 6(B) to transport “as dug” mineral from the Western Area of the site to the Plant Site.

4.5.9 Soils will be stripped under a watching archaeological brief from Phase 1 and used to create soil storage/ attenuation Bunds 7, 8, 9, 10 and 11. Bunds to be seeded and maintained. Straw bales to also be used to help screen a mineral holding area before it is placed in a field hopper and conveyed beneath the access track/ PROW 62 6(B) to the Plant Site.

4.5.10 Mineral extracted by a hydraulic excavator will be taken by dump truck to a field hopper. A field hopper will be placed within the south eastern area of Phase 2. The field hopper will be approximately 2m in height.

4.5.11 During Phase 1, imported restoration material will be placed and utilised to help progressively restored extracted land, initially in the Northern Area of Phase 1 in combination with regrading works. Land progressively restored to final formation levels will receive soils stripped directly from the Southern Area of Phase 1.

4.5.12 Restored land will be seeded and/or planted in accordance with the Concept Restoration Scheme land uses.

Phase 2 – Illustrated on Planning Application Drawing No. 10

4.5.13 Progressive soil stripping within Phase 2 will commence ~3-6 months prior to completion of extraction in the Phase 1 area dependent upon season, weather and ecological and archaeological investigation works. Soils will be utilised to complete restoration of all land within Phase 1 along with the removal and use of soils from Bunds 7, 8 and 11. Remaining stripped soils will be placed in Bund 12 located along the northern boundary of Phase 2 for storage/ attenuation. Bund 12 to be seeded and maintained.

4.5.14 Mineral will be extracted by a hydraulic excavator and taken to the field hopper and within Phase 1 by dump truck from where it will be conveyed beneath FP62 6(B) via the conveyor tunnel.

4.5.15 Mineral processing will take place with silt generated placed into the silt management/water cleansing system within the plant site. Processed mineral will be sold and transported off site.

4.5.16 During Phase 2 imported inert restoration material will be placed and utilised to help progressively restore extracted land to formation levels within phase 2. Sequential soil stripping from phase 2 will be directly placed to complete restoration soil profiles on this land.

4.5.17 Restored land will be seeded and/or planted in accordance with the Concept Restoration Scheme land uses.

Phase 3 – illustrated on Planning Application Drawing No. 11

4.5.18 Sequential soil stripping will take place in a southerly direction with soil either being placed to create temporary soil storage/ screening bunds or placed directly for restoration within the previously extracted Phase 2.

4.5.19 Stripped soils will be placed in Bund 13 located along the northern boundary of the western area field hopper, Bund 14 located adjacent to the south eastern corner of Phase 3, Bund 15 located along the southern boundary of Phase 3 and Bund 16 located along the south western boundary of Phase 3. Soil stripping will commence ~3-6 months prior to completion of extraction in the Phase 3 area dependent upon season, weather and ecological and

archaeological investigation works.

4.5.20 Mineral will be extracted, conveyed to the plant site, processed and sold.

4.5.21 On the completion of mineral extraction from Phase 3 all remaining land not previously restored will be brought up to restoration formation levels utilising imported inert materials. Soils previously placed within Bunds 8, 13, 14, 15 and 16 will be removed from storage and placed along with overburden from Phase 3 to complete the final restoration soil profile.

4.5.22 The temporary conveyor tunnel beneath FP 625(B) will be removed requiring a temporary diversion of the Bridleway/ Track for approximately 1 week.

4.5.23 Restored land will be seeded and/or planted in accordance with the Concept Restoration Scheme land uses.

Phase 4 – illustrated on Planning Application Drawing No. 12

4.5.24 Progressive soil stripping is to take place within phase 4 with soils being placed into temporary soil bunds 17, 18, 19 and 20.

4.5.25 Mineral will be progressively extracted in an easterly direction by a hydraulic excavator and taken to direct to the plant site by dump truck.

4.5.26 Mineral processing will take place with silt generated placed into the silt management/water cleansing system within the plant site. Processed mineral will be sold and transported off site.

4.5.27 During Phase 4 imported inert restoration material will be placed and utilised to help progressively restore extracted land to formation levels within Phase 4. Sequential soil stripping from Phase 4 will be directly placed to complete restoration soil profiles on this land.

4.5.28 Restored land will be seeded and/or planted in accordance with the Concept Restoration Scheme land uses.

Phase 5 – illustrated on Planning Application Drawing No. 13

4.5.29 Progressive soil stripping within Phase 5 will commence approximately 3-6 months prior to completion of extraction in Phase 5 dependent on season, weather and ecological aspects. This is to ensure the continued supply of exposed mineral. The physical area of soil stripping will endeavour to relate to the available area of land within Phase 4 requiring restoration and subsequently Phase 5 that have attained restoration formation levels via the importation and placement of inert materials and is available for the direct placement of soils to achieve the final restoration soil profile. Land will be made available within the base of the extracted Phase 4 area to temporarily store soils if this is not achievable. All bunds will be seeded if they are to remain in-situ for more than 3 months.

4.5.30 Mineral will be progressively extracted in a northerly direction by a hydraulic excavator and taken directly to the plant site by dump truck.

4.5.31 Mineral processing will take place with silt generated placed into the silt management/water cleansing system within the plant site. Processed mineral will be sold and transported off site.

4.5.32 Restored land will be seeded and/ or planted in accordance with the Concept Restoration Scheme land uses.

Final Works – illustrated on Planning Application Drawing No. 14

4.5.33 On the completion of mineral extraction, processing and sales, all plant and equipment associated with the development will be decommissioned and removed from the site.

4.5.34 All land will be restored to achieve the final formation levels and soil profiles utilising both imported overburden and site indigenous soils. All temporary soil bunds (1, 2, 3, 4, 5, 17, 18, 19 and 20) will be taken down and the soils utilised within the restoration process.

4.5.35 Decommissioning will include the removal of the access road from the Plant Site to the Wolverley Road. The dismantled section of wall will be re-built on its original alignment using the original stored bricks.

4.5.36 Restored land will be seeded and/ or planted in accordance with the Concept Restoration Scheme land uses. All restored land will be placed in Aftercare and Managed along with previously restored land.

Mitigation and Enhancement Measures

4.5.37 Mitigation and enhancement measures are an integral part of the development proposals. These measures relate to preventing and reducing potential adverse impacts during the operational period of the quarry to providing a permanent sustainable green infrastructure legacy for public enjoyment and wellbeing.

4.5.38 Measures designed into the proposed scheme include:

	Mitigation Measure	**Mitigation**
1.	Progressive extraction and restoration	To minimise the area of disturbed land at anyone point in time
2.	Temporary soil screen bunds	To minimise / eliminate specific environmental topics concerns e.g. specific noise attenuation bunds (All temporary bunds to be seeded/planted and maintained)
3.	Lowering of Plant Site Area	To sink the plant site below adjacent ground levels by a minimum 7m to help contain and screen activities
4.	Temporary diversion of FP62 4(B)	To allow the continual use and connectivity of

	and FP62 6(B)	public access route
5.	Advanced tree/shrub and hedgerow planting	To minimise views of the proposed quarrying activities and to maintain screening vegetation around the periphery of the site
	Enhancement Measures	**Enhancement**
1.	Planting of Avenue Trees along FP 62 5(B), 62 6(B) ~200m	Reinstatement of visual and amenity parkland character, potential for biodiversity
2.	Planting of 6,000 native and parkland trees and shrubs ~ 8.1ha	Recreation of quality landscape parkland and agricultural setting/ potential enhancement of biodiversity
3.	Creation of ~5 hectares of acidic species rich meadow	Target biodiversity action plan habitat
4.	Establishment of benches along avenue and heritage/ educational resources/ signage/ pocket parks ~2.5ha	Raising amenity, education and enjoyment value of the site for existing and new users as well as health and wellbeing opportunities
5.	Creation of 2km of new footpaths/ bridleways/ cycleways	New off-road public access provision to connect and enhance the local access network health and wellbeing benefits
6.	Long term aftercare and management of the new and restored site elements and features	Commitment to restoration landuse including monitoring and management

4.5.39 The above mitigation and enhancement measures have been fully integrated into the phased working and progressive restoration scheme.

4.6 Restoration

4.6.1 The concept Restoration Scheme is illustrated on Planning Application Drawing No. 15.

In-Situ Soils and Other Materials for Restoration

4.6.2 A summary of the progressive stripping, direct placement, temporary storage and final placement for restoration material is provided below.

In situ-Soils to be stripped (based on 1.2m soil profile)

Phase	Area m^2	Topsoil (0.33m)	Subsoil (0.37m)	Overburden (0.50m)	Sub Total
Initial Works	38,200	12,600	14,100	19,100	45,800

Phase 1	47,800	15,800	17,700	23,900	57,400
Phase 2	30,700	10,200	11,400	15,400	37,000
Phase 3	45,500	15,000	16,800	22,700	54,500
Phase 4	52,000	17,200	19,200	26,000	62,400
Phase 5	43,900	14,500	16,200	22,000	52,700
TOTALS	**25.8 ha**	**85,300**	**95,400**	**129,100**	**309,800**

Restoration Materials Balance

4.6.3 The volume of restoration material required to produce the restoration levels and landform illustrated on Planning Application Drawing No. 15 (Concept Restoration) is 1,095,000m^3.

4.6.4 The materials required to achieve the restoration scheme being obtained from:

- On site soils and overburden (1.2m profile) 309,800m^3
- Silt waste materials generated from on-site materials 185,200m^3
- Imported inert material 600,000m^3
- TOTAL 1,095,000m^3

Restoration Objectives

4.6.5 The specific objectives of the proposed restoration strategy and how they will be achieved are outlined below:

	Objectives	**To be achieved by**
1.	To increase public access	Provision of 2km of new public footpaths/bridleways and cycleways
2.	Creation of estate parkland setting	Planting of ~200 Avenue Trees to reflect the original Lea Castle parkland. Planting of ~6,000 native and parkland trees and shrubs to reflect the original Lea Castle Parkland
3.	Provision of educational resources	Creation of pocket parks notice boards in respect of the previous site history and new biodiversity initiatives. Raising awareness of sustainability link between natural assets
4.	To maximise the on-site soil resources	All areas of Best and Most Versatile soil(s) local characteristics to be restored
5.	To create new habitat and promote biodiversity	Planting of ~8,500 new trees and shrubs including woodland fringe, woodland and strengthening and planting of ~1018 Linear metres new hedgerows. Sowing of ~8.1 hectares of Acidic Species Rich Meadow (a target biodiversity action plan species)

6.	To meet guidelines and outcomes of the Worcestershire Green Infrastructure Strategy	Delivering Green Infrastructure through mineral extraction and restoration
7.	Connectivity	Creating new links and integration between and for local communities and wildlife matrixes and corridors e.g. new public right of way link from Cookley to the proposed Lea Castle village (on the old Lea Castle Hospital Site) on east west routes to the Stour/ Worcestershire and Staffordshire Canal Corridor south to Kidderminster and to the north
8.	To ensure the restoration proposals are managed and maintained in perpetuity	Legally establish the permanent restoration scheme land uses and right of access along with a sustainable management plan

4.6.6 An overview of the existing application site land uses and the proposed Final Restoration Land uses are set out in the table below:

Lands uses	Existing Situation	Proposed Final Restoration
Agricultural Land	43.78 Ha (41.2 2/3a bmv)	32.26Ha bmv
Acidic Grassland	Nil	8.1 Ha
Woodland	1.12Ha	4.54Ha (~ addition of 8,500 trees and shrubs)
Hedgerows	439 Linear metres	1018 Linear metres
Avenue trees/individual trees	14	200
Public footpaths/Bridleways	1.47 km	3.78 km
Pocket Park	Nil	5
Tracks	1.1	1.1

4.6.7 The main changes in land use within the application boundary will be:

- An additional ~3.42 Ha of native woodland (planting of ~8500 new trees and shrubs);
- An addition of ~579 linear metres of native species rich hedgerows (planting of ~3,474 new hedgerow plants;
- An addition of 8.1 Ha of species rich acidic grassland;
- An addition of ~200 specimen avenue/ individual trees;
- Creation of ~2.31km of new PROW/bridleways, footpaths and cycleways); and
- Creation of 5 pocket parks.

Aftercare and Management

4.6.8 All restored land will be placed into Aftercare for 5 years along with a concurrent and long-term management and maintenance programme in accordance with the land use proposal.

This will be secured by both planning conditions and a formal legal agreement. All new sections of Public Rights of Way will be permanent.

4.7 Further Consents Additional to Planning

4.7.1 In addition to securing planning permission, a number of other statutory authorisations and other consents are required for different parts of the development to allow those parts to be undertaken. The separate consenting regimes operate largely independently of the planning system and would require the submission of further detailed design or specification's relative to the authorisation sought. The authorisations required would include:

- Appropriate submissions to WCC for the approval of any detailed submissions to be set out in any planning submissions;
- Detailed access for arrangements for the vehicle access onto the A4189 Wolverley Road;
- Appropriate statutory undertakings for the disconnection and diversion of existing overhead power lines.

5 Environmental Impact Assessment

5.1 Introduction

5.1.1 The EIA Regulations set out a procedure whereby Applicants can seek advice from the Planning Authority as to the issues which should be covered as part of an EIA and included within an ES. As such on the 30th April 2018, under Regulation 15(1) of the above EIA Regulations 2017, Kedd Limited on behalf of NRS requested that the CPA prepare a Scoping Opinion for the proposed development.

5.1.2 In accordance with Regulation 15(6) of the EIA Regulations 2017 before adopting a Scoping Opinion the CPA shall take account of:

- Any information provided by the application about the proposed development
- The specific characteristics of the particular development
- The specific characteristics of development of the type concerned
- The environmental features likely to be affected by the development

5.1.3 Under Regulation 15(4) of the EIA Regulations 2017, the CPA has a duty to carry out consultation on the request for a Scoping Opinion submitted by the applicant.

5.2 Scoping Opinion

5.2.1 The Scoping Opinion including CPA consultation was received by Kedd Limited on 29th June 2018. The Scoping Opinion confirms the mandatory nature of the EIA and sets out the information that WCC consider should be included within the ES, covering the following aspects;

- Population and Human Health
- Noise, Vibration, Dust and Lighting
- Transport Movement and Access
- Ecology and Biodiversity
- Soil Resource and Agricultural Land Classification
- Water Environment
- Air Quality
- Cultural Heritage and Archaeology
- Landscape and Visual Impact
- Climate

- Cumulative Effects

5.2.2 The Scoping Opinion is attached to this ES at Appendix 1.

5.3 Topic Specific Scoping Response

5.3.1 For each of the environmental topics set out within the Scoping Opinion the further detailed information requirements of WCC and statutory consultees are summarised in the Table below, together with details of how NRS have addressed each of those matters in undertaking the EIA.

Topic and Consultee	Nature of Scoping Requirement
Population and Human Health CPA (incorporating comments of WCC internal departments	• A recreational and users' assessment should be included; • An initial Health Impact Assessment utilising a map of the application site identifying measures to protect the health and amenities of local residents including to users of Broom Westhead Park and Playing Fields; • Consideration should be given to loss of PROW, access, recreation and open space including to Broom Westhead Park and Playing Fields; • Consideration to mental health issues which may affect people in the vicinity of the Site or those who are losing accessibility to green spaces for recreation; • Consideration should be given to safe routes (including walking to schools which may be affected by external site traffic; • Consideration of health impacts from chemicals used in the mining process; and • Consideration of the potential long-term requirement and its effect on residents or employees.
Public Health England	Provision of sufficient information to allow the potential impact of the development on public health to be fully assessed. Any assessments undertaken should be proportionate to the potential impacts of the proposal.
Wyre Forest District Council	The effects and benefits regarding recreation should be assessed. A Health Impact Assessment (HIA) is required which should take into account their Local Plan Review.
Wolverley and Cookley Parish Council	• There are five local schools near the proposed site. Children walk along the path adjacent to the wall on Wolverley Road and will be affected by noise, air quality and safety aspects; • Children from Heathfield School opposite the site will be affected by noise and air pollution whilst playing; • Wolverley and Cookley have many local businesses that will be affected. The Caravan Park could be affected by noise, dust and air pollution and reduced visitor numbers due to its proximity. The Brown Westhead football pitches would be affected in a similar manner; and

	• Lea Castle Equestrian Centre at the heart of the development would be most impacted.
Noise, Vibration, Dust and Lighting CPA (incorporating comments of WCC internal departments)	Noise, vibration, dust and lighting effects should be considered within the ES.
Wyre Forest District Council	Consideration needs to be taken of existing properties, approved properties and future expansion as part of the Council's Local Plan Review, particularly around the Lea Castle Hospital Site.
Wolverley and Cookley Parish Council	An independent report should be undertaken on noise.
Worcestershire Regulatory Services	Noise, Vibration, Dust and Lighting assessments should be carried out.
Transport, Movement and Access CPA (incorporating comments of WCC internal departments)	A transport assessment should be produced. Any planning application should include; • Identification of all public rights of way on their definitive lines and how these will be protected and enhanced during the works and on restoration; • Details of any diversion temporary or permanent required; • Details of how footpath WC-624 will be retained following the installation of screening bunds; and • Details of how public safety along the any public rights of way retained on their line during the quarrying works will be ensured.
Wyre Forest District Council	A Transport Assessment should be produced (Consideration of heritage perspectives of access point).
Wolverley and Cookley Parish Council	The number and types of vehicles or equipment should be detailed. Details of proposed access should meet statutory requirements. Proposals for footpath no 626 running through phases 1 and 2 should be set out.
The British Horse Society	As part of the restoration scheme, bridleway access provision should be created around the periphery of the site to provide much needed safe off-road access for horse riders. This would link into the existing bridleway providing riders with a choice of rides.
The Campaign to Protect Rural England	Assessment of the setting of public footpaths.

The Ramblers Association	Analysis of how PROW will be affected by the development proposals.
Ecology and Biodiversity CPA (incorporating comments of WCC internal departments)	• An Ecological Impact Assessment (EcIA) in line with current CIEEM guidance (Guidelines for Ecological Impact Assessment in the UK and Ireland, 2nd Ed, January 2016). Practise and reporting should be compliant with BS42020:2013 (Biodiversity: Code of Practice for Planning and Development); • Consideration of locally important sites in accordance with Worcestershire County Council's Planning and Validation Document, including the Staffordshire and Worcestershire Canal and River Stour Local Wildlife Sites and Grassland Inventory sites including Cookley Rough; • Request the application and detailed restoration strategy draw appropriate reference to the Worcestershire Biodiversity Action Plan (BAP) and Biodiversity Area Priorities; and • A Green Infrastructure Concept Plan to be submitted.
Natural England	Production of EcIA based upon Scoping Report.
The Environment Agency (EA)	Comment that the site is of limited sensitivity regarding biodiversity and habitats. Opportunity to provide exemplar Green and Blue infrastructure/ connectivity.
Worcestershire Wildlife Trust	Recommend the ES considers a broader ecological envelope than just red line boundary. Preliminary Ecological Appraisal to be considered.
Wyre Forest District Council's Countryside Manager	Hydrological aspect to be considered in respect of SSSI's Checks for Dormouse/ opportunity for creation of new Dormouse habitat to be considered. Light implications for Bats to be considered.
Soil Resource and Agricultural Land Classification CPA (incorporating comments of WCC internal departments)	Soil resources and Agricultural Land Classification Appraisal to be carried out.
Wolverley and Cookley Parish Council	Details in respect of the type of materials to be imported onto site for restoration purposes and assessment of effects on the environment.
Water Environment	Hydrogeographic and hydrogeological assessment to be produced.

CPA (incorporating comments of WCC internal departments)	
Environment Agency (EA)	Have concerns where quarries are worked sub-water table to enable sand and gravel extraction and dewatering by pumping can lower the water table and impact surrounding water features. Request a Water Features Survey. Recommend a Hydrological Impact Assessment (HIA). EA would like to know if the mineral product is to be washed on site (using ground water) and where this water would be discharged to.
North Worcestershire Water Management	Hydrology and Hydrogeology Assessment of the site and the interaction with surrounding areas including water dependant SSSI's to be carried out along with Flood Risk and Surface Water Drainage Strategy.
Air Quality CPA (incorporating comments of WCC internal departments)	Air Quality Assessment to be produced.
Cultural Heritage and Archaeology CPA (incorporating comments of WCC internal departments)	There are no known or recorded heritage assets or archaeological interest within the application area with the exception of a World War II grass landing strip. The presence of unrecorded, unknown, below ground heritage assets (archaeological remains) cannot be discounted along with stray finds. The EIA needs to fully investigate and understand these impacts. The heritage statement should include an assessment of the impact of the development on the setting of any designated heritage assets in the vicinity of the application.
Wyre Forest District Council	A desk based archaeological assessment to identify above ground and potential below ground archaeology will be required. An archaeological assessment should accompany or be incorporated into a Heritage Statement submitted with the planning application
Wolverley and Cookley Parish Council	The potential impact of breaking through a historical 19th century wall should be assessed.
The Wolverley and Cookley Historic Society	The potential impact of breaking through a historical 19th century wall should be assessed. Assessment of a drop-in ground level during and post excavation as it could lead to destabilising a long stretch of wall.

Historic England	The quarry could have an impact on several designated heritage assets and their settings in the area around the site. The ES should contain an assessment identifying heritage assets which could be affected, the elements contributing to their significance (including setting), likely impacts of the development on the elements, and any resulting benefit, loss or harm to their significance. The assessment should consider the impact from quarrying activities and any restoration works introducing a different land use, management, or landscape than the existing.
Landscape and Visual Impact CPA (incorporating comments of WCC internal departments) and Wyre Forest District Council	Landscape and Visual LVIA to be carried out in accordance with GLVIA 3rd Edition and Worcestershire Landscape Character Assessment and Supplementary Guidance. Restoration to be in line with Green Infrastructure principles. To consider potential visual impact on historic designated landscapes. In addition, recommends that the applicant includes annotated 3D visualisations of the application site in its existing form, the proposed quarry form (including phasing), and the proposed restoration form. Such visualisations would be in line with industry best practice as demonstrated at the 2018 Mineral Products Association/ Royal Town Planning Institute Mineral Planning Conference 2018. 3D visualisations would also be invaluable for communicating the above surface impacts of the proposed development to the public and other interested parties.
Wolverley and Cookley Parish Council	An assessment of the proposed bunds should be made as they may not hold together and look unsightly.
The Campaign to Protect Rural England	There will be a substantial landscape impact from the development because of its hilltop nature.
The Ramblers Association	The landscape between Cookley and Kidderminster at Lea Farm is attractive with blocks of woodland surrounding the site and a pleasant rolling, somewhat hilly nature. The site is used for quiet informal leisure purposes with a number of PROWs across and around it well used by people from local communities. The site is highly visible from higher ground to the north east but not particularly prominent from Wolverley Road. The site is screened by woodland from the west and north west. The site is within the West Midlands Green Belt. Due to the above the ES must address short- and long-term impacts on the landscape and leisure uses carried out upon it. They are concerned to know how extraction will damage the curving slopes of the land and whether the restoration will provide a new landscape compatible with the old. Concerned that it should be demonstrated how extraction will affect the surrounding blocks of woodland which must be protected from any reductions in the level of the water table and dust. They are concerned the table relating to potential effects avoids making an assessment in the case of landscape. They anticipate very damaging short- or long-term effects. Request detailed restoration proposals be provided which are

	respectful of the existing landscape character and the Green Belt status of the land.
Climate CPA (incorporating comments of WCC internal departments) Wyre Forest District Council Worcestershire Regulatory Services	Climate should be taken into account and addressed in the ES.
Cumulative Effects (incorporating comments of WCC internal departments)	Cumulative effects should be included in the ES including proposed allocation in Wyre Forest District Councils Local Plan Review 2016-2036 (Former Lea Castle Hospital- Lea Castle Village).
Other Matters Planning and Policy Analysis	A Planning Statement should accompany the planning application including current and emerging plan/policies.
Public Comments	72 Letters were received by the CPA in response to the Scoping Report. Comments raised concern and request for assessment on; • Landscape character, visual and setting aspects; • Historic aspect; • Geology; • Green Belt; • Cumulative development; • Ecology, habitats, biodiversity/ acid grassland; • Proximity to residential properties; • Public rights of way; • Childrens route to school; • Roads/highways; • Noise, Dust, Vibration, Air quality; • Health and quality of life; • More suitable sites to be considered; • What will happen when quarry is extracted and deemed empty; • The nature and control of inert restoration material; • Method of quarry working; • Reason for two fields to west of A442 being included within the site along with woodland to the south of Phase 2; • What light will be required and its effect on local population and wildlife; • The general health, mental health and wellbeing of horses at the Old Lea Castle Riding Scholl and lively hood of owners;

	• Possible negative economic impact on other local businesses particularly leisure orientated; • Trees/ Hedgerows; • Existing power lines; • Drainage issues including potential flooding and input on the Stour Rivers tributary/ water runoff; • Grade II Lea Castle Gate House and estate wall; • Selfish pursuit of financial gain with no thought for the wellbeing of the local community or the surrounding area; • Bunds an eyesore and washing/blowing; • Sleeping in the daytime would not be possible for shift workers; • Broom Cottage would be badly affected by noise and dust; • All research should be as general as possible in nature because without research it is impossible to know what the ecosystem holds in the area; and • Request that neighbours and local residents are informed of the proposals and identification of potential neighbours should be checked.
Western Power Distribution	All equipment on site should be assessed to be live until Western Power Distribution prove otherwise.

5.4 The Environmental Statement

5.4.1 In preparing the ES, the Company and its consultants have had regard to the contents of Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. Specifically, this ES has addressed the main elements of the proposals that have the potential to impact (positively and/ or negatively) on:

a) population and human health;

b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC(a) and Directive 2009/147/EC(b);

c) land, soil, water, air and climate;

d) material assets, cultural heritage and the landscape; and

e) the interaction between the factors referred to in sub-paragraphs (a) to (d).

5.4.2 A non-technical summary has been provided.

5.5 Main Environmental Considerations

5.5.1 Within the Development Plan and Government guidance notes there are numerous policies that seek to ensure development proposals protect the environment and where appropriate make contributions to enhance the environmental assets of the area within which they are

proposed. The environmental policies of relevance to this planning application are those focused on the following:

- Landscape and visual impact – ensuring that the proposed extension can be worked in a manner that does not cause an unacceptable impact upon the landscape or have an impact upon the visual amenity of nearby residents or users of the area;
- Impact upon ecology – including the protection of habitats and the protection of species;
- Protection of amenity – ensuring that levels of noise and dust are kept to within acceptable levels;
- The promotion of an appropriate land use following mineral extraction;
- Protection of the water environment – ensuring that there is no pollution of groundwater or surface water resources, ensuring that there is no increase in flood risk;
- Impact of transport – ensuring that the highway network can accommodate HGVs associated with the quarrying operations; and
- Impacts on Public Rights of Way and their users.

5.5.2 A list of planning policies relevant to each environmental discipline can be found within the 'Policy Context' section of each of the respective 'Environmental Considerations' considered in this statement.

5.5.3 All of the above are explored in further detail in the following sections.

6 Alternatives

6.1 Introduction and Background

6.1.1 As set out in paragraph 041 (Reference ID: 4-041-20170728) of the Planning Practice Guidance, the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 do not require an applicant to consider alternatives.

6.1.2 Notwithstanding this, where alternatives have been considered, Schedule 4 (Part II) of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (the Regulations) provides that the information for inclusion in Environmental Statements should include *"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".* In accordance with Schedule 4, consideration of the main alternatives to the scheme, as studied by the applicant, is considered below.

6.1.3 The assessment of alternatives has had regard to the environmental assessment work undertaken by the Company's team of consultants and indicates where the assessment work has influenced the ultimate design of the scheme having regard to the potential for environmental effects.

6.2 Approach and Methodology

6.2.1 The assessment of alternatives has had regard to relevant Development Plan policy, Government planning guidance and the EIA Regulations 2017 together with its corresponding circular and good practice guide.

6.2.2 In terms of an overall approach it is considered to be neither practical nor necessary to look at every single alternative option. Instead, and in accordance with Government guidance, consideration of "main alternatives studied by the applicant" is undertaken below.

6.3 Do Nothing

6.3.1 The first consideration in terms of an alternatives assessment is the 'do nothing option'. In practical terms this would involve leaving the proven economic source of sand and gravel in situ, with the existing land use continuing. The 'do nothing option' is not the preferred option for the Company as it would prevent the creation of 11 potential direct jobs as well as the impact on associated indirect jobs and input to the local economy and the sterilization of a viable and high quality mineral supply to meet identified need, as required by both adopted and emerging Minerals Local Plan Policy.

6.3.2 As set out in the Sand and Gravel Needs Assessment chapter of the accompanying Planning Statement (Chapter 5), there are just 3 active sand and gravel sites within the County. With the permitted but inactive reserves excluded, the County cannot provide a sufficient landbank. This leaves the County vulnerable to maintaining the supply of sand and gravel should there be a down turn in production at any of the active sites either as an operational constraint or the quality of reserves is not as anticipated. In the Do Nothing scenario, there will be a continued shortfall within the Worcestershire Mineral Land Bank. This will be exacerbated within the north/ east of the County where there are no active sand and gravel supply quarries. Considerable built growth is also permitted/ proposed in and around Kidderminster which will require a local sand and gravel/ solid sand quarries range of products. As a result, it is essential that sites such as Lea Castle Farm come forward to contribute to the sand and gravel supply.

6.3.3 In terms of economic considerations, there are limited alternative employment opportunities in the immediate locality and granting Planning Permission for the proposed development at Lea Castle Farm would create employment for 11 jobs for approximately ten years if the scheme is approved. Aside from the sand and gravel need (as set out above), the proposed development will help provide and secure jobs for people directly and indirectly employed as part of the quarry operations and which contribute to the local economy through wages, business rates, use of local suppliers, and at a national level; to the economy through aggregates levy and other taxation processes. The proposed quarry would provide a significant contribution to the local economy. As set out in the Socio Economic chapter of this ES, it is estimated that this contribution would equate to approximately £750,000 to £1,000,000 per annum (based on the Applicant's other operations) on external suppliers and on goods and services over the life time of the development, as well as contributing to the national and local tax base.

6.4 Alternative Sand and Gravel Sources within Worcestershire

6.4.1 Worcestershire has a clear divide in available resource. The northern half of the County in which Lea Castle Farm is located contains the solid sands (building and mortar markets) with the concreting sand and gravels from the terrace and glacial deposits in the south of the County. The two different resources serve different and distinct markets. Their location within the County will affect the distance they need to travel to market as well as the demand/pull on resources from outside the County to meet demand. The number of active and permitted sites (but non-operational) sites are also small in number which may affect the distance the reserves travel to market.

6.4.2 When looking at the supply of mineral within a county a balanced spread of geographical location supply sources is very important in promoting sustainable development. Aggregates being bulky in nature, costly to transport/ typically only transported about 30 miles from

source. The proposed Lea Castle Farm mineral site would help provide a balanced geographical spread of mineral supply sources.

6.5 Alternatives to Primary Aggregates

6.5.1 There are two alternatives to Primary Aggregates – Recycled Aggregates and Secondary Aggregates.

6.5.2 Recycled Aggregates: derived from reprocessing materials previously used in construction. Examples include recycled concrete from construction and demolition waste material (C&DW) and railway ballast.

6.5.3 Secondary Aggregates: usually by-products of other industrial processes not previously used in construction. Secondary Aggregates can be further sub-divided into manufactured and natural, depending on their source. Examples of manufactured secondary aggregates are pulverised fuel ash (PFA) and metallurgical slags. Natural secondary aggregates include china clay sand and slate aggregate.

6.5.4 In 2002, the WRAP (Waste & Resources Action Programme) Aggregates Programme funded by DEFRA was launched to minimise the demand for primary aggregates through promoting greater use of recycled aggregates.

6.5.5 To ensure demolition waste could be processed into Recycled Aggregate which was of an appropriate quality and conformed to the appropriate European Aggregate Product Standard, WRAP worked with the industry to formulate a Quality Protocol (QP). This QP, entitled “The Quality Protocol for the production of aggregates from inert waste”, was first published and implemented in 2004. It was reviewed and reprinted in 2008 to produce the current edition.

6.5.6 In summary, the Quality Protocol provides recycled aggregate suppliers with the following:

- A procedure to control the quality of recycled aggregates for sale as construction materials, or as constituents in a product, e.g. concrete, asphalt and unbound mixtures; and
- Recommended minimum frequencies of inspection and testing conforming to the requirements of the European Standards for Aggregates (See references below).
- The means for suppliers to provide adequate assurance that their products conform to relevant technical specifications and certified characteristics.

6.5.7 The aggregates market supplied from recycled and secondary sources has risen to 29%. This 29% market share is nearly three times higher than the European average of 10%, highlighting the fact that the use of recycled and secondary materials in Britain is close to full potential. (*Source: Profile of the UK Mineral Products Industry - 2018 Edition)*

6.5.8 The use of recycled and secondary aggregates is widely supported. However, they will never be able to wholly replace primary aggregates as there can never be a guarantee of supply of material of an appropriate quality to meet a specific demand. Therefore, there still remains a need for the provision of primary aggregate and this is reflected in the continuation of apportionment figures for primary aggregate and the provision of a landbank.

6.6 Alternative Methods of Working

6.6.1 The design of the working scheme has been an iterative process that has taken on board the findings of the reports that comprise the EIA. A number of different schemes have been considered by the Company principally considering the options of:

- Phasing, extent/direction of extraction; and
- Transportation of materials to the processing plant.

6.6.2 Based upon the location of proven mineral, alternatives were considered for both a larger quarry footprint and a deeper quarry. This included land which runs down from the proposed extraction area eastwards toward the Wolverhampton Road.

6.6.3 A preliminary development scheme (as described in the EIA Scoping Report Drawing NKD.LCF.003) was initially prepared having regard to geology, preliminary environmental studies, maximising mineral resource recovery and taking account of operational requirements. This extraction boundary and method of site working was refined throughout the period of baseline environmental assessments and engagement with regulatory bodies and public consultation to take account of emerging opportunities and constraints.

6.6.4 The schemes design influences have limited the footprint and depth of the proposed quarry with the desire to:

I. To concentrate the extraction area within a small footprint which is geographically contained and capable of successful screening;

II. To allow the operator to blend both sand and gravel and solid sand to supply a range of required aggregate products;

III. To limit the duration of active quarry extraction and restoration;

IV. To limit the volume of imported inert material (soils and overburden) to help restore the quarry to an agricultural parkland; and

V. To allow the progressive restoration of extracted land to provide landscape, wildlife and public amenity benefits.

6.6.5 The alternatives to extend the footprint and depth of the quarry were therefore discounted.

6.6.6 An alternative method of conveying minerals from the western area across the site's internal track / PROW 626 (B) was considered. The alternative being a conveyor bridge. This was

discounted on visual and landscape grounds. The submitted scheme involving a section of conveyor tunnel below ground/ beneath the track/ PROW 626 (B) which will be screened from view.

6.7 Alternative Restoration Options

6.7.1 The preparation of the proposed development scheme, including the restoration proposals, has been an iterative process. The Company has given careful consideration to findings of the EIA work and the Development Plan.

6.7.2 Two alternative restoration schemes were considered. Firstly, a scheme to restore the site back to original ground levels through the use of large volumes of imported inert materials. This was discounted on the grounds of both high numbers of vehicle movements and the slower delivery of progressive restoration.

6.7.3 Secondly, a pure agricultural restoration scheme alternative was considered. With all land being restored back to commercial agricultural land uses with no additional public access. This alternative was discounted based upon the opportunity of diversifying the site land uses for amenity and wildlife enhancement.

6.7.4 The vision for the progressive restoration of the Site is 'to create a high-quality estate parkland setting which provides opportunities for living, leisure, recreation and enjoyment for local communities. A landscape to include a matrix of wildlife habitat and biodiversity enhancement and public connectivity via footpaths, bridleways and cycleways and pocket parks to enhance physical activity and wellbeing.

6.8 Alternative Means of Transport

6.8.1 In terms of alternatives to road transport, the potential to transport the sand and gravel extracted at Lea Castle Farm by other alternatives is limited given the site's distance to both the existing rail network and the navigable waterway network - both of which would necessitate delivering aggregate by vehicle to the railhead / wharf. In this regard, the use of such transport methods is not considered to be feasible nor financially viable.

6.8.2 The supply of sand and gravel to construction markets and projects (customers) requires flexibility as the settlements and construction projects demanding these materials are dispersed across a typical catchment of a radius of 30 miles from the point of origin.

6.8.3 In terms of accessing the site, as the design of the site evolved, an alternative access position preferred by the operator was identified further to the west along B4189 Wolverley Road.

6.9 Conclusions

6.9.1 In conclusion, the applicant has studied a number of alternative proposals regarding the

proposed development.

6.9.2 The ‘do nothing option’ is not the preferred option for the Company as it would prevent the creation of 11 potential direct jobs as well as the impact on associated indirect jobs and input to the local economy and the sterilization of a viable and high quality mineral supply to meet identified need, as required by both adopted and emerging Minerals Local Plan Policy.

6.9.3 Consideration to alternative working arrangements and alternative transport options have been given consideration as part of the environmental assessment work. The scheme of working as proposed is considered to have the least environmental impact and is therefore the preferred option. Consideration to alternative restoration schemes have been given and with the proposed scheme providing the opportunity of diversifying the site land uses for amenity and wildlife enhancement.

6.9.4 The proposals as submitted represent the best scheme from both sustainability and commercial viability points of view as well as being the most environmentally acceptable.

7 Landscape and Visual Impact

7.1 Introduction and Policy Context

7.1.1 The NPPF and the Development Plan contain policies and text concerning the protection and enhancement of landscape. In particular:

- NPPF sections 11 and 17, and paragraphs 83, 127, 145, 170 and 180;
- Wyre Forest Core Strategy policies CP12 and CP14; and
- Wyre Forest Site Allocations and Policies Local Plan policies SAL.UP1, SAL.UP5, and SAL.UP9.

7.1.2 And within emerging policy:

- Worcestershire Minerals Local Plan Fourth Stage Consultation Document policy MLP23; and
- Wyre Forest New Local Plan Pre-Submission Version policies 11B, 11C, 11D, 25, 26, and 27C.

7.1.3 The thrust of these policies is consistent with advice in NPPF to protect, maintain and enhance the landscape. In terms of development in the countryside, consideration must be given to the potential for material impact upon the landscape and visual amenity.

7.2 Competence of Persons Undertaking Assessment

7.2.1 The Landscape and Visual Assessment and restoration input has been prepared by Robin Smithyman Bsc (Hons), PG DipLA CMLI, PG DipTP, PG DipUD, PG Dip SI, MIQ of Kedd Limited and can be found at Technical Appendix A.

7.2.2 Robin has over 25 years' experience working with operators and planning authorities on minerals extraction and restoration schemes, their landscape and visual assessment, mitigation and enhancement. He has been directly employed by mineral operating companies where practical hands on experience was gained within the industry and also acted as an independent consultant on over 150 mineral schemes assessments and applications. Robin also works with local authorities and community groups on Green Infrastructure and Masterplanning for quality and sustainable living.

7.3 Potential for Impact

7.3.1 Desktop and site survey works have identified the current baseline situation including landscape character resources, elements and features which comprise the local setting, along

with visual receptors who currently have either existing or potential views of the site and the proposed development.

Potential for Impact on Landscape

7.3.2 Analysis of the landscape orientated designations relevant to the site has identified that the site is not located within a Nationally Designated Landscape.

7.3.3 The site is located within the Worcestershire County Council Landscape Character Assessment Kinver Sandlands (LCA), Sandland Estatelands (LCT) and Churchill Sandland Estatelands (LDU). Typical features of these character areas include soft sandstone with an intermediate, undulating topography and impoverished sandy soils. The land use is arable, and the tree cover comprises an ordered pattern of large plantations, together with parkland and belts of trees. The site landscape formed a part of a now degraded agricultural parkland with the loss of trees, woodland and hedgerows.

7.3.4 The site at present comprises two types of visual landscape. Firstly, the Western Area and western and central areas of the Eastern Area which is generally on enclosed land visually contained by a combination of landform, topography and vegetation structure. Secondly, the Eastern Area which due to a combination of an easterly sloping landform and reducing topography combined with a limited amount of vegetation make this area a part of a wider visual envelope.

7.3.5 Current site activities which include agricultural production and the use of fields as horse paddocks is not resulting in significant visual disturbance to potential receptors. Under a 14 day a year permitted planning use, areas of the whole site are used for motorbike scrambling activities. These activities although limited in duration do result in both adverse visual and amenity landscape effects. These effects are judged to be slight adverse throughout the year but if concentrated over a short period around a specific receptor the effect can be adverse significant.

7.3.6 There would be no significant impacts resulting from the operational phase upon existing landscape. There would be a very slight adverse effect on vegetative elements, a slight adverse effect on soils/agricultural landuse and a moderate adverse effect on landform and topography, none of which are considered to be at a significant level.

Potential for Impact on Specific Receptors

7.3.7 The production of Zones of Visual Influence (ZTVI) information has been combined with desk top and site survey works to identify potential visual receptors to both the existing site and its current activities, and visual receptors to the site once operational and post-restoration.

7.3.8 As mentioned, the site at present comprises two types of visual landscape, the Western Area and western and central areas of the Eastern Area, and the Eastern Area. The Western Area and western and central areas of the Eastern Area have a limited number of existing and potential visual receptors. The principle receptors being residents at Broom Cottage, Keepers

Cottage, The Bungalow/ Lea Castle Equestrian Centre, South Lodge, Castle Barns and users of the site internal PRoWs. The Eastern Area has a comparatively greater number of visual receptors including residents of Castle Barns, Four Winds, Broadwaters and properties off the Stourbridge Road as well as users of the local road and PRoW networks located to the east of the site.

7.3.9 The main visual elements and features which will be introduced as part of the proposed developments are a new vehicle access point the plant site (plant and stocks), soil stripping, mineral extraction and restoration works.

7.3.10 With the implementation of the proposed mitigation (discussed below), it has been assessed that no visual receptors will receive a significant adverse effect during either the proposed development period or from the restored site and its agricultural and parkland uses. It is noted that two PRoWs will require temporary diversion which will result in a temporary change of view to that which is currently experienced. Users of these PROW FP62 6(B) and 62 4(B) are transient receptors assessed as receiving moderate adverse effects during the diversion period where alternative routes will be provided.

7.4 Potential for Mitigation

7.4.1 Mitigation and landscape and visual enhancement measures will be implemented both in advance of mineral extraction and during progressive phased working and restoration. Progressive working and restoration of the site is a mitigating factor in itself as it restricts the amount of disturbed land at any one time.

7.4.2 Other mitigation and enhancement measures to be integrated within the scheme include:

- limiting extraction areas to include only areas with more enclosed and contained visual landscape in the Eastern Area, to exclude the easternmost section of the application site;
- use of distance standoffs from residential property including the Bungalow and Castle Barns;
- advanced avenue tree, shrub and hedgerow planting;
- seeded and maintained temporary soil screening bunds;
- lowering the plant site c. 7m below adjacent ground levels;
- the creation of a high quality agriculturally managed parkland with pocket parks; and
- additional c. 2.3km of new footpath, bridleway and cycleways, offering potential for enhanced wellbeing recreation and leisure.

7.4.3 Furthermore, all land within the application site boundary will also be placed in long-term Aftercare and Management Plan to guarantee the restoration and use of all restoration elements and amenity benefits

7.4.4 It is the intention of the Applicant post-restoration to ensure a strengthening of appropriate landscape elements and features which respect and replicate the site's historic past whilst providing new and increased diversity and net gain of individual landscape elements along with the promotion and integration of amenity and wellbeing opportunities. This includes pocket parks based around a green infrastructure strategy. New habitats will also be created including 8.1ha of acidic grassland, woodland and blocks and parkland trees which will promote biodiversity. This would result in an overall substantial beneficial effect which is significant.

7.5 Landscape and Visual Impact Conclusions

7.5.1 The Environmental Statement has considered the landscape character of the site and its surroundings and has described and assessed the potential impacts with regard to the landscape character. The visual impact has also been assessed and the mitigation measures identified.

7.5.2 It has been concluded that whilst the proposals will result in some temporary disturbance to landscape character and views for visual receptors in the vicinity of the site, the development is not out of character with the local context and any effect are temporary alongside the life of mineral and restoration operations. In the long-term, once restoration has matured, the proposed development will not have any lasting adverse impact on landscape or visual receptors.

7.5.3 In considering the potential for cumulative visual effects the outline permitted residential development at the disused Lea Castle Hospital site had been considered. It is assessed that the cumulative effect upon visual amenity for both operational and restoration periods is assessed to be neutral and not significant.

7.5.4 Progressive restoration to the post restoration scheme provides opportunities for both enhanced landscape, visual and amenity wellbeing which will result in beneficial effects. it is assessed that there will be no adverse cumulative landscape or visual significant effects.

7.5.5 In conclusion the landscape and visual effects resulting from the proposed development would be temporary, progressive and localised. No unacceptable direct or indirect impact on population and human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and the landscape, or interaction between these factors in accordance with EIA regulations.

7.5.6 In conclusion, the objectives of the NPPF, the Development Plan and other material policy considerations are met.

8 Ecology and Biodiversity

8.1 Introduction and Policy Context

8.1.1 The Environmental Impact Assessment Directive (85/337/EEC) states that the direct and indirect effects of development should be assessed in terms of their impact on specific factors. Based on the factors identified in Article 3 of the EIA regulations, the direct and indirect effects of the proposal on ecology and nature conservation have been assessed.

European conservation legislation

8.1.2 The Habitats Directive (92/43/EEC) provides for the establishment of protected sites (Special Areas of Conservation (SAC)) as part of the Natura 2000 network, to protect habitats and species of Community interest listed on Annex I and Annex II respectively of the Directive. It also provides for strict protection of species of Community interest listed in Annex IV(a) of the Directive ('European Protected Species').

8.1.3 Article 6 (3) of the Habitats Directive provides for the protection of designated sites, stating: *'Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.'*

8.1.4 Article 12 of the Habitats Directive sets out the system of strict protection which Member States are required to adopt for animal species listed on Annex IV(a). Article 12(1)(b) prohibits '*deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation and migration*'; Article 12(1)(d) prohibits '*deterioration or destruction of breeding sites or resting places*'.

8.1.5 Council Directive 2009/147/EC on the conservation of wild birds (the 'Birds Directive') provides for the conservation and management of all wild bird species naturally occurring in the European Union, their nests, eggs and habitats.

8.1.6 Article 2 of the Birds Directive provides for the maintenance of populations of wild birds 'at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or to adapt the population of these species to that level.' Article 4(4) requires that (outside of protected sites) member states 'should strive to avoid pollution or deterioration of habitats'.

8.1.7 The Habitats and Birds Directives are implemented in England and Wales by the Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations'). Regulation 10 implements provisions in Article 4 of the Birds Directive, requiring competent authorities to '*use all reasonable endeavours'* to '*avoid any pollution or deterioration of habitats of wild birds'*. Regulation 42 implements the system of strict protection applied to European Protected Species. Regulation 63 address the requirements to undertake an appropriate assessment of plans or projects which have a likely significant effect on European conservation sites.

National conservation legislation

8.1.8 The Wildlife and Countryside Act 1981 (as amended) provides the principal legislation for designation of nationally important conservation sites and the protection of species. Section 28 provides powers for designation of Sites of Special Scientific Interest (SSSIs), while subsequent amendments, including those enacted by the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006, strengthen the protection of SSSIs.

8.1.9 Section 40 of the Natural Environment and Rural Communities Act 2006 ('NERC Act') sets out the duty of public authorities to conserve biodiversity in the exercise of their functions, through *"having regard, so far as is consistent with the proper exercise of their duties, to the purpose of conserving biodiversity"*. Biodiversity conservation is further defined as including the restoration or enhancement of a population or habitat. Section 41 of the NERC Act requires the Secretary of State to publish a list of species and habitats which are of principal importance for the conservation of biodiversity in England (i.e. 'priority species and habitats'), and to take and promote the taking of "reasonably practicable" steps to further their conservation.

8.1.10 The Environmental Impact Assessment Directive (85/337/EEC) states that the direct and indirect effects of development should be assessed in terms of their impact on specific factors. Based on the factors identified in Article 3 of the EIA regulations, the direct and indirect effects of the proposal on ecology and nature conservation have been assessed.

8.1.11 Badgers are protected under the 1992 Protection of Badgers Act. This is primarily concerned with animal welfare, but also has implications for badgers in a development context. It is a criminal offence: To wilfully kill, injure, take, possess or cruelly ill-treat a badger; To attempt to do so; or To deliberately or recklessly interfere with a sett.

8.1.12 The development plan contains policies and text concerning ecological impact issues in connection with development proposals. In particular:

- NPPF Section 15 & 17;
- Wyre Forest Core Strategy policy CP14; and

- Wyre Forest Site Allocations and Policies Local Plan policy SAL.CC7, SAL.UP3, SAL.UP5, and SAL.UP7.

8.1.13 And within emerging policy:

- Worcestershire Minerals Local Plan Fourth Stage Consultation Document policy MLP21; and
- Wyre Forest New Local Plan Pre-Submission Version policies 11D, 16A, and 27C.

8.1.14 The thrust of these policies is consistent with the advice in NPPF to protect, maintain and enhance nature conservation and biodiversity. The policies seek to protect species and habitats and, through restoration, provide replacement and enhanced habitats.

8.2 Competence of Persons Undertaking Assessment

8.2.1 The ecological surveys were undertaken by a team of experienced and qualified ecologists from Pleydell Smithyman and comprised Nick Staples, Kelly Hopkins and Steven Pagett.

8.2.2 The team was guided by Principal Ecologist Nick Staples, B.Sc., (Hons.) Zoology, M.Sc., and Diploma of Imperial College in, Advanced Methods in Biodiversity and Taxonomy and, a Chartered Biologist of 15 years and a full member of the Royal Society of Biology. A field ecologist experienced in conducting zoological and botanical surveys of 19 years standing, he has considerable experience of working on and supervising projects including mitigating and compensating for European Protected Species. These have been on large scale residential, industrial, infrastructure and mineral extraction projects in the UK and abroad with extensive experience in writing technical reports and EcIAs and, with experience as an expert witness.

8.2.3 Kelly Hopkins B.Sc., (Hons.) Zoology, ACIEEM also has extensive field and technical experience in zoological and botanical surveys and exceptional organisational skills with six years' experience of writing, contributing to and compiling reports and EcIAs.

8.2.4 Steven Pagett, B.Sc., (Hons.) Geography, GradCIEEM is a highly experienced and qualified ornithologist, with five years' experience of field and technical skills in zoological and botanical surveys and the associated detailed reports and EcIA submissions.

8.2.5 The team is particularly experienced in assessing the ecological values of mineral extraction projects and associated restoration.

8.3 Potential for Impact

8.3.1 In considering the issues set out in the Development Plan and other policy documents regard must be had to the impact of the development on sites of nature conservation interest as well

as on individual species, to minimise the impact and seek opportunities to maintain and enhance interest.

8.3.2 In order to assess the level of ecological impact a specific assessment has been undertaken by Pleydell Smithyman. The detailed findings of the ecological impact assessment can be found at Technical Appendix B. A summary of the findings is provided below.

8.3.3 This section describes the potential effects of the Site proposals on the Important Ecological Features (IEFs) recorded on the Site and, are characterised in terms of their direction, permanence, certainty and reversibility in line with CIEEM 2018. An assessment is made of the likely significance of the impact prior to any mitigation or compensation measures.

8.3.4 The development will involve the removal of habitat to allow the extraction of mineral from the site. The access track that is to be created from Wolverley Road into the site has been located in an area dominated by improved grassland. The extraction limit has been designed to ensure a minimum of a 10m stand-off from all boundaries and has not included the arable fields to the east of the site and the majority of the hedgerow that is present between the two. The extraction boundary also excludes Tree 4 located in the north-eastern corner of the site, as well as the tree lined hardstanding track that runs through the centre of the site. Please refer to Drawing M16.176(a).D.006 for a plan of the site.

Potential Construction and Operational Impacts

8.3.5 The following development-related impacts have been identified and are discussed in the following sections:

- Habitat loss;
- Habitat fragmentation;
- Displacement of species;
- Noise, light and dust disturbance; and
- Hydrological changes.

Direct Habitat Loss, Fragmentation and Isolation through Land-Take

8.3.6 Habitat loss involves the removal or physical take-up of vegetation, or other structures of conservation interest, such as dead wood or bare ground. Habitat loss may also occur as a result of a change in land or water management, for instance the drying-up of ponds or successional events leading to a change in habitat type. Destruction of ponds for example could mean the loss of breeding amphibian and invertebrate populations. Destruction of hedgerows would remove breeding habitat for birds, and removal of trees, roosting areas for bats, birds and invertebrates.

8.3.7 Habitat loss can result in the direct loss of individuals or populations of plant or animal species. It may also cause other populations to become demographically unstable or unsustainable, due to loss of prey species or habitat niches.

8.3.8 Fragmented and isolated habitats are likely to be more vulnerable to external factors that may have a negative effect upon them; e.g. disturbance, and may be less resilient to change, including climate and management change than connected habitats because colonizing species may be unable to reach that habitat. Due to the complexities of ecological systems, it is not possible to quantify the potential effects that may occur to isolated habitats.

8.3.9 Initial phases of development are the main periods when consolidation work would need to occur. A section of the internal hedgerows would be lost to allow for the mineral extraction of the Site. The arable fields and semi-improved neutral grassland would also be removed as part of the proposed development. A number of standard mature trees will be removed as well. A section of the improved grassland will be lost to allow the access track into the Site.

Noise, Light and Dust Disturbance

8.3.10 The increased level of noise, lighting and dust created as part of the proposals may impact upon several species and species groups including birds, bats, badgers and invertebrates.

8.3.11 In the absence of mitigation, dust particles may travel into the wider landscape, which over time, could collate to cause problems, particularly along watercourses. The air quality of this ES (Chapter 11) states that adverse dust impacts from sand and gravel are uncommon beyond 250m of the operation and have considered that all designated sites detailed above are likely to have a negligible effect from any dust arising from the proposed development.

8.3.12 The presence of lighting that will be used on the Site may cause disturbance to bats and may negatively impact on their ability to forage and commute across the Site.

8.3.13 The increased level of noise/vibration is likely to impact upon invertebrates, mammals and birds and may cause disturbance that could affect their ability to survive and breed. This may then cause certain species to move away from these sites and not return until noise levels have decreased.

Hydrological Changes

8.3.14 The extraction of mineral from the Site it is not anticipated to impact the hydrological levels in the wider area. This is due to the operations not intercepting the watertable contained within the SSG aquifer; thus, there will be no sub-watertable working or dewatering. There will be no lowering of the watertable and no drawdown-related impact upon groundwater levels and flow. A flood risk assessment has determined that the proposed development is compliant with current regulatory requirements and SuDS principals designed to ensure that site operation will be safe and that its implementation will not increase extent flood risk elsewhere. Please refer to Chapter 15 of the Environmental Statement for full details.

Impacts on Important Ecological Features

Impacts on Statutory Designated Sites within 3km of the proposed development

8.3.15 There are seven statutory designated sites within 3km of the central point of the Site. These are located between 0.62km and 2.4km from the Site. There are five sites within 1km of the Site which may be subject to impacts from changes to noise, dust and hydrology. None of these statutory designated sites would be subject to any direct habitat removal as a result of the development. With reference to the hydrology (Chapter 15) and air quality (Chapter 11) chapters of the Environmental Statement, there are considered to be **negligible impacts** on any of these designated sites due to the distance of the sites from the proposed development.

Impacts on Non-Statutory Designated Sites within 3km of the proposed development

8.3.16 There are fifteen non-statutory designated sites within 3km of the central point of the Site. Eight of these are present within 1km of the Site and therefore may be subject to impacts from changes to noise, dust and hydrology. None of these non-statutory designated sites would be subject to any direct habitat removal as a result of the development. With reference to the hydrology (Chapter 15) and air quality (Chapter 11) chapters of the Environmental Statement, there are considered to be **negligible impacts** on any of these designated sites due to the distance of the sites from the proposed development.

Impacts on Ancient Woodland within 3km of the proposed development

8.3.17 There are six areas of ancient woodland within 3km of the central point of the Site. Two of these are present within 1km of the Site and therefore may be subject to impacts from changes to noise, dust and hydrology. With reference to the hydrology (Chapter 15) and air quality (Chapter 11) chapters of the Environmental Statement, there are considered to be **negligible impacts** on any of these areas of ancient woodland due to the distance of these woodlands from the proposed development.

Impacts on Habitats of Principal Importance within 3km of the proposed development

8.3.18 There is an area of deciduous woodland present adjacent to the site boundary that is a habitat of principal importance. Due to its proximity to the proposed development, it may be subject to impacts from changes to noise and dust. In the absence of mitigation, the development would have a **significant negative impact** that is considered to be **temporary, reversible and short-term**.

Impacts on Habitats

Semi-improved neutral grassland

8.3.19 There are a number of areas of semi-improved neutral grassland within the Site. This habitat has been assessed as of site importance in context of the proposed development. Neutral

grassland is a national and local BAP priority habitat and offers habitat for invertebrates and mammals. Small areas of this habitat will be removed to allow for mineral extraction. Any remaining habitat that will be retained may suffer indirect impacts from changes to local hydrology or increases in dust levels. The development would have a **short-term negative impact** on this habitat **that is considered to be temporary, reversible and not-significant**.

Improved grassland

8.3.20 There is one field of improved grassland within the Site. This habitat has been assessed as of Site importance in context of the proposed development. Improved grassland is common and widespread in the local area and offers limited opportunities for wildlife. A small area of this habitat will be removed to allow the access track to be created into the Site. The remaining habitat that will be retained may suffer indirect impacts from changes to local hydrology or increases in dust levels. The development would have a **short-term negative impact** on this habitat **that is considered to be temporary, reversible and not significant**.

Tall ruderal

8.3.21 There is one area of tall ruderal on the Site which has been assessed as of Site importance in context of the proposed development. Tall ruderal habitat has some ecological value as foraging and resting habitat for birds, mammals and invertebrates. This habitat will be removed to allow the mineral extraction to take place. The development would have a **short-term negative impact** on this habitat **that is considered to be temporary, reversible and not significant**.

Arable

8.3.22 Arable fields cover the majority of the Site. The arable habitat has been assessed as of Site importance in context of the proposed development. Arable land has some ecological value as foraging and cover habitat for birds and mammals. The majority of the arable land on the Site will be removed to allow the extraction of mineral. Loss of this habitat would be a **short-term negative impact that is considered to be temporary, reversible and not significant**.

Defunct hedgerow

8.3.23 There are two defunct hedgerows present within the Site, located between arable fields. There are also a number of hedgerows that border the external boundaries of the Site. These hedgerows are relatively uniform with a number of gaps present. Hedgerows are a habitat of principal importance and local BAP priority habitat which are used by foraging bats as well as breeding and wintering farmland birds included on the national and local BAP priority list. This habitat has been assessed as of site importance in context of the proposed development. The proposals include the removal of a small section of the two hedgerows as these areas fall within the extraction area. The loss of this habitat would be a **long-term negative impact that is considered to be temporary, reversible and not significant.**

Standard trees

8.3.24 There were a number of standard trees recorded across the Site; with a large number present along sides of the existing hardstanding track in the centre of the Site. A number are also present in the centre of the arable field on the western side of the Site. The trees have been assessed as of local importance in context of the proposed development. The trees provide suitable roosting habitat for bats and suitable potential for breeding birds. All trees along the hardstanding track will be retained; however, they may be subject to impacts from changes to hydrology and increased disturbance and dust levels. The scattered trees in the centre of the arable field will be lost to allow the extraction to take place. One tree that is present along the section of hedgerow to be removed will also be lost. The development would have a **long-term negative impact** on scattered trees **that is considered to be temporary, reversible and not significant**.

Hardstanding

8.3.25 One hardstanding track is present through the centre of the Site. The hardstanding has been assessed as of Site importance in the context of the proposed development. This habitat offers minimal ecological interest. None of this habitat will be removed by the proposals and will continue to be used by vehicles and pedestrians. No additional impacts are anticipated by the proposals. The development is therefore anticipated to have **negligible impacts** on this habitat.

Woodland

8.3.26 The boundaries of the Site are bordered by mixed plantation and semi-natural broad-leaved woodland. This woodland has been assessed as of local importance in context of the proposed development. The woodlands provide high ecological value as foraging habitat and cover for birds and mammals. None of this habitat will be lost by the proposals; however, it may suffer indirect impacts from increased levels of noise, dust and disturbance. This habitat is the same as the habitats of principal importance deciduous woodland and it is therefore considered that the development would have a **significant negative impact that is considered to be temporary, reversible and short-term**.

Fauna

Badgers

8.3.27 The site is considered to be of importance at the local level for badger. The proposals involve the removal of possible resting habitat as well as the loss of agricultural land and grassland which would cause a reduction in foraging habitat for this species. It is considered that the development would have a **short-term negative impact** on badgers **that is considered to be temporary, reversible and significant**.

Bats – Roosting

8.3.28 Three trees would be removed by the proposals, one of which supports a confirmed bat roost, and the other two support possible bat roosts. The roosts recorded were not found to be of high conservation importance due to the low numbers of bats and the presence of common and widespread species. The site is evaluated as of district, local or parish level for roosting bats. It is considered that the development would have a **long-term negative impact** on roosting bats **that is considered to be temporary, reversible and significant**.

Bats – foraging/commuting

8.3.29 The site is considered to be of district, local or parish importance for foraging/commuting bats.

8.3.30 The removal of the hedgerow and trees on the Site would reduce the available habitat for foraging and commuting bats. Disturbance is likely to impact bats from increased noise, lighting and dust. Lighting can cause bats to be forced to commute and forage in different areas, this could mean that the bats expend more energy before getting to their foraging or roosting places. In the absence of mitigation, it is considered that the proposed development would have a **short-term negative impact** on foraging/commuting bats **that is considered to be temporary, reversible and significant**.

Other Mammals

8.3.31 A number of common and widespread small mammals have been recorded on the Site. These species are assessed as of Site importance in context of the proposed development. The proposals will involve the removal of habitat that supports these species, including arable, hedgerow and grassland. The destruction of habitat could cause a decline in numbers of these animals. The development will also increase levels of disturbance for these groups of animals from the increased noise and dust levels. It is considered that the proposed development would have a **short-term negative impact** for other mammal species **that is considered to be temporary, reversible and significant**.

Amphibians

8.3.32 Small numbers of common toad have been recorded during the surveys. The ecological value of the Site for amphibians has been assessed as of Site importance in context of the proposed development. The proposals would involve the removal of suitable habitat for amphibians including hedgerow and grassland. The extraction of mineral could cause disturbance to amphibians in the locality due to the increased noise, vibrations and dust generated. It is considered that the development would have a **short-term negative impact** for other amphibian species (not including great crested newts) **that is considered to be temporary, reversible and significant**.

Breeding Birds

8.3.33 The breeding bird assemblage within the Site has been assessed of local importance due to the number of recorded confirmed, probable or possible breeding species (32), that are likely to be common and widespread in the local area. The proposed development has the potential to impact a number of red and amber listed species. The development will involve the removal of suitable habitat for breeding birds including arable, grassland, hedgerow and scattered trees. The loss of this habitat could result in birds being displaced into other areas in the vicinity which may already be at carrying capacity. This could result in reduced breeding success and therefore a decline in breeding bird numbers. In addition, the extraction of mineral and increased vehicle and human presence within the Site may cause disturbance to birds in the form of noise and dust. This disturbance may cause birds to abandon their nests or to reduce their likelihood of breeding within areas of the Site that are not subject to mineral extraction.

8.3.34 It is considered that the proposed development would have a **long-term negative impact** on breeding birds **that is considered to be temporary, reversible and significant**.

Wintering Birds

8.3.35 The wintering bird assemblage within the Site has been assessed of local importance due to the number of recorded wintering species in the local area (27). The proposed works may impact on a number of red and amber listed bird species.

8.3.36 The removal of habitat will reduce the amount of available space for birds to forage and shelter during the wintering season, which in turn could reduce the success and fitness of the birds and therefore could cause a decline in bird numbers. It is considered that the proposed development would have a **short-term negative impact** on wintering birds **that is considered to be temporary, reversible and not significant**.

Invertebrates

8.3.37 A total of thirteen butterfly species were recorded on the Site during the surveys. The ecological value of the Site for invertebrates has been assessed as of local importance in context of the proposed development. The removal of areas of grassland and hedgerow will reduce the amount of habitat available to invertebrates. The increased level of dust created by the proposals will cause disturbance to invertebrates and may reduce the amount of food plants available. It is considered that the development would have a **long-term negative impact** on invertebrates **that is considered to be temporary, reversible and significant**.

Summary of Likely Unmitigated Significant Effects

8.3.38 In the absence of mitigation, the following significant impacts on important ecological features are predicted to occur, as shown in Table 7.1 below.

Table 7.1: Summary of likely unmitigated significant impacts

Important Ecological Feature	**Impact in the absence of Mitigation**
Deciduous Woodland Habitat of Principal Importance (Boundary Woodland)	Significant negative, temporary, reversible and short-term impact
Badgers	Short-term negative, temporary, reversible, significant impact
Roosting bats	Long-term negative, temporary, reversible, significant impact
Foraging/commuting bats	Short-term negative, temporary, reversible, significant impact
Other Mammals	Short-term negative, temporary, reversible, significant impact
Amphibians	Short-term negative, temporary, reversible, significant impact
Breeding Birds	Long-term negative, temporary, reversible, significant impact
Wintering Birds	Short-term negative, temporary, reversible, significant impact
Invertebrates	Long-term negative, temporary, reversible, significant impact

8.4 Potential for Mitigation

8.4.1 This section outlines the mitigation measures that would be incorporated into the proposed scheme. Recommendations for mitigation are based upon what is practicable and 'reasonable' and would not affect the integrity of the proposed development.

8.4.2 Mitigation on the site is based on the underlying substrate, local features of ecological interest and local recommendations for restoration of habitats that are locally and nationally important.

8.4.3 The restoration design has been based on native ecology enhancement with retention of local arable interests. Restoration of the Site includes the creation of arable land, acid grassland, native woodland, scattered and parkland trees, ephemerally wet grassland/pools and enhanced and new hedgerows. The restoration of the Site to include acid grassland recreates a historic environment that has declined within the local area. The creation of these habitats helps to meet national and local BAP priority habitat targets with the creation of three habitats of principal importance – namely lowland mixed deciduous woodland, lowland dry acid grassland and native hedgerow. Grassland, hedgerows, woodland and arable farmland also have habitat action plans on the Worcestershire BAP.

8.4.4 All external hedgerows within the Site will be 'beaten up' to encourage a denser hedgerow with a wider range of native species present. Native plants will be sourced locally wherever possible to be included within the planting regime.

8.4.5 A minimum of a 10m stand-off from the woodland along the northern, western and southern boundaries would be observed. A fence would be erected along the edge of this buffer to ensure that there would not be any encroachment into this buffer area by vehicles or materials. The works would be undertaken in phases and restored as phases are completed to ensure the minimum amount of damage to ecological systems and to allow for the quickest possible establishment of restored areas.

8.4.6 The retention of external boundary features will ensure connectivity to the wider landscape is maintained throughout the life of the development.

8.4.7 Measures will be put in place to prevent dust pollution of the surrounding areas including any restored phases. Please refer to the Air Quality Chapter in Chapter 11 of this ES. Measures will be put in place to prevent light pollution.

8.4.8 Measures will be put in place to prevent pollution of the aquatic environment. For full details please refer to the hydrological section of this ES (Chapter 15).

8.4.9 A tool-box talk will be provided to Contractor staff as part of their site induction by a suitably qualified Ecologist regarding ecological sensitivities and to outline which protected species are present within the proposed construction area prior to the contractors starting work on the Site.

8.4.10 Good construction site management, regarding ecological issues will be implemented to avoid/minimise generation of litter, dust, noise and vibration. This will be controlled and monitored throughout the life of the development. These measures will be detailed in a Landscape and Ecological Management Plan (LEMP) in accordance with BS42020:2013.

8.4.11 The established mitigation hierarchy has been followed through all processes of this impact assessment. The Site has been chosen due to its largely ecologically poor uniform nature. Where possible, habitats of higher ecological importance have been left in-situ to avoid any unnecessary impacts. The tree-lined driveway is to be retained, as well as Tree 4 to the north-east of the Site. The eastern most fields of the site and intersecting hedgerow will also be retained.

Protected Species

Badger

8.4.12 For full details of the mitigation required in relation to badgers, please refer to the confidential annex at Technical Appendix B.

8.4.13 Regular (annual and prior to the commencement of each phase) monitoring will be required across the Site to identify any new evidence of badger activity. Where new setts are recorded, a 30m stand-off will be required at all times. Should this not be possible, it will be necessary to apply for a license from Natural England for the destruction or disturbance of these badger setts.

8.4.14 The phased working and restoration of the Site will ensure that there will continue to be habitat present for foraging and commuting badgers. The restoration of agricultural land and open grassland within the Site will ensure that there are opportunities for foraging badgers in the long term.

8.4.15 Any trenches or holes created by the development will be covered overnight or have a ramp fitted to allow any mammals that may climb into these excavations to escape safely.

Roosting Bats

8.4.16 Possible bat emergences were observed from Tree 2 during 2018 and from Tree 1 during 2016 (See ES Technical Appendix B). As these were not confirmed to be bat roosts, a European Protected Species Licence is not considered to be required. Immediately prior to the removal of this tree, it will be necessary for an arboriculturalist and a suitably qualified ecologist to inspect this tree for any signs of bats (e.g. droppings, individual bats or urine staining). All potential roosting features on each tree must be inspected carefully with torches, mirrors and endoscopes. Should no signs of bats be present this tree can be removed without the need for a licence, using soft felling techniques by the arboriculturalist. However, should any bats or signs of bats be discovered, then no works can be undertaken on this tree without a licence for the destruction of a roost first being granted. This licence would need to include mitigation measures that would be required along with a detailed timetable of works.

8.4.17 All trees that are to be removed that haven't been found to support a bat roost but do offer bat roosting potential should be removed using soft felling techniques by an arboriculturalist with a suitably qualified ecologist present to conduct detailed climbed bat surveys prior to observed felling. Should bats be found to be roosting in these trees then an EPS licence will be required as detailed above.

8.4.18 Should more than two years pass from the date of the last survey on the trees with bat roost potential (September 2018) to the date that the trees are removed, update bat roost surveys should be undertaken to identify any changes in the intervening period.

8.4.19 Should any trees require removal in the boundary woodland or along the tree lined driveway, they must first be assessed for their suitability for roosting bats. Where potential roosting features are observed, bat roost surveys must be conducted to enable a thorough assessment of their importance for roosting bats.

Foraging/Commuting Bats

8.4.20 Any trees that are retained (particularly Tree 4) should have a minimum of a 10m stand-off observed at all times. This will ensure that any bats using these trees for foraging purposes remain un-disturbed. All external boundaries will also have a minimum of a 10m stand-off observed at all times to minimise the disturbance levels in these important foraging and commuting features.

8.4.21 The restoration scheme will provide a variety of foraging and commuting habitats for bats in the form of enhanced hedgerows, new woodland blocks, standard trees and acid grassland. The planting of trees will provide future potential for roosting bats. Timing and use of any lighting used on the Site must take account of the local bat population. Any lighting used must be directed away from the external boundaries and the tree-lined driveway to maintain the dark corridor that offers good quality habitat for foraging bats.

8.4.22 All lighting should follow the recommendations within the 'Bats and Artificial Lighting in the UK, Bats and the Built Environment series' document which was produced in 2018 by the Institution of Lighting Professionals.

8.4.23 As a bat roost has been confirmed as present within Tree 3, a European Protected Species (EPS) Licence will be required to allow the removal of this tree. A licence will need to be applied for to Natural England to ensure that any works undertaken to this tree are not done so illegally. The licence will need to include measures to compensate for the loss of this roost. This should include the placement of the current roosting site on a nearby tree. This roosting site should be placed in the same orientation as its current location, as close to the current roost as possible. Additional bat boxes should be installed on suitable trees around the boundary of the site to provide a location for bats to be moved to during the licensed works relating to the loss of Tree 3.

Other Mammals

8.4.24 The phased extraction and restoration of the Site will allow time for any small mammals present on the Site to move around to different habitats and will ensure that some habitat is always present on the Site.

8.4.25 The restoration of the Site will provide greater areas of habitat on the Site for small mammals in the form of acid grassland and woodland.

Amphibians (excluding great crested newts)

8.4.26 The phased extraction and restoration of the Site will allow time for any amphibians present on the Site to move around to different habitats and will ensure that some habitat is always present on the Site. The removal of the sections of hedgerow in the site will be preceded by a hand search for any sheltering amphibians. Any amphibians that are found will be safely relocated to an area that will not be impacted by the proposals (i.e. external boundaries).

8.4.27 The restoration of the Site will provide greater areas of habitat on the Site for amphibians in the form of acid grassland, ephemerally wet grassland/pools and woodland.

Breeding Birds

8.4.28 When required, the removal of any vegetation should occur outside of the nesting bird season which usually takes place from late February to late August. In the event that this is not possible then all vegetation removal works must be preceded by a survey conducted by a suitably qualified ecologist, in order to check for nesting birds and to advise accordingly on the most appropriate way to proceed. Furthermore, should any active nests (from when the nest is in the process of being built, until all the nestlings have fledged) be discovered during the works, then works to the area around the nest must stop immediately and a suitably qualified ecologist called in to check the nest and advise on the most appropriate way to proceed.

8.4.29 A screening bund will be created around the western and southern boundaries of the Site which will screen the boundary woodland from the mineral extraction works. These screening bunds will be seeded with native grass species from a local wildflower mixture.

8.4.30 The phased extraction and restoration of the Site will ensure that some habitat is always available on the Site for breeding birds.

8.4.31 The restoration proposals include restoring the Site to agricultural land with acid grassland edges, woodland and scattered trees and hedgerows.

Wintering Birds

8.4.32 The phased extraction and restoration of the Site will ensure that some habitat is always available on the Site for wintering birds. The restoration proposals include restoring the Site to agricultural land with acid grassland edges, ephemerally wet grassland/pools, woodland and scattered trees and hedgerows. This restoration design will provide a variety of habitat for wintering birds with extensive foraging and resting opportunities.

Invertebrates

8.4.33 The phased extraction and restoration of the Site will ensure that some habitat is always available on the Site for invertebrates.

8.4.34 The restoration of the Site will provide greater areas of habitat on the Site for invertebrates in the form of acid grassland, ephemerally wet grassland/pools and woodland.

Likely Success of Mitigation

8.4.35 The mitigation measures detailed are considered to be highly likely to succeed. All mitigation measures detailed have been used before in numerous different scenarios and proven to be successful. It may be necessary to secure these mitigation measures in appropriately worded

conditions. Regular monitoring will be important to identify any new activity by protected species.

8.5 Ecology and Biodiversity Conclusions

8.5.1 In accordance with the Scoping Opinion issued by the MPA, the Environmental Statement has determined the use of the site and its immediate surroundings by protected species and has considered the direct and indirect impacts of the proposed development on statutory and non-statutory sites of biological importance. All survey work was conducted during an appropriate season and using a recommended method. The Environmental Statement has also outlined appropriate mitigation measures.

8.5.2 The assessment of ecological impacts, and related impacts including atmospheric dust deposition and noise, have demonstrated that, providing that all mitigation and compensation measures detailed above are undertaken, impacts are anticipated to be that ecological habitats and species will benefit to a greater extent than currently. All habitats will be replaced as part of the restoration strategy to the same habitats or habitats of higher ecological importance. The habitats of the highest importance will be retained throughout the proposals (i.e. the external boundary woodland). All legally protected species recorded on the Site will be protected throughout the duration of the works and mitigation, compensation and enhancement measures will be undertaken wherever necessary.

8.5.3 The restoration of the site is considered to provide an overall net biodiversity gain through the creation of enhanced habitats such as acid grassland, woodland and additional hedgerow.

8.5.4 In terms of ecology and nature conservation, the proposed development will not have an unacceptable impact on flora or fauna in accordance with EIA regulations. The objectives of NPPF, the Development Plan and other material policy considerations are met.

8.5.5 In conclusion, the objectives of the NPPF, the Development Plan and other material policy considerations are met.

9 Arboriculture

9.1 Introduction and Policy Context

9.1.1 The development plan contains policies and text concerning the protection of amenity and management of noise associated with development proposals. In particular:

- NPPF Section 15;
- Wyre Forest Core Strategy policy CP14; and
- Wyre Forest Site Allocations and Policies Local Plan policy SAL.UP6, SAL.UP7, and SAL.UP9.

9.1.2 And within emerging policy:

- Worcestershire Minerals Local Plan Fourth Stage Consultation Document policy MLP21; and
- Wyre Forest Local Plan Pre-Submission Version Policy 11D, 27A, and 27C.

9.1.3 The thrust of these policies is to protect irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss.

9.2 Competence of Persons Undertaking Assessment

9.2.1 An Arboricultural Assessment has been carried out by Access2trees. The Report can be read in full at ES Technical Appendix C. The survey was carried out by NPTC (National Proficiency Tests Council) qualified James Plaskett who also holds the Lantra Professional Tree Inspectors Certificate.

9.2.2 The survey was carried in accordance with requirements set out in British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction: Recommendations'. The BS 5837:2012 survey includes all individual trees and tree groups within the site boundary, along with those present at the edges of the site, which may be adversely affected by the development proposals.

9.3 Potential for Impact

9.3.1 The application site contains numerous trees, tree groups and hedgerows which fall within the scope of the assessment carried out by Access2trees. Trees present on-site are predominately located at the north western, western, and south western boundaries of the site in the form of established woodland. Some of the parkland trees associated with the

former Lea Castle estate remain on-site and are located within the large arable field to the western portion of the site. Other trees are present as a tree-lined avenue which runs northwards from South Lodge towards the former formal entrance to Lea Castle. Further east, the site boundaries are defined by mature hedgerow in combination with a brick boundary.

Methodology

9.3.2 A survey was carried out by Access2trees in May 2019 which identified tree species, height, stem diameter, height and direction of the first significant branch, crown spread, age class and a brief qualitative assessment on tree condition and future potential. The full survey results can be found at Technical Appendix C and with Root Protection Areas.

9.3.3 In addition to the above, trees and tree groups were also given a Retention Category, which corresponds with Table 1 of *BS5837:2012* in which a rating of A, B, C, or U is attributed to each arboricultural feature. The categories can be summarised as follows:

- Category A: 'Of high quality and value' whereby it is usual for trees to be retained unless the planning merits of a particular scheme or layout over-ride.
- Category B: 'Of moderate quality and value' whereby trees should be considered for retention.
- Category C: 'Of low quality and value'; and
- Category U: consisting of trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Survey Results

9.3.4 The survey recorded that at present the site supports a total of:

- 33 individual trees;
- 14 tree groups; and
- 4 hedgerows.

9.3.5 Principal tree species recorded include cedar, oak, wellingtonia, sycamore, lime, beech, birch, and ash. Crab apple, elm, damson, sweet chestnut, willow, scots pine, rowan, yew and poplar were also present.

9.3.6 Six of the 33 individual trees identified have been assessed as Category 'A', with 13 Category 'B', 12 Category 'C', and 2 Category 'U'.

9.3.7 A Tree Protection Plan has been produced which illustrates the trees proposed for retention, protection and removal in relation to the development proposals. The Plan is shown at Appendix 2 of Technical Appendix C.

Proposed Development

9.3.8 In total, five trees are proposed to be removed to facilitate the proposed mineral extraction at Lea Castle Farm. These are labelled T8, T9, T10, T22 and T26 on the Tree Protection Plan. Four of these trees (T8, T9, T10 and T22) are located west of the tree-lined avenue which splits the site, with the latter (T26) located within hedgerow north of Broom Covert.

9.3.9 Of the five trees to be removed, T8 is classified as Category U as it is considered to be dead. The impacts arising from removing the dead tree are negligible.

9.3.10 Trees reference T10 and T22 are classified as Category C, as T10 (oak) shows a number of defects including a large area of decay at its base, poor unions, major dead wood, and decay pockets. The tree has limited future potential, however it is protected by a Tree Preservation Order (TPO) which prohibits the cutting down, topping, lopping, and/or uprooting of the tree as well as any wilful damage or destruction, without written consent from the LPA. T22 is a veteran sweet chestnut tree of poor structural and physiological condition. The tree has been assessed as being in poor condition.

9.3.11 The removal of the veteran tree is considered to be acceptable in policy terms as the wider proposed development brings about significant public benefits. As stated in paragraph 175(c), an exceptional circumstance where loss of a veteran tree is acceptable includes “where the public benefit would clearly outweigh the loss or deterioration of habitat and a suitable compensation strategy exists” (footnote 58).

9.3.12 Despite the presence of a TPO on T10, the overall impact of the Category C trees is considered to be low.

9.3.13 T9 is a mature oak tree with defects, including decay porkcets, apical die back and major dead wood. The tree is classified as Category B despite its TPO. The impact of the tree’s removal is considered to be moderate.

9.3.14 T26 is a mature oak tree classified as Category A due to its good overall structural and physiological condition. The impact of removing this Category A tree is considered to be a high.

9.3.15 In addition to the above, two stretches of hedgerow are proposed to be removed to facilitate the proposed mineral extraction, comprising 89 linear metres of the western extent of hedgerow H3 (as identified on the Tree Survey Context Plan at Technical Appendix C) and 94 linear metres of the western extent of hedgerow H4.

9.3.16 The proposed extraction area stand-off from the mature trees present around the site boundaries ensures that all other trees present on/at the edges of the site will be

retained. Furthermore, no works are proposed to be undertaken within the root protection area (RPA) of trees T4 and T19 which are high-category trees located close the to proposed mineral extraction boundary.

Restoration

9.3.17 As part of the restoration scheme, new tree planting is proposed to be undertaken with a minimum of a 1:1 ratio basis following mineral extraction. New planting will use like-for-like native species of local provenance as a minimum. Also as a minimum, extra heavy standard tree stock will be specified for individual tree planting.

9.4 Potential for Mitigation

9.4.1 In terms of mitigation, as shown on Drawings TS71-002 included within Technical Appendix C, trees to be retained will be protected using tree protection fencing. Such fencing will be erected around the RPA of all trees to be retained. This will demark construction exclusion zones to ensure that all works access is prevented within tree RPAs and canopy spreads, to ensure that the proposed works do not adversely affect the trees to be retained. Fencing will be retained for the duration of the development.

9.4.2 Similarly, boundary arboricultural features will be protected throughout the lifespan of the proposed development by the erection of tree protection fencing.

9.4.3 All personnel will be made aware of the restrictions of working within RPAs and construction exclusion zones, within which no works access is permitted. Personnel are to be made aware that such areas are to be fenced and maintained as construction exclusion zones for the entirety of the works, in order to protect RPAs. No mechanical equipment / vehicles are to be allowed within these areas and the storage of materials, vehicle tracking, storage of fuel/oil and excavation works/alterations to ground levels are not permitted.

9.4.4 Damage to tree canopies and aerial branches of trees will be avoided by briefing staff of all locations where tree canopies may extend over the working area. Care will be taken to ensure that damage is not caused by any site operations. In addition, any plant in close proximity to trees should be conducted under the supervision of a banks-man to ensure that adequate clearance from trees is maintained at all times.

9.4.5 No fires are to be lit within 20 metres of tree stems to be retained, and all new services and drainage are prohibited through tree RPAs.

9.4.6 Tree felling and any other specialist work to facilitate the proposed mineral development will be carried out by suitably qualified personnel and in accordance with up to date and relevant health and safety legislation.

9.4.7 All tree/scrub removal works are to be undertaken outside of the bird nesting season (March – August).

9.4.8 Overhead lines present within close proximity to trees requiring work, or to be felled, are to be identified and appropriate measures taken to ensure safe working near to these lines, including the production of risk assessments and method statements.

9.4.9 As part of the planting proposed to be incorporated into the restoration scheme, the adverse impacts of tree removal will be fully mitigated in the long-term.

9.5 Arboriculture Conclusions

9.5.1 The proposed development at Lea Castle Farm limits the removal of arboricultural features to only where necessary to facilitate the proposed mineral extraction and site restoration. Site boundaries are to be retained and protected from the potential adverse impacts of encroachment. Similarly, trees located within the application site are to benefit from protective fencing around their RPA to ensure no harm to retained trees.

9.5.2 The findings of the arboricultural survey have shown that where felling is considered necessary, of the five trees to be felled, only one is considered to be Category A (T26 – mature oak). A single Category B tree (T9 – mature oak) s also to be felled. Despite benefitting from a TPO, T10 (mature oak) is classified as Category C with impact of removal classed as 'low'. T22 is a Category C veteran Sweet Chestnut tree. Overall it was assessed as being of poor structural and physiological condition with the impact of its removal is considered to be Low.

9.5.3 Risk to retained trees will be reduced by presence of a suitably qualified arboriculturalist.

9.5.4 With the implementation of mitigation measures, the assessment has found that with appropriate measures implemented, the proposed development will not have any unacceptable impact on retained and removed arboricultural features. The objectives of NPPF, the Development Plan and other material policy considerations are met.

10 Noise

10.1 Introduction and Policy Context

10.1.1 The development plan contains policies and text concerning the protection of amenity and management of noise associated with development proposals. In particular:

- NPPF Section 15 & 17; and Technical Guidance 23-27; 30 and 31; and
- Planning Practice Guidance for Noise; and Minerals.

10.1.2 And within emerging policy:

- Worcestershire Minerals Local Plan Fourth Stage Consultation Document policy MLP19; and
- Wyre Forest Local Plan Pre-Submission Version policy 16B.

10.1.3 The thrust of these policies is to ensure that development does not cause an unacceptable adverse impact in terms of noise. The policies seek to ensure the protection of sensitive receptors and users.

10.1.4 Mineral planning guidance, contained in NPPF, advises on controlling the effects of mineral development and keeping potential impact to a minimum.

10.1.5 In addition, the Noise Policy Statement for England (NPSE) was published in March 2010 with the aim of providing "clarity regarding current policies and practices to enable noise management decisions to be made within the wider context, at the most appropriate level, in a cost-effective manner and in a timely fashion." NPSE encourages effective management and control of noise to avoid and mitigate significant adverse impacts on health and quality of life and contribute to the improvement of health and quality of life where possible.

10.2 Competence of Persons Undertaking Assessment

10.2.1 A Noise Assessment Report has been carried out by WBM Acoustic Consultants. The Report can be read in full at ES Technical Appendix D.

10.2.2 The Author is Paul Cockcroft BEng PhD CEng MIMMM FIOA (Senior Partner) who has been practising in mining engineering and acoustics since 1983. He joined WBM in 1989, became a Partner in 1997 and Senior Partner in 2004. Paul has worked for many of the major mineral extraction and waste disposal companies in the UK and Mineral Planning Authorities on a wide range of surface mineral workings, aggregate related plant sites, waste disposal and recycling projects, including advising safeguarded wharf operators to protect vital industrial operations. He also specialises in the measurement and prediction of environmental, industrial and transportation noise and acoustic aspects of site development, road schemes, rail-linked sites,

traincare depots and commercial and residential developments. Paul has prepared and presented evidence at planning appeals and for court cases, including Judicial Review applications, Breach of Condition Notices, nuisance cases and is known for his rigorous approach.

10.2.3 The Surveyor was Robert Storey BEng PhD MIOA (Consultant) who obtained his degree in Mining Engineering from the University of Leeds in 1993 before going on to complete a PhD in "The Acoustic Response of Structures to Blast Induced Ground Vibration" in 1998. He joined WBM in 2007 after working in acoustic consultancy and environmental health since 1999. Robert is involved mainly in environmental noise, working closely with the Senior Partner on mineral extraction, waste and industrial projects, including surveys, routine noise monitoring and assessments. He is experienced in noise modelling using SoundPlan for transportation, industrial and environmental sources.

10.3 Potential for Impact and Mitigation

10.3.1 The nearest residential receptors to the site are located to the south (along the B4189 Wolverley Road including Heathfield Knoll School, South Lodge, and Broom Cottage), west (at Brown Westhead Park), north (in the vicinity of Lea Castle Equestrian Centre at McDonalds Bungalow and Keeper's Cottage), and north-east of the proposed quarry (at Castle Barns). These properties are considered

10.3.2 The proposed development has the potential for noise generation through on-site activities such as soil stripping, the extraction of sand and gravel itself, tipping and transportation of as dug material, and internal traffic movements. Processing operations can also typically result in noise emanating from processing plant being detected off-site, when plant and machinery are operational. Off-site, noise generated by traffic movements associated with the mineral operations have the potential for impact on roadside receptors.

Baseline Noise Measurements

10.3.3 The dwellings at which the baseline noise measurements were undertaken in June and July 2018 were selected as being representative of the nearest properties to the proposed extraction / infilling area and processing plant.

10.3.4 Baseline noise surveys were conducted in appropriate conditions over a number of days at the locations shown at ES Technical Appendix D Appendix B.

10.3.5 The average measured noise levels are tabulated below:

Location	**Average Measured** **dB $L_{A90,\ 15\ min\ free\ field}$**	**Average Measured** **dB $L_{A90,\ 1\ hour\ free\ field}$**
Broom Cottage	41 (43)	51 (54)

South Lodge	47	55
Heathfield Knoll	48	55
Brown Westhead Park	36	54
McDonalds Bungalow	35	43
Keeper's Cottage	39	49
Castle Barns	39 (41)	45 (47)

10.3.6 Noise levels were generally found to consist of distant and local road traffic, birdsong, breeze in the trees, aircraft movements and local activity.

10.3.7 The assessment of potential for impact has assumed that all plant on-site is operating simultaneously in the closest likely working areas to each receiver location for the proposed extraction/infilling. It is considered that with appropriate mitigation measures implemented, the proposals will not result in an unacceptably adverse impact on the closes receptors to the application site, or the wider area.

10.4 Potential for Mitigation

10.4.1 In terms of mitigation, the scheme of mineral extraction has been designed with appropriate stand-offs between extraction and off-site sensitive receptors built in. The proposed scheme incorporates the formation of soil bunds of appropriate heights to further mitigate the potential for noise impact, where necessary.

10.4.2 Site noise limits have been calculated based on the average background noise level plus 10 dB(A) and do not exceed 55 dB $L_{A90,\ 1\ hour\ free\ field}$ at the nearest noise sensitive premises during routine daytime operations on-site. The identified noise sensitive premises are the seven receiver locations closest to the proposed extraction/infilling area and processing plant.

10.4.3 As recommended in Planning Practice Guidance for Minerals (March 2014), site noise limits are to be implemented in order to maintain an acceptable impact on nearby receptors during mineral extraction and restoration operations. The noise limits for each property are set out below:

- Broom Cottage: 53 dB $L_{A90,\ 1\ hour\ free\ field}$
- South Lodge: 55 dB $L_{A90,\ 1\ hour\ free\ field}$
- Heathfield Knoll: 55 dB $L_{A90,\ 1\ hour\ free\ field}$

- Brown Westhead Park: 46 dB $L_{A90,\ 1\ hour\ free\ field}$
- McDonalds Bungalow: 45 dB $L_{A90,\ 1\ hour\ free\ field}$
- Keeper's Cottage: 49 dB $L_{A90,\ 1\ hour\ free\ field}$
- Castle Barns: 51 dB $L_{A90,\ 1\ hour\ free\ field}$

10.4.4 The calculated site noise levels due to operations at the proposed site comply with the noise limits in the bullets above.

10.4.5 The noise limits may only be breached by temporary operations, defined as those of no more than eight weeks' duration in any calendar year. Temporary operations have a noise limit of 70 dB $L_{A90,\ 1\ hour\ free\ field}$ as based on advice contained in paragraph 022 of the Planning Practice Guidance for Minerals. The operations of topsoil and overburden stripping, bund formation and final restoration processes are temporary operations which are often noisier in nature than mineral extraction and tend to be closer to off-site receptors, particularly in the case of bund formation whereby no noise-attenuating bunds exist until the bund has been created.

10.4.6 The proposals are found within the Noise Assessment Report to comply with site noise limits, including temporary limits, as the limit of 70 dB $L_{A90,\ 1\ hour\ free\ field}$ is not to be breached.

10.5 Noise Conclusions

10.5.1 The Noise Assessment undertaken by WBM Acoustic Consultants has assessed the impact of the operations proposed to occur at Lea Castle Farm. The proposal has been found to be acceptable in terms of noise, with the development considered to be capable of operating without significant increase in noise on identified sensitive receptors located off site.

10.5.2 Noise surveys have identified the baseline and proposed noise levels at the site, and at the identified sensitive receptors in the site's vicinity. Typical noise output for the various plant proposed to be used in the scheme have been assessed. It is considered that no unacceptable noise impacts are proposed.

10.5.3 With the implementation of mitigation measures, the assessment has found that with appropriate measures the relevant site noise limits, based on PPG and the extant planning permission, are met. It is expected that the proposed development will also comply with noise limits for temporary operations.

10.5.4 Overall, in terms of noise, the proposed development and operations will not have unacceptable direct or indirect impact on population and human health; biodiversity; land, soils, water, air and climate; material assets, cultural heritage and the landscape; or the interaction between these factors in accordance with EIA regulations. The objectives of NPPF, the Development Plan and other material policy considerations are met.

11 Air Quality and Dust

11.1 Introduction and Policy Context

11.1.1 The development plan contains policies and text concerning the potential for air quality and dust impact in connection with development proposals. In particular:

- NPPF Section 15, & Technical Guidance 23-37; and
- Wyre Forest Core Strategy Policy CP03.

11.1.2 And within emerging policy:

- Worcestershire Minerals Local Plan Fourth Stage Consultation Document Policy MLP19; and
- Wyre Forest Local Plan Pre-Submission Version Policies 16A and 16B.

11.1.3 The thrust of these policies is to reduce the impacts of dust emanating from the site in order to protect the amenity of sensitive properties. Although not extant guidance, Mineral planning guidance, in MPS1 and MPS2, also advises on controlling the effects of development and keeping impact to a minimum.

11.1.4 The key planning principle relating to dust is that emissions should, as far as possible, be controlled, mitigated or removed at source. The degree of assessment required is be influenced by the type and scale of working and the proximity of sensitive land uses in the surrounding areas. Dust Assessment Studies should identify the operations and/or processes likely to give rise to dust and make recommendations for measures of mitigation which the MPA and the site operator could agree on for effectively controlling dust emissions.

11.2 Competence of Persons Undertaking Assessment

11.2.1 A Dust Impact Assessment has been prepared by Vibrock Limited and can be found at Technical Appendix E. An air quality assessment (Appendix 4 of Technical Appendix E) was undertaken by Envirocentre.

11.2.2 The dust impact assessment has been prepared by Aaron Gutteridge, of Vibrock Limited. Aaron Gutteridge BSc (Hons) MSc AMIOA AFOH has an MSc Applied Acoustics graduate joined Vibrock Ltd May 2015, where he has worked in an Environmental Consultant role specialising in Environmental Acoustics and Air Quality. Aaron regularly undertakes various environmental assessments, such as air quality studies for environmental impact assessments, industrial noise assessments and environmental noise assessments. Mr Gutteridge has completed an 'International Environmental Policy and Law Certificate of Credit' as part of the Postgraduate Certificate in Environmental Management and has recently finished studying an

'Environmental Impact Assessment Certificate of Credit', also part of the Postgraduate Certificate in Environmental Management. Aaron holds memberships to both the Institute of Acoustics, and BOHS Faculty of Occupational Hygiene.

11.2.3 The dust impact assessment has been reviewed by Daniel Williams, of Vibrock Limited. Daniel Williams BSc MIQ, MIAQM, MIEXPE joined the Vibrock team in 1998, employed as an Environmental Consultant. With 20 years of experience, Daniel has undertaken noise, air quality and vibration monitoring on a wide range of projects across the UK, specialising in the measurement and assessment of air quality and vibration for planning applications, including those requiring EIA, across the civil engineering, construction/demolition, waste disposal and mineral extraction sectors. Mr Williams holds membership to the Institute of Quarrying, the Institute of Air Quality Management and the Institute of Explosive Engineers.

11.2.4 The air quality assessment was prepared by Bryan Cassidy BSc (Hons) MSc. Bryan Cassidy is a Senior Environmental Consultant at EnviroCentre with over 6 years of experience in Environmental Management. Bryan has been involved in the provision of Air Quality Dispersion Modelling and Management Plans (including dust) for a range of developments including quarries, leisure, mixed use and residential developments. He has a solid understanding of Air Quality Legislation at a national and regional level and the requirements they place upon both local councils and developers.

11.3 Potential for Impact

11.3.1 A dust event will only occur if the necessary conditions are present. It is necessary to have a fine material available which is able to be picked up, carried and then deposited by the wind. Such materials are more readily available if dry and physically disturbed. Thus, not all site operations are dusty because of the lack of physical disturbance. There must also be a wind of sufficient strength to transport fine particles, and for a particular property to be at risk the wind must blow in that particular direction from the source. The critical wind speed at which a particle becomes airborne depends on many factors including particle size, shape and density. For most mineral dusts the critical wind speed is about 5.6 ms-1 (12 mph - 11kts - Force 4 on Beaufort Scale).

11.3.2 For a dust event to occur there must also be a failure of dust control measures. Particles greater than 30µm make up the greatest proportion of dust emitted from mineral processing and largely deposit within 100m of sources. Particles between 10 and 30µm are likely to travel from 250 to 400m, while sub 10µm particles, which make up a small proportion of dust emitted from most mineral processing operations, may travel up to 1km from sources.

11.3.3 In considering the climatic conditions, it is clear the winds will predominate from the south west quadrant with an analysis of the number of dry windy working days giving a maximum of some 14 such days likely in a south west direction in any one year. The property locations are discussed below and identified on Figure 1 of Technical Appendix E.

Potential Receptors

Residential Receptors

No. 5 Brown Westhead Park

11.3.4 The closest approach separation distance at No.5 Brown Westhead Park is <100m west of Phase 2.

11.3.5 Winds from the east north east, east, east south east, and south south east and would blow from the site towards the residential property. The property will be shielded from the quarry by existing hedge land and the creation of screening bund.

11.3.6 A total of 3 dry windy working days are calculated from the above quadrants, representing between <5% of all dry windy working days. No.5 Brown Westhead Park is therefore classed as close from the source of dust and with the potential for dusty winds classed as infrequent.

No. 1 Brown Westhead Park

11.3.7 The residential property of No. 1 Brown Westhead Park, is located to the west of the proposed development. The closest approach of operations to the receptor will be within Phase 2 with a separation distance of approximately 125m from the closest of operations during this phase.

11.3.8 Winds from the north north east, east north east, east, and east south east would blow from the closest of workings towards the property. The property will be shielded from the extraction operations by existing hedge-land. The calculated number of dry windy working days is 2 day from the above quadrants, giving a total of <5% of the total number of dry working days. The number of dry windy working days is therefore classed as infrequent with the distance between potential dust source and receptor classed as intermediate.

South Lodges

11.3.9 The residential property of South Lodges is located to the south east of Phase 2. The property will be shielded from the works by the creation of a screening bund.

11.3.10 The property of South Lodges is located <100m metres from the proposed quarry works of Phase 2. Winds from the north, north north west, and west north west would blow towards South Lodges from Phase 2 for 3 days per annum from the quadrants above, <5% of the total number of dry working days. The number of dry windy working days is classed as infrequent with the separation distance from operations classed as close.

Broom Cottage

11.3.11 Broom Cottage is a residential property located <100m to the south of the proposed development Phase 3, classed as close.

11.3.12 The number of dry windy working days when the wind blows from west north west, north

north west, north, north north east, and east north east quadrants is 3 days per annum which represents <5% of the total number of dry working days

11.3.13 The potential for wind of sufficient strength to blow from the site is therefore considered to be infrequent. The property will be shielded from site operations by the creation of a screening bund.

Four Winds

11.3.14 Four Winds is located approximately 105m to the south of the proposed quarry works of Phase 3.

11.3.15 The calculated number of dry windy working days when wind would blow from the proposed phase 3 from the west north west, north north west, north, and north north east is 3 days per annum, <5% of the total number of dry working days per annum.

11.3.16 The potential for wind of sufficient strength to blow from the site and to transport dust is therefore considered to be infrequent, with the separation distance from proposed operations classed as intermediate.

No. 10 Castle Barns

11.3.17 The closest approach separation distance at the residential property of No. 10 Castle Barns is approximately 150m to the north east of Phase 3.

11.3.18 Winds from the west, west south west, and south south west would blow from the site towards No. 10 Castle Barns. The property will be shielded from the quarry by bunding around the quarry working area.

11.3.19 A total of 11 dry windy working days are calculated from the above quadrants, representing between 5% and 12% of all dry windy working days. No. 10 Castle Barns is therefore classed as intermediate from the source of dust and with the potential for dusty winds classed as moderately frequent.

The Bungalow

11.3.20 The closest approach separation distance at The Bungalow to the proposed development area is <100m east of Phase 1.

11.3.21 Winds from the north north west, west north west, west, west south west, and south south west would blow from the site towards The Bungalow. The Bungalow will be shielded from the quarry by bunding around the quarry working area.

11.3.22 A total of 14 dry windy working days are calculated from the above quadrants, representing between 12% and 20% of all dry windy working days. The Bungalow is therefore classed as close from the source of dust and with the potential for dusty winds classed as frequent.

Public Spaces

Brown Westhead Park and Playing Fields

11.3.23 The closest approach separation distance at Brown Westhead Park and Playing Fields to the proposed development area is approximately 160m west of Phase 2.

11.3.24 Winds from the north north east, east north east, east, east south east, and south south east would blow from the site towards the receptor. Brown Westhead Park and Playing Fields will be shielded from the quarry by bunding around the quarry working area and existing hedge land.

11.3.25 A total of 3 dry windy working days are calculated from the above quadrants, representing <5% of all dry windy working days. The receptor is therefore classed as intermediate from the source of dust and with the potential for dusty winds classed as infrequent.

Heathfield Knoll School

11.3.26 Heathfield Knoll School is a receptor located <100m to the south west of the proposed development Phase 2, classed as close.

11.3.27 The number of dry windy working days when the wind blows from north, north north east, and east north east quadrants is 1 day per annum which represents <5% of the total number of dry working days.

11.3.28 The potential for wind of sufficient strength to blow from the site is therefore considered to be infrequent. The property will be shielded from site operations by the creation of a screening bund and existing hedge land.

Internationally Designated Receptors (SSSI, SAC, RAMSAR) and Local Wildlife Sites (LWS)

The Staffs and Worcs Canal and Wolverley Conservation Area (and LWS)

11.3.29 The closest approach separation distance is approximately 625m west of Phase 2.

11.3.30 Winds from the east and east south east would blow from the site towards the ecological receptor.

11.3.31 A total of 1 dry windy working day is calculated from the above quadrants, representing between <5% of all dry windy working days; being classed as distant from the source of dust and with the potential for dusty winds classed as infrequent. IAQM states that adverse dust impacts from sand and gravel are uncommon beyond 250m of the operation; it is unlikely the receptor will be impacted by fugitive dust from site operations.

Stourvale Marsh

11.3.32 Stourvale Marsh is located to the south west of the proposed development. The closest approach of operations to the receptor will be within Phase 2 with a separation distance of

approximately 930m from the closest of operations during this phase.

11.3.33 Winds from the east north east would blow from the closest of workings towards the receptor. The calculated number of dry windy working days is <1 day from the above quadrants, giving a total of <5% of the total number of dry working days. The number of dry windy working days is therefore classed as infrequent with the distance between potential dust source and receptor classed as distant, however IAQM states that adverse dust impacts from sand and gravel are uncommon beyond 250m of the operation, it is unlikely the receptor will be impacted by fugitive dust from site operations.

Puxton Marshes (and LWS)

11.3.34 The Puxton Marshes are located to the south west of Phase 2.

11.3.35 The receptor is located >1km from the proposed quarry works. Winds from the north north east, and east north east would blow towards the receptor from Phase 2 for 1 day per annum from the quadrants above, <5% of the total number of dry working days. The number of dry windy working days is classed as infrequent with the separation distance from operations classed as distant, however IAQM states that adverse dust impacts from sand and gravel are uncommon beyond 250m of the operation, it is unlikely the receptor will be impacted by fugitive dust from site operations.

Hurcott Pasture and Hurcott and Podmore Pools (and LWS)

11.3.36 The receptors are located approximately 660m to the south east of the proposed development Phase 3, classed as distant.

11.3.37 The number of dry windy working days when the wind blows from the north north west quadrant is 1 day per annum which represents <5% of the total number of dry working days.

11.3.38 The potential for wind of sufficient strength to blow from the site is therefore considered to be infrequent, however IAQM states that adverse dust impacts from sand and gravel are uncommon beyond 250m of the operation, it is unlikely the receptor will be impacted by fugitive dust from site operations.

River Stour

11.3.39 The River Stour is located approximately 220m to the north west of the proposed quarry works of Phase 1.

11.3.40 The calculated number of dry windy working days when wind would blow from the proposed Phase 1 from the east south east, and south south east is 2 days per annum, <5% of the total number of dry working days per annum.

11.3.41 The potential for wind of sufficient strength to blow from the site and to transport dust is therefore considered to be infrequent, with the separation distance from proposed operations classed as distant.

Gloucester Coppice (and Natural Woodland)

11.3.42 The closest approach separation distance is approximately 208m to the north of Phase 1.

11.3.43 Winds from the south south east, south, and south south west would blow from the site.

11.3.44 A total of 11 dry windy working days are calculated from the above quadrants, representing between 5% and 12% of all dry windy working days, therefore the receptor is classed as distant from the source of dust and with the potential for dusty winds classed as moderately frequent.

Wolverley Marsh

11.3.45 The closest approach separation distance at Wolverley Marsh to the proposed development area is approximately 680m west of Phase 2.

11.3.46 Winds from the east and east south east would blow from the site towards Wolverley Marsh.

11.3.47 A total of 1 dry windy working day is calculated from the above quadrants, representing between <5% of all dry windy working days. Wolverley Marsh is therefore classed as distant from the source of dust and with the potential for dusty winds classed as infrequent, however IAQM states that adverse dust impacts from sand and gravel are uncommon beyond 250m of the operation, it is unlikely the receptor will be impacted by fugitive dust from site operations.

Wolverley Court Lock Carr

11.3.48 The closest approach separation distance to the proposed development area is approximately 610m south west of Phase 2.

11.3.49 Winds from the east north east and east would blow from the site towards the receptor.

11.3.50 A total of <1 dry windy working day is calculated from the above quadrants, representing <5% of all dry windy working days. The receptor is therefore classed as distant from the source of dust and with the potential for dusty winds classed as infrequent, however IAQM states that adverse dust impacts from sand and gravel are uncommon beyond 250m of the operation, it is unlikely the receptor will be impacted by fugitive dust from site operations.

11.3.51 An estimation of dust risk is set out below in table 9.1:

Table 9.1: Estimation of Dust Risk

Receptor	Estimation of Dust Impact Risk
No. 5 Brown Westhead Park	Negligible Risk
No. 1 Brown Westhead Park	Negligible Risk
South Lodges	Negligible Risk

Broom Cottage	Negligible Risk
Four Winds	Negligible Risk
No. 10 Castle Barns	Low Risk
The Bungalow	Medium Risk
Brown Westhead Park and Playing Fields	Negligible Risk
Heathfield Knoll School	Negligible Risk
The Staffs and Worcs Canal and Wolverley Conservation Area (and LWS)	Negligible Risk
Stourvale Marsh	Negligible Risk
Puxton Marshes (and LWS)	Negligible Risk
Hurcott Pasture	Negligible Risk
Hurcott and Podmore Pools (and LWS)	Negligible Risk
River Stour	Negligible Risk
Gloucester Coppice (and Natural Woodland)	Negligible Risk
Wolverley Marsh	Negligible Risk
Wolverley Court Lock Carr	Negligible Risk

11.3.52 An assessment of the magnitude of dust effect is presented for each of the receptor locations in table 9.2 below:

Table 9.2: Assessment of the Magnitude of Dust Effect

Receptor	**Magnitude of Dust Effect**
No. 5 Brown Westhead Park	Negligible Effect
No. 1 Brown Westhead Park	Negligible Effect
South Lodges	Negligible Effect
Broom Cottage	Negligible Effect

Four Winds	Negligible Effect
No. 10 Castle Barns	Slight Adverse Effect
The Bungalow	Moderate Adverse Effect
Brown Westhead Park and Playing Fields	Negligible Effect
Heathfield Knoll School	Negligible Effect
The Staffs and Worcs Canal and Wolverley Conservation Area (and LWS)	Negligible Effect
Stourvale Marsh	Negligible Effect
Puxton Marshes (and LWS)	Negligible Effect
Hurcott Pasture	Negligible Effect
Hurcott and Podmore Pools (and LWS)	Negligible Effect
River Stour	Negligible Effect
Gloucester Coppice (and Natural Woodland)	Negligible Effect
Wolverley Marsh	Negligible Effect
Wolverley Court Lock Carr	Negligible Effect

11.3.53 As shown above in tables 9.1 and 9.2, the impact on air quality from potential dust emissions is expected at all but two receptors to be negligible effect. No. 10 Castle Barns and The Bungalow could potentially be Slight Adverse Effect / Moderate Adverse Effect if dust mitigation and control measures are not implemented. If the dust control measures identified below are effectively implemented, this will effectively mitigate any potential dust impact.

11.3.54 The quarry operator will comply with any conditions which may be specified in the planning conditions imposed by the Mineral Planning Authority relating to dust. The operator will refer to the planning conditions and determine an appropriate response, taking into account current and forecast weather conditions.

11.3.55 When conditions for dry windy working days do occur, the implementation of the dust suppression measures discussed below and Appendix 3 of Technical Appendix E, will ensure that dust emissions are minimised. The use of such best practice measures, which have been implemented at mineral extraction sites throughout the United Kingdom, suggest that such

measures will be effective.

Traffic Dispersion Modelling

11.3.56 The greatest potential for an air quality impact is from changes in traffic flows affecting new or existing residents. The pollutants of concern are nitrogen dioxide and fine particles.

11.3.57 An air quality assessment (Appendix 4 of Technical Appendix E) was undertaken utilising an ADMS-Roads air quality model to investigate if there was potential for traffic emissions to have impact upon future and existing residents near road networks in the vicinity of the site.

11.3.58 The dispersion modelling exercise considered the impact on future and existing residents in areas where traffic movements will alter. The following scenarios were considered:

- 2018 Baseline (for model verification only);
- 2020 Baseline;
- 2020 Baseline + Committed; and
- 2020 Baseline + Committed + Development.

11.3.59 The proposed development is likely to alter traffic movements on the road network in its vicinity. Therefore, the sensitive receptors included in the model were selected due to their proximity to the roads most likely to be subject to traffic increases as a result of the development.

Sensitive Receptors

11.3.60 The location of each receptor along with the local road network system was input to the air dispersion model using the GIS software ArcMap 10.7 on a digital OS tile of the surrounding area. The sensitive receptors assessed within the model are listed in Table 9.3 below:

Table 9.3: Air Quality Sensitive Receptors

Receptor	Receptor Description	OS Grid Reference
SR1	Castle Barns	384579, 279315
SR2	Residence adjacent to corner of Wolverley Road & Sion Hill	383674, 278835
SR3	Heathfield Lodge	383930, 278782
SR4	The Cottage, Wolverley Road	384193, 278807
SR5	Residence Corner of Chapel	384212, 278130

	Hill & Stourbridge Road	
SR6	42 Wolverhampton Road	384495, 278378
SR7	Park Gate Barn, Park Gate Road	385026, 278657

Modelled Roads

11.3.61 For local impact assessments the roads included in the calculations should be all those expected to make a significant contribution to pollution at the receptor locations in question. In practise, roads more than 200m away from the receptor can be excluded. Minor roads can also be excluded even when they are closer than to receptors due to their relatively small pollutant contributions. No industrial sources were modelled.

11.3.62 The road links included in the model are listed below:

- Wolverley Road;
- A449 Wolverhampton Road;
- Park Gate Road;
- A451 Stourbridge Road;
- A449 Stourbridge Road; and
- A449 Chester Road North.

11.3.63 Traffic data utilised in the assessment was informed by the transport assessment attached at Technical Appendix F.

Modelled Results

11.3.64 The assessment scenarios have identified a Negligible impact at all of the sensitive receptors other than at SR6 where a Slight impact has been predicted for NO2.

11.3.65 As per IAQM guidance impact descriptors relate to individual receptors and are not representative of the impact of the whole development. Therefore, due to the fact that the predicted impact of the development at the majority of the assessed receptors is negligible and that the development will not result in increases in target pollutants that will lead to breaches of relevant objective levels the overall impact of the development is considered to be Negligible.

11.3.66 Furthermore, the assessment has assumed no improvement in background concentrations or engine emissions and the predicted results are therefore considered to be conservative.

PM_{10} Assessment

11.3.67 The 1999 DETR publication "Do particulates from opencast coal mining impair children's respiratory health?" recommends an assessment framework with respect to PM_{10} particulates.

11.3.68 This study has accessed air quality data from the DEFRA website for the relevant grid squares which contain the closest residential receptors.

Table 9.4: Grid Square 383500/278500: No. 5 Brown Westhead Park / No. 1 Brown Westhead Park / South Lodges / Broom Cottage / Four Winds / The Bungalow / Heathfield Knoll School

Year	Projected PM_{10} Burden	
	Number of Exceedances of 50 μg/m³	Annual Mean μg/m³
2018	<1	13.79
2023	<1	13.46
2028	<1	13.34

11.3.69 For Grid Square 383500, 278500 the highest annual mean when combined with a site attributable load of 1 μg/m³ is for the year 2018 and gives a projected burden of 13.79 μg/m³. Such an annual mean is calculated to produce <1 daily exceedances of 50 μg/m³.

Table 9.5: Grid Square 384500/278500: No. 10 Castle Barns

Year	Projected PM_{10} Burden	
	Number of Exceedances of 50 μg/m³	Annual Mean μg/m³
2018	<1	15.16
2023	<1	14.81
2028	<1	14.68

11.3.70 For Grid Square 384500, 278500 the highest annual mean when combined with the site attributable load of 1 μg/m³ is for the year 2018 and gives a projected burden of 15.16 μg/m³. Such an annual mean is calculated to produce <1 daily exceedance of 50 μg/m³.

Table 9.6: Grid Square 382500/278500: Brown Westhead Park and Playing Fields / The Staffs and Worcs Canal and Wolverley Conservation Area (and LWS) / Stourvale Marsh / Wolverley Marsh / Wolverley Court Lock Carr

Year	Projected PM_{10} Burden	
	Number of Exceedances of 50 μg/m³	Annual Mean μg/m³
2018	<1	13.39
2023	<1	13.06
2028	<1	12.94

11.3.71 For Grid Square 382500, 278500 the highest annual mean when combined with the site attributable load of 1 μg/m³ is for the year 2018 and gives a projected burden of 13.39 μg/m³. Such an annual mean is calculated to produce <1 daily exceedances of 50 μg/m³.

Table 9.7: Grid Square 382500/277500: Puxton Marshes (and LWS)

Year	Projected PM_{10} Burden	
	Number of Exceedances of 50 μg/m³	Annual Mean μg/m³
2018	<1	14.11
2023	<1	13.76
2028	<1	13.64

11.3.72 For Grid Square 382500, 277500 the highest annual mean when combined with the site attributable load of 1 μg/m³ is for the year 2018 and gives a projected burden of 14.11 μg/m³. Such an annual mean is calculated to produce 1 daily exceedances of 50 μg/m³.

Table 9.8: Grid Square 384500/277500: Hurcott Pasture / Hurcott and Podmore Pools (and LWS)

Year	Projected PM_{10} Burden	
	Number of Exceedances of 50 μg/m³	**Annual Mean μg/m³**
2018	<1	15.69
2023	<1	15.31
2028	<1	15.19

11.3.73 For Grid Square 384500, 277500 the highest annual mean when combined with the site attributable load of 1 μg/m³ is for the year 2018 and gives a projected burden of 15.69 μg/m³. Such an annual mean is calculated to produce <1 daily exceedance of 50 μg/m³.

Table 9.9: Grid Square 383500/279500: River Stour / Gloucester Coppice (and Natural Woodland)

Year	Projected PM_{10} Burden	
	Number of Exceedances of 50 μg/m³	**Annual Mean μg/m³**
2018	<1	13.42
2023	<1	13.10
2028	<1	12.97

11.3.74 For Grid Square 383500, 279500 the highest annual mean when combined with the site attributable load of 1 μg/m³ is for the year 2018 and gives a projected burden of 13.42 μg/m³. Such an annual mean is calculated to produce <1 daily exceedance of 50 μg/m³.

11.3.75 Hence the proposed mineral extraction operations at Lea Castle Farm would satisfy the UK Air Quality Objectives for PM_{10} of no more than 35 exceedances per year of a 24 hour mean of 50μg/m³ and an annual mean of 40 μg/m³.

11.3.76 This procedure clearly indicates that the PM_{10} from this proposal is not likely to exceed the Air Quality Objectives and it is considered that the best practice measures proposed for dust control are appropriate and in proportion to the potential for dust emission.

11.3.77 Sub 10µm particles, which make up a small proportion of dust emitted from most mineral operations, may travel up to 1km from sources. Of the total PM_{10} dust fraction there will be a percentage of the smaller $PM_{2.5}$ particulate matter.

11.3.78 In the May 2016 publication by the Institute of Air Quality Management "Guidance on the Assessment of Mineral Dust Impacts for Planning" it is stated that:

"The other potential air quality impact is the increase in ambient suspended particulate matter (PM) concentrations local to the site. As noted earlier, the PM_{10} fraction is relevant to health outcomes. For quarries most of this suspended dust will be in the coarse sub-fraction ($PM_{2.5-10}$), rather than in the fine ($PM_{2.5}$) fraction."

11.3.79 On the basis of the above comment and the nationally derived ratio of $PM_{2.5}/PM_{10}$; 0.7, it is considered an additional burden of 0.5 μgm^{-3} $PM_{2.5}$ to the annual mean would represent a worst case.

11.3.80 The application of a 0.5 $\mu g/m^3$ loading to the highest $PM_{2.5}$ concentration considered in this assessment of 10.41 $\mu g/m^3$ for the year 2018 at grid square 384500, 277500 gives a projected $PM_{2.5}$ burden with the addition of quarry operations of 10.91 $\mu g/m^3$ for the grid square containing Hurcott Pasture / Hurcott and Podmore Pools (and LWS). The worst case projected concentration therefore complies with the $PM_{2.5}$ 2015 annual mean criterion of 25 $\mu g/m^3$.

11.3.81 If the development is permitted, an increase in the annual mean concentration of PM_{10} and $PM_{2.5}$ would not exceed the Air Quality Objectives.

Health Impact

11.3.82 Medical studies have consistently failed to find any link between dust arising from mineral working and public health. A local doctor who claimed that a nearby site produced demonstrable adverse medical effects upon his patients presented evidence to the Derlwyn Public Inquiry in South Wales. However, that evidence has since been discredited and shown, as an epidemiological study to be fundamentally flawed (British Medical Journal 305, 1992).

11.3.83 In 1992 the Institute of Occupational Medicine (IOM) concluded a three-year epidemiological study of the respiratory health of some one thousand two hundred and forty nine opencast mine employees working over nine sites selected by the IOM (Institute of Occupational Medicine Ltd 1992).

11.3.84 The main conclusions of that study were that dust exposures were low for most occupational occurrences and that neither asthma nor chronic bronchitis is related to exposure to dust in any part of opencast workings. It is only for those workers exposed for 10 years or more in the dustiest of opencast jobs that a small risk of pneumoconiosis was demonstrated.

11.3.85 The Health and Safety Executive have set the occupational exposure limit for dust at 10 mg/m^3 as an 8 hour time weighted average. As previously mentioned such a figure may

have significance within a site if workers are immediately adjacent to a particular operation prone to high dust emissions. However, due to dilution and dispersion it is extremely unlikely that any residential property around a site would ever experience concentrations of dust as high as this, with environmental dust levels some 100 times less being the norm.

11.3.86 In 1999 the then DETR published the results of a relevant research project by the University of Newcastle upon Tyne under the title "Do particulates from opencast coal mining impair children's respiratory health?"

11.3.87 The Committee on the Medical Effects of Air Pollutants considered the content of this study, finding that is was "…of a high standard".

11.3.88 The Committee agreed with the findings of the authors of the report that:

i. Opencast coal mining was associated with a small increase in the mean concentration of airborne particle measured as PM10 in areas close to opencast sites. This was due to an increased concentration of shale.

ii. The respiratory health of children living in communities close to opencast coal sites was very similar to that of children living in communities distant from such sites.

11.3.89 Overall, the number of consultations made to general practitioners was similar for children who lived close to opencast sites compared to those who did not.

11.3.90 The Committee noted that the increase in particle concentrations close to opencast sites was not due to the release of coal particles but was more likely due to earth moving and excavation. Such levels of exposure to these materials, as may occur in local communities as a result of any opencast mining, are most unlikely to have any detectable effects on health.

11.3.91 They concluded that from what is known of the long term effects of coal mining on the health of opencast coal miners, that it is most unlikely that opencast sites would have any long term effects on the health of local communities.

11.3.92 The study noted that the differences between opencast areas and the control communities studied during the research was some 2.0 $\mu g/m^3$ in terms of the gravimetric mean of daily differences in measured PM_{10} values.

11.3.93 Of significance, however, was their finding that the differences between opencast and control communities were not found to be greater under conditions when the contribution of site related PM_{10} dust had been expected to be raised. In such circumstances as when the wind was blowing from the site to the community monitor or during permitted site working hours.

11.3.94 Further guidance with regard to the assessment of PM_{10} is given within the Planning Practice Guidance documentation to the National Planning Policy Framework.

11.3.95 The general basis of this guidance is that dust should as far as possible be controlled, mitigated or removed at source. The document further confirms, with minor refinements, the assessment methodology of the University of Newcastle upon Tyne study.

11.4 Potential for Mitigation

11.4.1 The NPPF states that "unavoidable dust emissions should be controlled, mitigated or removed at source". The following measures will be taken to ensure that the dust control measures are effectively implemented.

11.4.2 Soil Stripping

11.4.3 The soil stripping operations required for the proposed quarry at Lea Castle Farm will be limited in duration. Consideration will be given to the weather conditions before soil handling activities are conducted when in close proximity to sensitive receptors. Any soil storage mounds will be seeded as soon as is practicable keeping with site good working practice.

11.4.4 Site vehicle movements will be limited to 15 mph. Material removed as part of the soil stripping operations will be handled in a manner to minimise dust generation through attention to detail such as minimum drop heights.

Mineral Extraction and Transportation Operations

11.4.5 Throughout all quarry phases the extraction of mineral will be conducted with a tracked excavator and will be transported to the processing plant via two articulated dump trucks.

11.4.6 The sand and gravel to be extracted from the development areas will have a relatively high moisture content which will reduce the potential for dust emission when handling the material. Notwithstanding this, the dust suppression measures detailed within this chapter will be implemented to reduce the potential for dust emission from the site.

11.4.7 The drop height from the excavator bucket to the dump trucks and from the dump trucks to the processing plant will be minimised, the on site speed limit of 15 mph will be adopted. Dust suppression with the use of an on-site water bowser, road sweeper, and sprinkler systems will be implemented as required to mitigate dust generation.

11.4.8 Internal haul roads will consist of compacted material around the processing plant and shall be regularly maintained by grading in order to minimise dust generation.

11.4.9 Mobile plant exhausts and cooling fans will continue to be discharged away from the ground to prevent dust mobilisation.

11.4.10 All mobile plant will be regularly maintained.

Mineral Processing Plant

11.4.11 Mineral processing for sand and gravel is a wet operation. Mineral from the extraction area will be discharged into a feed hopper to the processing plant. The mineral is then processed via crushing, screening and a sand plant before being stockpiled. Water is used throughout the process helping to minimise dust emissions.

11.4.12 Mineral which has been processed will when possible be shielded from the prevailing wind.

11.4.13 The ground surface will comprise of hard standing with water applied as required. A site speed limit of 15 mph will apply around the processing plant.

11.4.14 Spray rails will be utilised on all screening and crushing plant.

11.4.15 All lorries leaving site with aggregate will be sheeted and will travel via vehicle washing facilities.

Haulage of Material Off Site

11.4.16 All lorries leaving the site will be sheeted. The site speed controls of 15 mph will be implemented on the site access road. The site access road is hard surfaced which will minimise dust generation.

11.4.17 A road sweeper will be used as required on the site access road with water used as required. The use of water as a dust suppression measure is recognised in the latest MIRO guidance to give a high level of effectiveness. Continued good maintenance and housekeeping of haul road surfaces at all times will reduce the potential for dust emission.

11.4.18 All vehicles will use extensive cleaning facilities provided before accessing public roads.

Restoration Activities

11.4.19 Any soils handled as part of restoration activities will be managed in accordance with the current site restoration scheme and where relevant seeded as soon as is practicable in order to minimise the potential for dust generation.

11.5 Air Quality and Dust Conclusions

11.5.1 It is unlikely that any significant decrease in local air quality will occur due to the proposed development at Lea Castle Farm Quarry. Any dust occurrence event will be limited and of short duration and will be minimised by implementation of the dust control recommendations.

11.5.2 With regard to PM_{10} and $PM_{2.5}$ dust levels from the site, analysis has been made of the air quality data. The conclusion of the analysis was that AQO will not be exceeded.

11.5.3 Overall the effect on air quality of this development with the implementation of suitable dust mitigation measures is considered to be not significant.

11.5.4 The proposed operations will not cause an unacceptable impact on human beings, flora or fauna, and no increase in the volume of HGV movements is proposed which would increase traffic on the public highway or increase the potential for dust generation through on-site vehicle movements.

11.5.5 The policies contained in the NPPF, the Development Plan and other material policy considerations are satisfied by the proposed development.

12 Transport Movement and Access

12.1 Introduction and Policy Context

12.1.1 The development plan contains policies and text concerning the potential for transport impacts in connection with development proposals. The following policies are particularly relevant:

- NPPF Section 9 and 15;
- Wyre Forest Core Strategy Policy CP03;and
- Wyre Forest Site Allocation sand Policies Local Plan Policy SAL.CC1.

12.1.2 And within emerging policy:

- Worcestershire Minerals Local Plan Fourth Stage Consultation Document policy MLP29; and
- Wyre Forest Local Plan Pre-Submission Version Policy 13.

12.1.3 The thrust of these policies are consistent with the advice in NPPF regarding the potential environmental disturbance caused by mineral associated traffic. The policies seek to restrict development that would cause demonstrable harm to the function of the highways network and promote traffic management measures to concentrate road freight on the strategic highway network.

12.1.4 Developments which generate significant amounts of goods traffic should be located with easy access by an appropriate route to the strategic highway network, avoiding residential and environmentally sensitive areas. However, the policies also recognise that minerals can only be worked where they are found and in permitting the existing site, there has been an overt decision that mineral excavation and its associated transport requirements can be accommodated at this location.

12.2 Competence of Persons Undertaking Assessment

12.2.1 A Transport Statement (TS) has been prepared by Jeremy Hurlstone of The Hurlestone Partnership to assess the traffic and transport implications of the development proposal. The detailed report can be found in Technical Appendix F.

12.2.2 Jeremy Hurlstone is the Managing Director of The Hurlstone Partnership Limited, which provides specialist highway advice to developers and Local Authorities. He holds a BSc (Hons) in Civil Engineering Management, is a Member of the Chartered Institution of Highways and Transportation (MCIHT) and a Chartered Member of The Institute of Logistics and Transport

(CMILT). He has over 32 years of experience in the transportation industry, during which time he has been involved in many projects for varying development types. He has been involved with mineral sites and the assessment of their transport impacts throughout his career.

12.3 Potential for Impact

12.3.1 As part of the TS traffic survey data has been obtained, to identify the likely impact of the development on the highway network, as well as road safety data, to identify the collision record along routes used by HGVs travelling to/ from the site.

12.3.2 As part of the review, empirical traffic survey data was obtained and a topographic survey of the road was also undertaken in order to ensure that an appropriate access arrangement with suitable visibility splays could be provided.

Existing road network

12.3.3 The B4189 extends approximately 4km between the A442 Kidderminster to Bridgnorth Road to the west and the A449 Kidderminster to Wolverhampton Road to the east. The route initially leaves the A442 as Shatterford Lane before becoming Wolverley Road at its roundabout junction with the B4190 Franche Road within Wolverley, approximately mid-way along its length.

12.3.4 When leaving the A442 via a priority T junction, the B4189 is initially subject to the national speed limit of 60 mph for single carriageway routes. The speed limit reduces to 30 mph as it enters Wolverley, approximately 180m to the west of the roundabout, at which point the predominantly rural route to the west becomes more urban in nature, with the introduction of street lighting and a pedestrian footway along the south side of the carriageway. A footway on the north side is introduced at the roundabout, where dropped kerb pedestrian crossings with tactile paving to assist the visually impaired are also provided.

12.3.5 A Primary School is located in the southeast quadrant of the roundabout, which attracts significant on-street parking on the carriageway and verges during the school drop-off and pick-up times.

12.3.6 Continuing in a generally south-easterly direction from the roundabout, the B4189 passes a Hardwicks Landscape and Building Supplies, Blakershall Lane (which provides access to a Secondary School) a Golf Centre and The Lock Inn Public House, which sits adjacent to a canal. Beyond The Lock Inn, the speed limit increases to 40 mph and the footway on the south side of the B4189 Wolverley Road is temporarily discontinued as it passes a Caravan and Camping Club site and several private driveways / accesses. The B4189 also passes the Heathfield School and Day Nursery before reaching a junction with Sion Hill, which is opposite the access to Lea Castle Farm.

12.3.7 Continuing around a left-hand bend beyond the Sion Hill junction, the B4189 Wolverley Road begins to climb and the speed limit increases to the national level of 60 mph on this single

carriageway route. The carriageway reaches a noticeable crest approximately 120m distant before levelling out prior to another crest around 220m distant, at which point the route descends towards the A449 signal-controlled crossroads junction where the speed limit reduces to 40 mph. The nominal width of the B4189 Wolverley Road between the Sion Hill and A449 junctions is approximately 6.8m and a pedestrian footway is provided along the north side of the carriageway.

12.3.8 The B4189 Wolverley Road approach to the signals provides a single lane for the left turn onto the A449 to head north towards Wolverhampton; the straight-ahead movement to Park Gate Road; and the right turn onto the A449 to head south towards Kidderminster.

12.3.9 The speed limit on Park Gate Road increases to the national limit of 60 mph for the single track route immediately beyond the A449. Park Gate Road is a relatively short, straight link extending approximately 450m to a priority T junction with the A451 route from Kidderminster to Stourbridge. The A450 heads southwest converges towards the A449 and the routes meet at a mini-roundabout approximately 800m from the signal-controlled junction. As a result of this, there is a Traffic Regulation Order imposed on the northbound carriageway of the A449 preventing right turn movements from that route into Park Gate Road, as vehicles heading toward Stourbridge from Kidderminster are directed onto the A451 at the min-roundabout.

12.3.10 In the vicinity of the signal-controlled junction, the A449 has been constructed to dual carriageway standard. On the northbound approach there are two traffic lanes. The offside lane provides for ahead movements only, as a result of the aforementioned right turn ban, whilst the nearside lane provides for northbound straight-ahead movements and also the left turn into B4189 Wolverley Road.

12.3.11 The two northbound exit lanes from the junction continue along the dual carriageway extending approximately 115m to the north of B4189 Wolverley Road before merging beyond as the route tapers down to a single lane as the speed limit increases to 50 mph.

12.3.12 On the A449 southbound approach to the signals, signage advises that there is a 7.5 tonne weight limit 4 miles to the right (i.e. via the B4189) with a further sign below directing HGVs heading towards the A456 West to continue straight ahead. The 7.5 tonne weight limit does not apply along the relevant section of the B4189 between the A449 and A442 junctions.

12.3.13 On the approach to the stop lines, an offside traffic lane is introduced to provide for right-turning traffic heading into the B4189 Wolverley Road. This is separated from the single ahead and left-turn lane for southbound movements along the A449 towards Kidderminster and those turning left into Park Gate Road. There is sufficient carriageway space for a second ahead lane at the signals and a merge to the south, but the relevant area has been hatched out with road-markings to discourage its use.

12.3.14 The approach to the junction from Park Gate Road provides a single, combined straight-ahead / right turn lane towards B4189 Wolverley Road / A449 north with a separate left- turn lane for traffic heading south towards Kidderminster.

12.3.15 Sion Hill heads south from the B4189 Wolverley Road and extends approximately 0.8km to a priority T junction with the A449 approximately 1km southwest of the B4189 Wolverley Road / A449 signals. The width of Sion Lane varies along its length, narrowing to 5.85m in the vicinity of its northern junction and to 5.75m immediately before descending down a 10% gradient towards the A449. It is a predominantly urban route with numerous direct accesses to developments and dwellings plus several road junctions distributed along its length. There are numerous locations where on-street parking is permitted, which effectively reduces the carriageway width. Signs alert drivers to the potential to encounter school children crossing the road and a zebra crossing is provided.

12.3.16 The speed limit along Sion Hill is initially 40 mph when leaving the B4189 Wolverley Road, but it reduces to 30 mph approximately 150m from the junction, which continues towards and into Kidderminster on the A449.

12.3.17 It is proposed to route all HGV traffic travelling to/from the site via the B4189 Wolverley Road to the east of the access to the A449 junction, in order to prevent the vehicles travelling through Wolverley and along Sion Hill.

Existing traffic flows

12.3.18 As part of the study, various traffic surveys have been undertaken. Initially, when considering the potential for achieving an access to the site on B4189 Wolverley Road, two Automatic Traffic Counters (ATCs) were installed to record volumes and speeds continuously over a seven-day period between Saturday 12th and Friday 18th March 2016 inclusive, in order to avoid the Easter school holidays.

12.3.19 Originally, an access position towards the east of the site was considered. As a result, ATC Site 1 was fixed to a tree towards the western end of the visibility splay from the potential eastern access position on the more level section of the route between the two crests in the carriageway. The second ATC was fixed to the advanced direction sign facing eastbound drivers descending towards the A449 signal-controlled junction.

12.3.20 The summaries of the ATC results are provided at Appendix A of Technical Appendix F for information. The results revealed that the traffic flows at Site 1 were an average of 11188 per day over the 7 day period. The daily flows increased to 11729 vehicles per day when averaged over the 5 day period (Monday to Friday) due to the lower flows at the weekends. During the 5 day period, the daily flows varied between 10611 on Tuesday and 13154 on Friday, giving a day to day variation of 2542 vehicles.

12.3.21 The daily HGV flows varied between 128 (Monday) and 147 (Friday) during the 5 day period, giving a range of 19 HGV movements per day. The daily HGV flows on Saturday and Sunday

were 71 and 87 respectively. The HGV flows represented between 0.71% and 1.31% of the daily traffic flows at Site 1.

12.3.22 During the 5 day period, the AM peak hour was found to occur between 08:00 – 09:00 with an average flow of 1104 movements from daily totals ranging between 928 (Tuesday) and 1330 (Friday), giving a day to day variation of 402 vehicle movements.

12.3.23 The comparable PM peak hour occurred between 17:00 – 18:00 with an average of 1208 movements from daily totals of between 1119 (Tuesday) and 1398 (Thursday), giving a day to day variation of 279 vehicle movements.

12.3.24 The Thursday PM peak hour flow of 1398 movements (542 eastbound / 856 westbound) was the highest recorded hourly flow at Site 1.

12.3.25 In terms of vehicle speeds at Site 1, the 85th percentile eastbound speed was found to be 45 mph from a total of 40272 vehicles, whilst the equivalent westbound speed was 43.6 mph from a total of 38046 vehicles.

12.3.26 The results from Site 2 revealed a 7 day average daily flow of 11073 vehicles, which increased to 11603 when averaged over the 5 day period. The daily flows over the 5 day period ranged between 10623 (Monday) and 13081 (Friday) giving a day to day variation of 2458 movements.

12.3.27 The HGV flows at Site 2 were found to vary between 107 (Tuesday) and 180 (Friday) over the 5 day period, giving a day to day variation of 73 movements. The HGV flows on Saturday and Sunday were 83 and 125 respectively. The HGV content of the overall traffic flow varied between 0.85% and 1.38% per day during the 7 day period.

12.3.28 The AM peak hour flow at Site 2 was also found to occur between 08:00 – 09:00 with an average of 1128 movements over the 5 day period from daily flows ranging between 1009 (Tuesday) and 1323 (Friday), giving a day to day variation of 314 movements.

12.3.29 The comparable PM peak hour occurred between 16:00 – 17:00 with an average of 1179 movements from daily flows ranging between 988 (Tuesday) and 1352 (Friday), giving a day to day variation of 364 movements.

12.3.30 The highest hourly flow at Site 2 was found to occur between 17:00 – 18:00 on Thursday, when 1375 movements (541 eastbound / 834 westbound) were recorded.

12.3.31 The 85th percentile speeds recorded at Site 2 were found to be 43.9 mph eastbound from 40007 vehicles and 42.3 mph westbound from 37506 vehicles.

12.3.32 An observed turning count was undertaken at the A449 signals over a 12 hour period (07:00 – 19:00) on Tuesday 5th June 2018.

12.3.33 During the survey it was established that a total of 20578 movements were recorded at the junction, of which 22 were cycles, leaving 20556 motor vehicles including 1003 HGVs (4.9%).

12.3.34 The AM peak hour was found to occur between 07:45 - 08:45 with a total of 2249 movements passing through the junction including 2 cycles. Of the 2247 motor vehicles, 90 were HGVs, which represents 4%. The flows on the A449 to the north of the junction were 1527 including 78 HGVs, whilst those on the A449 south of the junction were 1085 including 63 HGVs. The flow on Wolverley Road was 1164 including 28 HGVs and that on Park Gate Road was 718 including 11 HGVs.

12.3.35 The PM peak hour occurred between 16:45 - 17:46 with a total of 2360 vehicles passing through the junction including 3 cyclists. Of the 2357 motor vehicles, 53 were HGVs, which represents 2.2%. The flows on the A449 to the north of the junction were 1607 including 48 HGVs, whilst those on the A449 south of the junction were 1151 including 37 HGVs. The flow on Wolverley Road was 1197 including 17 HGVs and that on Park Gate Road was 759 including 6 HGVs.

12.3.36 The HGV movements through the junction varied between 35 and 108 per hour during the survey period, whilst those travelling along B4189 Wolverley Road varied between 13 and 31 per hour, giving hour to hour variations of 73 and 18 HGV movements respectively.

12.3.37 As the design of the development site evolved, an alternative access position preferred by the operator was identified further to the west along B4189 Wolverley Road. The alternative access location was considered and a letter-report detailing the findings was prepared. This letter was subsequently submitted to Worcestershire County Council's Highways Department for consideration and a period of correspondence followed. The letter-report and e-mail correspondence is provided at Appendix C of Technical Appendix F for information.

12.3.38 Notwithstanding Worcestershire County Council's preference for the eastern access, the operator has confirmed that the western access is a more appropriate location when taking into account a wider ranging appraisal of the site and its impact. Given WCCs requirements to take into account uncorrected speeds and in the absence of any recorded data to the west of the proposed access, a further two ATC surveys were undertaken for a 7 day period between Saturday 19th and Friday 25th January 2019. One ATC (Site 1) was fixed to the sign denoting the change from the 40 mph to the national speed limit to the west of the proposed access position, and the second (Site 2) was fixed to a lamp column (LC1) to the east of the proposed access.

12.3.39 However, due to a technical fault at Site 2 (one of the tubes split and filled with water), the survey at Site 2 was repeated between Tuesday 29th January and Monday 04th February 2019. The summaries of the ATC survey results are provided at Appendix D of Technical Appendix F for information.

12.3.40 At Site 1 the average daily flow was found to be 11657 per day over the 7 day period. The daily flows increased to 12607 vehicles per day when averaged over the 5 day period (Monday to Friday) due to the lower flows at the weekends. During the 5 day period, the daily flows

varied between 11786 on Monday and 13457 on Friday, giving a day to day variation of 1671 vehicles.

12.3.41 The daily HGV flows varied between 95 (Monday) and 150 (Tuesday) during the 5 day period, giving a range of 55 HGV movements per day. The daily HGV flows on Saturday and Sunday were 51 and 54 respectively. The HGV flows represented between 0.51% and 1.21% of the daily traffic flows at Site 1 during the 2019 survey.

12.3.42 During the 5 day period, the AM peak hour was found to occur between 08:00 – 09:00 with an average flow of 1264 movements from daily totals ranging between 1121 (Monday) and 1367 (Tuesday), giving a day to day variation of 246 vehicle movements.

12.3.43 The comparable PM peak hour occurred between 16:00 – 17:00, which also revealed an average of 1264 movements from daily totals of between 1227 (Monday) and 1325 (Friday), giving a day to day variation of 98 vehicle movements.

12.3.44 The Tuesday AM peak hour flow of 1367 movements (693 eastbound / 674 westbound) was the highest recorded hourly flow at Site 1.

12.3.45 In terms of vehicle speeds at Site 1, the 85th percentile eastbound speed was found to be 40.4 mph from a total of 37858 vehicles, whilst the equivalent westbound speed was 41.8 mph from a total of 43746 vehicles.

12.3.46 The results from Site 2 revealed a 7 day average daily flow of 9526 vehicles, which increased to 10287 when averaged over the 5 day period. The daily flows over the 5 day period ranged between 9464 (Monday) and 11700 (Tuesday) giving a day to day variation of 2236 movements.

12.3.47 The HGV flows at Site 2 were found to vary between 61 (Monday) and 88 (Wednesday) over the 5 day period, giving a day to day variation of 17 movements. The HGV flows on Saturday and Sunday were 38 and 25 respectively. The HGV content of the overall traffic flow varied between 0.36% and 0.82% per day during the 7 day period.

12.3.48 The AM peak hour flow at Site 2 was also found to occur between 08:00 – 09:00 with an average of 1034 movements over the 5 day period from daily flows ranging between 810 (Monday) and 1212 (Tuesday), giving a day to day variation of 402 movements.

12.3.49 The comparable PM peak hour also occurred between 16:00 – 17:00 with an average of 1027 movements from daily flows ranging between 913 (Thursday) and 1202 (Tuesday), giving a day to day variation of 289 movements.

12.3.50 The highest hourly flow at Site 2 was the Tuesday AM peak, when 1212 movements (668 eastbound / 544 westbound) were recorded.

12.3.51 The 85th percentile speeds recorded at Site 2 were found to be 44.6 mph eastbound from 33658 vehicles and 44.9 mph westbound from 33026 vehicles.

Highway safety

12.3.52 In order to review the safety performance of the local highway network, Personal Injury Accident data recorded over the most recent 5 year period (2014 – 2018 inclusive) was reviewed, paying particular attention to incidents involving HGVs.

12.3.53 It was found that there had been a single accident involving a HGV between the Sion Hill and A451 Stourbridge Road junctions inclusive. This occurred at the signal-controlled A449 junction in October 2017 and involved a collision between a HGV turning right and a car continuing ahead through the junction.

12.3.54 In the event there is a particular feature of the local highway network that results in compromised safety for its users, it is normal to find a number of incidents at that point which have the same characteristics. In this case, only a single PIA involving a HGV has been recorded, which suggests that there are no inherent characteristics of the local road network that unacceptably compromise safety for or as a result of HGV use, given the apparent activity on the network, as demonstrated by the traffic survey results.

Proposed development

12.3.55 The proposed development involves the creation of a new quarry which would produce 3,000,000 saleable tonnes of sand and gravel over a period of 10 years at a rate of 300,000 tonnes per annum.

12.3.56 The sand and gravel would be exported by road in HGVs to customers within the West Midlands area via a new access to be created along the B4189 Wolverley Road, specifically to serve the new quarry.

12.3.57 It is proposed to create a new access approximately 220m east of the Sion Hill junction and 50m west of Broom Cottage. The proposed access is to take the form of a simple priority junction in accordance with the consultations / discussions with the Highway Authority. As requested by the Highway Authority a kerbed central island will be provided within the bellmouth to prevent HGVs from turning right onto the B4189 Wolverley Road when leaving the site. The bellmouth will also be configured to prevent HGVs from turning left into the access in order to enforce the routeing strategy, which directs all HGV traffic to/from the A449 to the east; thereby avoiding travelling through Wolverley and along Sion Hill. It is proposed to further reinforce the routeing restriction via CCTV at the access.

12.3.58 In accordance with the requirements of the Highway Authority, the visibility splays at the access have been based upon uncorrected observed speeds by applying the desirable minimum parameters of a 2 second perception reaction time and 0.25g rate of deceleration. Based on the eastbound speed of 40.4 mph recorded at Site 1 and the westbound speed of 44.9 mph at Site 2 recorded during the 2019 traffic surveys, the corresponding visibility requirements are 102.616m to the west and 122.282m to the east.

12.3.59 The plans provided in Appendix E of Technical Appendix F illustrate the access and visibility splays are achievable on site within the land controlled by the applicant and/or highway authority. Long sections have also been provided to demonstrate that the visibility splays are achievable taking into account the vertical and horizontal alignments of the road.

12.3.60 Following extraction of sand and gravel, it is proposed to restore the resulting void to a mixed use of agriculture, wildlife habitat and amenity uses via an enhanced public right of way network. In order to facilitate the proposed restoration scheme it is proposed to import soils and overburden arising from construction projects at a rate of 60,000 m3 per annum.

12.3.61 Based on other similar sites, the average payload of HGVs exporting sand and gravel is predicted to be 20 tonnes, whilst the imports would average 17 tonnes due to the fact that that some soils and overburden are taken directly from construction sites where there is no weighbridge to fully load the vehicles. The characteristics of the soils and overburden can also vary in terms of their bulking properties and resulting void space when loaded into the HGVs at the construction sites.

12.3.62 The operator anticipates that 25% of the exported sand and gravel would be transported on a back-haul basis, whereby a vehicle importing a load of infill is cleaned then loaded with sand and gravel for their outbound journey. Back-hauling is desirable from an operational perspective as it reduces transportation costs and maximises driver efficiency, given they can only drive for a limited number of hours per day. The 25% ratio is considered to be achievable based upon the applicant's experience of similar sites.

12.3.63 Notwithstanding the proposed back-hauling, the Highway Authority has confirmed the assessment should be based on a scenario whereby no back-hauling takes place, resulting in an increased number of additional HGV movements on the network than are actually envisaged to occur. The approach required by the Highway Authority therefore represents a more onerous, worst-case appraisal of the traffic impact associated with the quarry.

12.3.64 The proposed quarry would employ up to 11 staff on site and would operate between 07:00 - 19:00 Monday to Friday and 07:00 – 13:00 on Saturdays, with no working on Sundays or Public Holidays. Based upon the 5.5 day working week and allowing for the extended shut-down between Christmas and New Year, the typical working year equates to 275 operational days.

Development Traffic

12.3.65 Based on the exporting of 300,000 tonnes of sand and gravel in 20 tonne average payloads over 275 working days per annum, an average of 54.5 (say 55) loads per day would be required, resulting in 110 daily HGV movements.

12.3.66 Importing 60,000 m^3 of soils and overburden equates to 102,000 tonnes based on an average density of 1.7 tonnes per m^3. When taking into account the 17 tonne average payload and 275 working days per annum, it is established the infilling operations would attract 21.8 (say 22) loads per day, resulting in 44 HGV movements.

12.3.67 When making no allowance for back-hauling, as requested by the Highway Authority, it is apparent that the proposed development would attract 77 loads / 154 HGV movements per full working day. For comparison with Annual Average Daily Traffic (AADT) flows, which are averaged over 365 days per year, rather than the 275 working days at the site, this equates to 58 loads / 116 HGV movements per day.

12.3.68 In terms of hourly flows, when distributed over the 12 hour working day, 154 HGV movements equates to 13 movements per hour.

12.3.69 In addition to the HGV traffic there would also be staff movements to/from the site. Based on the worst case scenario whereby all 11 employees travel independently in a private vehicle, a further 22 movements would be anticipated on the network, with 11 arrivals in the morning and 11 departures in the evening. This level of staff activity represents 17 movements AADT. However, given the proximity of the site to Wolverley, Broadwaters, the northeast part of Kidderminster and Cookley, which are all within a reasonable walking distance, and the majority of Kidderminster falling within an acceptable cycling distance, it is likely that some employees would either choose to walk, cycle or car-share, resulting in reduced car journeys.

12.3.70 If allowing for the 25% of sand and gravel exports predicted to be transported on a back-haul basis, the number of HGV s associated with exporting saleable product would reduce to 41 loads / 88 HGV movements per day, resulting in a combined total of 63 loads / 126 HGV movements per full working day and 11 movements per hour 6. The equivalent AADT flow at the site access would be 48 loads / 96 movements per day.

12.3.71 As described previously, all HGV traffic would be directed towards the A449 via the access design and site rules. As a result, all of the HGV traffic would pass through the A449 junction.

12.3.72 Based on the market locations, taking into account alternative mineral and waste sites in the area, the applicant predicts 60% of the development traffic would travel to / from the north and 40% to / from the south, which equates to 8 movements to the north and 5 movements to the south of the junction per hour during the network peaks. Of the traffic heading to/from the north, there are two potential routes available, depending upon the origin / destination of the trip. Vehicles travelling to / from the south of or into Stourbridge may continue straight ahead and access the A451 Stourbridge Road via Park Gate Road, whilst those heading towards the west or north of Stourbridge or onwards towards Wolverhampton or Bridgnorth may travel along the A449.

12.3.73 Taking the alternative routes to the north into account, the distribution of the 60% of development trips along the A449 and A451 is predicted to vary between 20 - 40%, which equates to between 3 and 5 vehicles, on each road.

Traffic Impact

12.3.74 In terms of staff movements, these are not predicted to have a significant impact on the operational capacity of the local road network as they would occur beyond the existing peak

hour periods, when traffic flows on the road are lower, as a result of the proposed operating hours of the quarry.

12.3.75 When considering the HGV activity, based on the observed ATC survey results recorded to the east of the site access, the average weekday (Monday to Friday) flows varied between 10287 and 11603 vehicles with daily variations ranging between 2236 and 2542 movements.

12.3.76 An increase of 170 movements (assuming all staff movements occur on the same route to the east) represents between 1.5% and 1.8% of the observed flows on the B4189 Wolverley Road to the east of the proposed site access during the 5 day (Monday to Friday) period. It is also apparent that 170 movements represent 7.6% of the observed day to day variations already occurring on the road during the same period.

12.3.77 When considering the peak hour flows, the same survey results revealed average weekday peak hour flows ranging between 1027 and 1034 movements. An additional 13 movements per hour represents an increase of approximately 1.3% of the existing baseline traffic flow during the peak hours. When considering the day to day variations during the peak hour periods, which ranged from 289 to 402 movements, an additional 13 development trips during the network peaks represents between 3.2% - 4.5% of the observed fluctuations in traffic currently experienced.

12.3.78 Moving to the A449 traffic signals, the survey results reveal that 13 movements on the B4189 Wolverley Road link represent approximately 1.1% of the AM and PM peak hour flows (1164 and 1197 respectively). It is also apparent that 13 HGV movements fall within the observed hour to hour variation of 18 movements on B4189 Wolverley Road during the 12 hour survey period.

12.3.79 An additional 5 vehicle movements on the A449 to the north of the junction represents 0.3% of the observed 1527 movements during the AM peak hour and the 1607 movements during the PM peak hour. In terms of the 5 additional movements on the A449 to the south of the junction, these equate to less than 0.5% of the 1085 movements during the AM peak hour and the 1151movements during the PM peak hour. On Park Gate Road, an increase of 5 movements represents 0.7% of the observed 718 movements during the AM peak hour and 759 during the PM peak hour.

12.3.80 These increases and variations are not considered to be significant in the context of the existing baseline flows and normal traffic fluctuations on the local routes. To place them in context, paragraph 2.10 of TD 41/95 'Vehicular Access to All Purpose Trunk Roads' advises: "Generally, a material increase is considered to be if the turning traffic flows as a result of the development would increase by 5% or more..."

12.3.81 It is clear that the turning flows in this case and the increase in traffic volume on the link falls well below the 5% threshold. Indeed, it is apparent that the development traffic represents

less than 5% of the existing day to day variations experienced during the day and the peak hours.

12.3.82 Based on TEMPro growth predictions, over the predicted life of the quarry, daily traffic volumes on the local road network are predicted to increase by approximately 8.22%. Any increase in baseline flows as a result of traffic growth would further reduce the proportional increase associated with the proposed development within its active life, reducing the already insignificant impact on the network.

12.4 Potential for Mitigation

12.4.1 Taking into account the ability to deliver a suitable access to serve the site and the insignificant impact of the proposed development in terms of traffic increases in the local context, beyond normal best-practice quarrying protocols, such as maintaining the access road and its visibility provision, maintaining cleanliness of the access and the public highway, sheeting of vehicles etc. the only mitigation measure proposed is as follows:

- When leaving the site, a no right hand turn will be in operation. This will ensure HGVs head directly to the main highway network and do not travel through the village of Wolverley. All HGVs leaving the site will be monitored by CCTV at the quarry entrance and records of all HGVs leaving the site shall be maintained and shall be made available at the request of the MPA.

12.5 Transport Conclusions

12.5.1 The review undertaken confirms that in the worst case, the proposed development would attract an average of 77 loads / 154 HGV movements per day plus 22 movements (11 in / 11 out) associated with staff trips by the 11 employees within the site. The assessment has been based on the 154 HGV movements per day at the specific request of the Highway Authority, on the basis that back-hauling of sand and gravel exports with a load of imported fill be ignored, in order to represent the worst case.

12.5.2 Based on this assessment, it was found that the additional development traffic represented a very small proportion of the existing, observed traffic flows during the day and peak hour periods. It was also found that the quantum of development traffic also represented a small proportion of the existing, observed range of day to day and hour to hour variations in traffic flow on the local roads.

12.5.3 The highest increase over any baseline flow was found to be 1.7%, which falls well below the 5% threshold considered to represent a material increase in traffic. The insignificant impact is highlighted by the fact that the development traffic represents less than 8% of the observed day to day variations currently experienced on the routes.

12.5.4 The traffic data confirms that the local roads routinely accommodate HGV traffic. The analysis of personal injury accident data recorded over the most recent 5 year period confirmed that

there are no inherent characteristics of the local road network that unacceptably compromise safety for or as a result of HGV activity.

12.5.5 The proposed access has been designed based on observed speed data in accordance with current guidance and the Highway Authority's preference in terms of the visibility standards to be applied. The proposed arrangement meets current design requirements in terms of its geometric layout and visibility provision.

12.5.6 The cumulative impact of the proposed development has been assessed taking into account the permitted mixed development at the former Lea Castle Hospital site off Park Gate Road and also the permitted 91 dwellings off Stourbridge Road. It was found that neither of these developments would compromise the acceptability of the proposed quarry or vice-versa. Indeed the availability of the proposed quarry to supply sand and gravel to the construction sites and accept arisings from their excavations offers significant potential to support the principles of sustainable transport by reducing the need to travel and minimising transport distances.

12.5.7 Having considered the findings of the review, its impact was considered against national transport planning policy. In circumstances where a suitable access with appropriate visibility splays can be achieved on a road which currently safely accommodates similar vehicle types and where the normal day to day variations in flow significantly exceed the quantum of development traffic it would be difficult to conclude that there would be an unacceptable impact on highway safety or the residual cumulative impacts on the road network would be severe.

12.5.8 Accordingly, in accordance with the current national policy guidance, planning permission for the proposed development should not be prevented or refused on transport grounds.

12.5.9 To conclude, in terms of transportation and traffic, the proposed development and operations will not have unacceptable direct or indirect impact on population and human health; biodiversity; land, soil, water, air and climate; material assets, cultural heritage and the landscape; or the interaction between these factors in accordance with EIA regulations.

13 Agricultural Land Classification and Soils

13.1 Introduction and Policy Context

13.1.1 The main policies for assessing the potential for impact upon soils and agricultural land classification are as follows:

- NPPF paragraph 170.

13.1.2 And within emerging policy:

- Worcestershire Minerals Local Plan Fourth Stage Consultation Document policies MLP24 and MLP25; and
- Wyre Forest Local Plan Pre-Submission Version Policy 28D.

13.1.3 The thrust of these policies seek to ensure that the proposals do not give rise to an adverse or detrimental impact on soils, land quality and agriculture.

13.2 Competence of Persons Undertaking Assessment

13.2.1 An Agricultural Land Classification and Soil Resource Report has been prepared by Richard Stock (Richard Stock, Soils and Agriculture) in order to assess the baseline ground conditions at the application site and provide recommendations for soil storage and handling. The full Report can be found at ES Technical Appendix G.

13.2.2 Richard Stock BSc (Hons) Agricultural Science, PG Dip Agricultural Engineering has over 35 years' experience of the minerals industry in statutory, commercial and advisory organisations, working with operators and planning authorities primarily in relation to agricultural soils, restoration and post-restoration aftercare. He has been an independent adviser in Soils and Agriculture since 1991 when he has acted as a consultant on over 100 mineral schemes.

13.3 Potential for Impact

<u>The Baseline Conditions</u>

13.3.1 The baseline conditions recorded here relate to the agricultural land classification (ALC), the soil resources to a depth of 1.2m and the ownership and farming arrangements.

13.3.2 Baseline information relating to the agricultural land quality and soil resources of the land in the application area was collected by undertaking an agricultural land classification survey of the subject land. The survey was conducted by recording soil details at a density of at least one survey point per hectare and the information was interpreted in accordance with the Agricultural Land Classification System of England and Wales (revised guidelines and criteria

for grading the quality of agricultural land) MAFF 1988. The survey report identifies published soils information from the Soil Survey of England and Wales, and the 1:250,000 Agricultural Land Classification series maps (Natural England) in support of its findings.

13.3.3 The detailed Agricultural Land Classification and Soil Resource Report is presented in ES Volume 2 Technical Appendix G, and in the tables below.

13.3.4 The ALC survey covered an area of 46.9 hectares of mixed arable and grassland. Access can be gained from the B4189 on the south boundary. The site is divided into two areas, Western and Eastern, by a privately-owned track which leads from the B4189 northwards towards a bungalow, equestrian centre and Lea Castle Farm.

13.3.5 The ALC System considers criteria relating to Climate, Site and Soil. Based on Climatic factors there is no limitation to grade. Regarding Site features the west side of the site is gently undulating and offers no restrictions to agricultural use. Although the east side of the site is more steeply undulating, it also offers no limitation to grade according to the ALC slope criteria. The Soils are described as '*Well drained sandy and coarse loamy soils over soft sandstone, and some deep well drained sandy soils with some very acid soils with bleached subsurface horizons'.* Based on soil criteria the most limiting factor on this site is droughtiness.

13.3.6 It is concluded that the site is dominated by Grade 3a through drought limitation. There are three patches in the eastern area which are uplifted to Grade 2 where the topsoil and/or the subsoil is deeper over soft sandstone. There is also a small patch of very droughty Grade 3b where the subsoil is absent and the topsoil sits directly on sand. These grades and areas are summarised in the following table:

Table 13.1: Agricultural Land Area and Grades

Grade	Area (Ha)	%
2	10.0	21.3
3a	31.2	66.5
3b	0.8	1.7
Non agricultural	4.9	10.5
Total	46.9	100

13.3.7 The agricultural soil profile on this site is identified to a depth of at least 1.2m. The typical soil profile is consistently Medium Sandy Loam topsoil (occasionally loamy medium sand), overlying Loamy Medium Sand upper subsoil, which sits on Sand and soft sandstone in the

Eastern area or slightly to moderately stony sand in the Western area. The geological borehole data confirms that the average soil depth overlying the mineral reserve is 0.7m but it recorded a deeper overburden in the central area which extends between 1.2 to 2.2 m deep.

13.3.8 The variation in the ALC grades is mainly a reflection of the topsoil and subsoil horizon depths, rather than a different soil type. It is recommended that the site is treated as a single soil type comprising medium sandy loam topsoil, loamy medium sand upper subsoil and medium sand lower subsoil with variable stone content. If the site is restored to an agricultural profile it should replicate these horizons to a total depth of at least 1.2m. The topsoil and upper subsoil layers are the most important, which can be restored over a lower subsoil of sand, deeper overburden from the centre of the site, inter-burden or made ground of selected imports.

13.3.9 For the purpose of designing a working and restoration scheme the average soil profile should be taken as 33cm of topsoil, 37cm of subsoil and 50cm of sand.

13.3.10 In general, the distinction between each soil layer can be made by colour. The topsoil is very dark brown overlying subsoil of dark reddish brown over lighter colour sand of yellowish red and reddish brown.

13.3.11 The application area is owned by Strong Farms (LS) and farmed under a tenancy agreement by Strong Farms 1988.

Parameters

13.3.12 The scoping opinion, which was prepared by Natural England in respect of soils and agriculture, identifies a number of issues which should be addressed within the ES, and these are summarised below.

- The degree to which soils would be disturbed/harmed as part of this development and whether any ‘best and most versatile’ agricultural land would be affected;
- Proposals for handling different types of soils and the storage of soils and their management whilst in store;
- The method of assessing whether soils are in a suitably dry condition to be handled (i.e. dry and friable), and the avoidance of soil handling, trafficking and cultivation during the wetter winter period;
- A description of the proposed depths and soil types of the restored soil profiles; normally to an overall depth of 1.2 m over an evenly graded overburden layer;

- The effects on land drainage, agricultural access and water supplies, including other agricultural land in the vicinity;
- The impacts of the development on farm structure and viability, and on other established rural land use, both during the site working period and following its reclamation; and
- A detailed Restoration Plan illustrating the restored landform and the proposed afteruses together with details of surface features, water bodies and the availability of outfalls to accommodate future drainage requirements.

13.3.13 Natural England identifies that soil is a finite resource that fulfils many important functions and services (ecosystem services) for society, for example as a growing medium for food, timber and other crops, as a store for carbon and water, as a reservoir of biodiversity and as a buffer against pollution. It concludes that it is important that soil resources are protected and used sustainably.

13.3.14 The issues raised by Natural England for assessment in the ES are addressed below.

Best and most versatile agricultural land

13.3.15 An Agricultural Land Classification and Soil Resource report has been prepared to the specification required by Natural England and is presented in ES Technical Appendix G. The distribution of agricultural land quality grades is summarised in table 13.1 above and concludes that best and most versatile agricultural land is affected by the development proposals.

13.3.16 Without mitigation there is potential to downgrade the overall agricultural land quality of the site.

Soil handling and management

13.3.17 It is recognised that the method of soil handling and the scheme of soil movements can have significant positive or negative impacts on soils and agriculture. Use of inappropriate earthmoving equipment in wet conditions can damage restored soil, which can take a long and expensive period of aftercare to remedy. A scheme of soil movements is needed to minimise soil handling and to make the best use of the available soil resources. It must also be sufficiently flexible to allow for daily management decision, without departing from the main principles.

13.3.18 The working and restoration scheme should comprise two elements – The Soil Handling and The Phased Soil Movements Programme.

13.3.19 Where soils are placed in store for a temporary period before use in restoration there are a number of situations when the soil could be damaged. This can occur at the point when the soil is initially lifted from its position in the soil profile, during transport and at placement in store. Thereafter the soil can lose quality in store depending upon the size and shape of the soil store, vegetation cover and vehicle movements over the store. There are additional points at which different soil types can be mixed and further damaged by handling or trafficking when wet.

Method of assessing whether soils are in a suitably dry condition to be handled

13.3.20 Handling soils in unsuitable moisture conditions can cause long term damage to soil in terms of compaction and smearing. Similarly, handling soils when dry and dusty can also be damaging in terms of wind blow and loss of structure.

Target soil profiles

13.3.21 To avoid a surplus or deficit of soil resources and to ensure that all the soil resources are used sustainably, it is important to determine target soil profiles for the concept restoration proposals and to undertake annual monitoring and auditing of the resources. The concept restoration plan identifies land restored to 'best and most versatile' agricultural land and to ensure this the target restored soil profiles must be agreed.

13.3.22 If the soil types and depths to be used in restoration are not prescribed in advance the soil resource could potentially be lost or wasted. The main impacts on the soil resource could be through mixing of different topsoil and subsoil soil types and matching the soils to the most appropriate afteruse.

Effects on drainage, agricultural access and water supplies

13.3.23 The soils in the area are generally free draining and drainage of the undisturbed land is not likely to be affected by the proposed development. Agricultural access to undisturbed land and disturbance of water supplies, both drinking and irrigation are potential effects and will be monitored and managed through liaison with the landowner and tenant.

13.3.24 Drainage of restored land is considered below with reference to the restored landform.

Farm structure and viability

13.3.25 The progressive loss of tenanted agricultural land, both temporary and permanent, could have a potential effect on farm structure and viability. However, the criteria for assessing the effects on farm businesses indicates that the impact on the farm holding is minor adverse where the tenancy does not provide legally binding security of tenure.

The proposed restored landform, contours, water table and drainage outfall

13.3.26 The soil and overburden resources and the position of the water table will affect the ability to restore the maximum area to best and most versatile agricultural quality, which can be sustainably returned to agricultural use. All the bmv restored agricultural land will need to be restored at a level which provides a minimum freeboard above high winter water table capable of providing drainage outlets.

13.3.27 Without freeboard for drainage the bmv quality will not be achieved since the ALC grading is based on the most limiting factor present.

13.4 Potential for Mitigation

Parameters

13.4.1 The main negative agricultural impact of the proposals is the potential loss of agricultural land, while the proposals seek to use all the indigenous soils sustainably. While formulating the development proposals and the restored landform in particular, consideration has been given to maximising the restoration of bmv land through restoration of the indigenous soils to the original typical soil profile. The Concept Restoration aims to create a high-quality agricultural parkland.

13.4.2 Mitigation measures are proposed for the matters raised in the scoping opinion as follows:

Best and most versatile agricultural land

13.4.3 The Concept Restoration Plan shows the site restored predominantly to an agricultural afteruse, along with the creation of habitats to support wildlife biodiversity.

13.4.4 The land will be progressively worked and restored on a phased basis. After mineral has been extracted the void will be filled with imported soils and clay to create the restored landform (less 1.2m) shown on Planning Application Drawing 15. As far as practicable the topsoil, subsoil and sand overburden will be sequentially lifted and restored by direct placement to a minimum depth of 1.2m to replicate the original soil profile. Before the sand and soils are placed, the restoration platform will be loosened to improve the underlying drainage character of the restored soil profile. The method of soil placement has been selected to avoid recompaction of the loosened restoration platform.

13.4.5 The majority of the site, with the exception of the creation of species rich acidic grassland, woodland/tree/hedgerow planting areas and pocket parks, will be restored with the same target soil profile as potential bmv land. The proposed landscape will be developed on the baseline restoration by selective planting and management for habitats supporting biodiversity.

13.4.6 The Table below compares the distribution of land uses between the Current Situation (Planning Application Drawing 3) and the Concept Restoration Plan (Planning Application

Drawing 15).

Table 13.2: Distribution of land uses between the Current Situation and the Concept Restoration

Lands uses	Existing Situation	Proposed Final Restoration
Agricultural Land	43.78 Ha (41.2 2/3a bmv)	32.26Ha bmv
Acidic Grassland	Nil	8.1 Ha
Woodland	1.12Ha	4.54Ha (~ addition of 8,500 trees and shrubs)
Hedgerows	439 Linear metres	1018 Linear metres
Avenue trees/individual trees	14	200
Public footpaths/Bridleways	1.47 km	3.78 km
Pocket Park	Nil	5
Tracks	1.1	1.1

13.4.7 The final restoration scheme will provide for 32.26ha of bmv, which will therefore, be a loss of bmv agricultural land of 8.94Ha, where it will be restored with an alternative land use (acidic grassland, woodland planting and pocket parks). Therefore, the loss of bmv will be offset with a restoration scheme that provides for measurable net gains in biodiversity that is in accordance with local and national policy and provides an overall more balanced restoration scheme. Please note however, that all of the existing bmv soil profile comprising top soil, sub soil and overburden will be placed for restoration. This in effect replicates the bmv agricultural land characteristics.

Soil handling and management

13.4.8 The phased working and restoration plans in ES Volume 3 show the progressive working and restoration of the site in 5 phases. Each phase plan shows the proposed extraction and restoration of the specific phases. The working and restoration of the soils involve a number of separate recommendations to mitigate the potential negative effects of soil handling.

13.4.9 Soil handling condition (dry and friable) and Target restoration profiles are considered below. This section considers the soil resources and separate handling of different soil types, soil handling methods, soil storage and treatment in store.

Soil resources and separate handling

13.4.10 The Agricultural Land Classification and Soil Resource report (Technical Appendix G) identifies that the indigenous soil profile to a depth of 1.2m comprises 3 layers that should be handled separately (topsoil, subsoil and sand overburden). Each soil type will be handled, stored and replaced separately in accordance with the phased working and restoration plans. Although the sand overburden could be considered to be part of the saleable mineral resource, it is specifically identified as intrinsic to the agricultural soil profile to achieve bmv land restoration.

Soil handling methods

13.4.11 Soils will be handled using hydraulic excavators, articulated dump trucks and low ground pressure bulldozers.

13.4.12 This equipment will be used for soil stripping, placement in store and excavation from store in accordance with MAFF (2000), Good Practice Guide For Handling Soils (version 04/00), FRCA Cambridge, quoting sheets 1, 2, 3, 14 and 19 as follows:

- Sheet 1 Soil stripping with excavators and dump trucks;
- Sheet 2 Building soil storage mounds with excavators and dump trucks;
- Sheet 3 Excavation of soil storage mounds with excavators and dump trucks;
- Sheet 14 Building soil storage mounds with bulldozers and dump trucks; and
- Sheet 19 Soil decompaction with bulldozer drawn tines.

13.4.13 Sheet 19 is included to allow for decompaction of the soil bund footprints if required and the restoration platform. Sheet 14 is included to allow the option of constructing the soil stores with a bulldozer where the tracks are able to apply light pressure to the store surface and thereby discouraging surface water infiltration and slumping of the sandy soil types.

13.4.14 Soils will be restored using the Peninsula Method (or Lateral Heap), which is described at Appendix 8/2 of ES Technical Appendix G. It should be noted that both topsoil and subsoil will be placed by this method. The phased working and restoration scheme lends itself to this method of soil restoration. After construction of the restoration platform it's surface will be decompacted by bulldozer drawn tines in accordance with Sheet 19. In order to avoid recompaction of the restoration platform the sand overburden, subsoil and topsoil will each be replaced by the Peninsula Method.

13.4.15 Soils will be transported on specific haul routes or travelling only on the mineral surface only.

Soil storage

13.4.16 Different soil types identified at 13.3.10 above will be stored separately. Topsoil and subsoil will be stored to maximum heights of 3 and 5 metres respectively. Soil types will be stored like on like, i.e. topsoil on topsoil and subsoil on subsoil. Therefore, the footprint of subsoil stores will be prepared by first lifting, and separately storing, the topsoil.

13.4.17 The soil stores will be built with a slightly convex top, to shed surface water, and stable side batters.

Treatment in store

13.4.18 Soil stores which are to remain in-situ for more than 3 months will be seeded with a low maintenance grass seed mix. The stores will be managed by cutting at least 3 times per year and if growth is excessive, the arisings will be removed. Weed growth will be controlled by cutting or spraying with approved herbicide, and weeds will not be allowed to go to seed.

13.4.19 Soil stores will only be trafficked during construction or deconstruction or by maintenance machinery. They will not be driven on at any other time.

Method of assessing whether soils are in a suitably dry condition to be handled

13.4.20 The objective is that all soils shall be handled when they are in a reasonably dry and friable state, which is when they will be least susceptible to lasting damage by compaction and smearing. The following constraints shall be observed, based on weather conditions and soil conditions.

Weather Conditions

13.4.21 Soil handling shall cease during rain, sleet or snow. The following criteria shall be applied:

- In light drizzle soil handling may continue for up to 4 hours unless the soils are already too moist;
- In light rain soil handling must cease after 15 minutes; and
- In heavy rain and intense showers, handling shall cease immediately.

Soil Conditions

13.4.22 Soil tests are to be undertaken in the field. Samples shall be taken from at least 5 locations in the soil handling area. The tests shall include **Examination** and **Consistency**.

13.4.23 The **Examination** test is as follows:

- If the soil is wet and films of water are visible on the surface of soil particles – No Handling;
- If the sample is moist but there is a slight dampness when squeezed but it does not significantly change colour (darken) on further wetting – No Handling by Scrapers or Bulldozers but may be Handled by Tracked Excavator; and
- If the sample is dry, it looks dry and changes colour (darkens) if water is added – Handling OK.

13.4.24 The **Consistency** test is as follows:

13.4.25 First test, attempt to mould soil sample into a ball by hand

- Impossible because the soil is too dry and hard – Handling OK;
- Impossible because the soil is too loose and friable – Handling OK;
- Impossible because soil is too loose and wet – No Handling; and
- Possible – Go to next test.

13.4.26 Second test, attempt to roll ball into a 3mm diameter thread between the fingers and thumb

- Impossible because soil crumbles or collapses – Handling OK; and
- Possible – No Handling.

13.4.27 Soils will only be handled between April and October inclusive, regardless of condition, unless approved by the Mineral Planning Authority. The reason for this is to ensure that a grass cover can be established in suitable weather conditions.

Target soil profiles

13.4.28 The materials balance calculations which have determined the working and restoration phases and the Concept Restoration Plan have assumed a minimum target restored soil profile of 33cm of topsoil over 37cm of subsoil over 50cm of sand overburden. The proposed soil handling and management specifications above are designed to restore a free draining soil profile over a loosened restoration platform of imported material. The imported material will comprise soils and clays. The depths and textures of the restored soil layers in the target profile will determine the potential ALC grade according to droughtiness limitations. The target profile on which the working and restoration plans are based could achieve potential grade 3a, assuming a moderate subsoil structure, which could be uplifted to grade 2 with a good subsoil structure.

Effects on drainage, agricultural access and water supplies

13.4.29 The subject land is free draining. See ES Chapter 15 Water Environment for impact on drainage of other agricultural land in the vicinity.

13.4.30 Agricultural access and water supplies will be maintained to allow continued use of adjacent agricultural land.

Farm structure and viability

13.4.31 No specific mitigation measures are proposed. The land will be taken for development progressively and restored as far as practicable by direct placement. Following restoration,

the 5 year aftercare period will require that the land is farmed in accordance with an agreed programme and will not immediately be returned to full agricultural production.

13.4.32 Decisions on the future tenancy of the restored land will be taken by the land owner.

The proposed restored landform, contours, water table and drainage outfall

13.4.33 The proposed restored land gradients do not limit the potential ALC grade. The water table is some 34m below ground level and will not influence drainage of the restored land. Suitable drainage outfalls are shown on the Concept Restoration Plan.

Recommendations

13.4.34 It is considered important that in advance of each phase of working and restoration a detailed soil balance is prepared identifying separate soil resources for lifting, storage and direct placement. At the end of each soil moving phase a soils audit should be undertaken to measure the predicted soil movements against the actual events. Monitoring in this way will allow the scheme to be progressively managed within the stated aims of restoration quality.

13.4.35 On completion of each phase or part phase of restoration the restored land should be grass seeded before entering the winter period. Thereafter the restored land should enter an agreed 5 year aftercare period. During the aftercare period the land should be under the control of the applicant.

13.5 Soils and Agricultural Land Classification Conclusions

13.5.1 An Agricultural Land Classification and Soil Resource Report been conducted to assess the potential impact of the development proposal on the soil resources and set out necessary mitigation measures to minimise impact.

13.5.2 The proposed development entails the temporary disturbance of the land in a phased manner, before being restored to a landform incorporating high quality agricultural parkland incorporating agricultural and acid grassland, with smaller areas of woodland and pocket parks. The proposed methodology will ensure that the target restored soil profile uses the indigenous soils to achieve grade 3a quality as a minimum. A small area will be devoted to acidic grassland, pocket parks and parkland trees.

13.5.3 The final restoration scheme will result in a loss of bmv agricultural land of 8.8Ha, where it will be restored with an alternative land use (acidic grassland, woodland planting and pocket parks). Therefore, the loss of bmv will be offset with a restoration scheme that provides for measurable net gains in biodiversity that is in accordance with local and national policy and provides an overall more balanced restoration scheme.

13.5.4 In terms of soil, land quality and agriculture, the proposed development will not have an

unacceptable impact on human beings, flora or fauna in accordance with EIA regulations.

13.5.5 In light of the above it is considered that the objectives of NPPF, the Development Plan and other material policy considerations are met.

14 Archaeology and Cultural Heritage

14.1 Introduction and Policy Context

14.1.1 The development plan and other material considerations contain policies and text concerning cultural heritage issues in connection with development proposals. In particular:

- NPPF Section 16;
- Wyre Forest Core Strategy policy CP11; and
- Wyre Forest Site Allocations and Policies Local Plan policy SAL.UP6.

14.1.2 And within emerging policy:

- Worcestershire Minerals Local Plan Fourth Stage Consultation Document policy MLP22; and
- Wyre Forest Local Plan Pre-Submission Version Policy 11B, 16B and 26.

14.1.3 The thrust of these policies is consistent with the advice in the NPPF to protect, conserve and enhance diverse historic character and manage change in such a way that respects local character and distinctiveness. The policies seek to protect sites of cultural heritage importance and their settings and preserve Listed Buildings, their setting and historical context. The policies set out the need for evaluation of the full effects of the development proposal.

14.2 Competence of Persons Undertaking Assessment

14.2.1 An Assessment of the site's archaeological potential and the prospect of the proposal's impact on cultural heritage has been undertaken by Worcestershire Archaeology. The reports can be found at ES Technical Appendix H.

14.2.2 Worcestershire Archaeology is a Registered Archaeological Organisation, regulated by the Chartered Institute for Archaeologists. Geophysical survey works were carried out by SUMO Geophysics who have over 30 years' experience in geophysics for archaeology and engineering. SUMO Geophysics was created in January 2017, from the merger of Stratascan Limited and GSB Prospection Limited.

14.3 Potential for Impact

14.3.1 A Desk Based Assessment (Technical Appendix H.1), two stages of geophysical survey, and site walkover were undertaken in order to provide an assessment of the site's potential for the presence of surviving subterranean heritage assets and the likely impacts of the proposed

development on surface heritage assets both on-site and off-site. A study area including the site itself and a 1km radius of the centre of the site was established for the purpose of assessing indirect impacts of the proposals on off-site heritage assets and features.

14.3.2 The potential for impact derives from the potential for disturbance to below ground archaeological remains during mineral extraction, or their destruction during the construction of new roads and compound areas. The potential for off-site / indirect impact on cultural heritage features stems from the potential for the introduction of mineral operations degrading the integrity of off-site heritage assets / features.

14.3.3 Overall there is considered to be limited evidence of prehistoric and Roman activity in the Study Area in the form of isolated find spots of various dates and the identification of the geological deposits which may have potential for Palaeolithic remains to survive. There is also limited evidence for early medieval and medieval activity in the study area, and early prehistoric mapping indicates that the site was probably agricultural (or common) land until the late 18th or early 19th century.

14.3.4 Two phases of geophysical survey have not identified any definite archaeological responses from detailed magnetometer surveys. Several anomalies of uncertain origin have been detected, and they could be of agricultural, natural or modern origin.

14.3.5 Evidence for any activity of the prehistoric, Roman, early medieval and medieval periods would likely be considered informative at local or regional level and therefore of local to regional significance. However, given the very limited representation of such material within the study area the potential for survival of assets dating to these periods within the site is considered to be low.

14.3.6 Historic mapping and other documents indicate the site was developed as parkland around Lea Castle during the early 19th century. The park was sold off around the 1930s or 1940s and the parkland was converted to agricultural use which has compromised the value of the park. The western part of the site was also used as a grass landing strip. Any archaeological evidence from the post-medieval and modern periods would probably relate to agriculture, parkland, and/or the landing strip and therefore considered as only locally informative, and of low or negligible significance.

14.3.7 No designated monuments or statutory heritage assets are located on or immediately adjacent to the site. There are three Listed Buildings (all of which are Grade II Listed) and a Conservation Area (Wolverley and Staffordshire Canal Conservation Area) within the study area.

14.3.8 It is not anticipated that any designated assets recorded in the study area will be significantly affected by the development, although there will be a minor adverse impact on the setting of the Grade II Listed North Lodges and Gateway to Lea Castle, which is located c. 250m from the

site boundary. No intervisibility exists between the site and the canal due to the presence of mature trees and natural topography.

14.3.9 Restoration of some of the parkland features, including tree lined avenues and Broom Covert will reduce the long-term impact of the mineral extraction to an insignificant level.

14.4 Potential for Mitigation

14.4.1 In order to minimise the potential for impact upon archaeological deposits, it is proposed that the operator undertake measures at different stages of the development. These measures will take place prior to any ground disturbance, during soil stripping, and post-stripping.

14.4.2 Initially, it will be ensured that all staff are conversant with the Written Scheme of Investigation (WSI) (Technical Appendix H.2) and the risks to subterranean assets from mineral operations. Each operational area of the site will be opened using a toothless bucket and operating under close archaeological supervision. Machine excavation will proceed in spits removing topsoil, subsoil and any overburden present to a level to the determined by the WA archaeologist undertaking the monitoring. No plant will be permitted to track across investigation areas until signed off by the WA archaeologist and curator. Following machine excavation, any archaeological deposits will be mapped prior to analysis by the WA archaeologist.

14.4.3 Sample excavation can be carried out once each development area has been stripped. Sampling will be undertaken in line with best practice, which includes all excavation being carried out using hand tools. The intention is to focus investigation on the more coherent, and artefact or ecofact rich, and better preserved elements of the archaeological deposits which have the greatest potential to address the objectives of the project.

14.4.4 Upon the completion of field work, an interim report will be produced summarising the results and highlighting significant discoveries. Analysis of samples will be undertaken to inform the interim report, as detailed at paragraph 2.4 of the Lea Castle Farm Quarry WSI (ES Technical Appendix H.2).

14.4.5 Details of the quantity, quality, range and research potential of all records, artefact classes and environmental material will be provided in an Assessment Report.

14.4.6 The above measures aim to ensure that the proposed development takes consideration of the potential for impact upon archaeological assets at every stage of development whereby without any measures in place, the loss or damage of subterranean assets could occur. The proposed development will provide a greater understanding of the features that may or may not be present on-site.

14.4.7 No specific measures are proposed to mitigate impact on cultural heritage assets / features, as the proposed scheme incorporates measures in its design and restoration proposals that

do not adversely impact upon any asset or feature to the degree that specific mitigation is required.

14.5 Archaeology and Cultural Heritage Conclusions

14.5.1 An assessment of the survival of heritage assets within the application site and wider study area has been undertaken by Worcestershire Archaeology. Overall, there is limited evidence of prehistoric and Roman activity, which consist of isolated find spots of various fates and the identification of the geological deposits which may have potential for Palaeolithic remains to survive. There is also limited evidence for early medieval and medieval activity in the study area, and historic mapping indicates that the site was probably agricultural (or common) land until the late 18th or early 19th century.

14.5.2 Evidence of historic activity at the site is considered to be of local to regional significance. However, the potential for the survival of assets within the site is considered to be low. The WSI for the proposed development outlines the considered approach to soil disturbance to be taken at each phase of development. An Assessment Report will be prepared providing details of the sampling undertaken and details of any artefacts identified.

14.5.3 No designated monuments are located on or immediately adjacent to the site . It is not anticipated that any designated assets recorded in the study area will be significantly affected by the development, although there will be a minor adverse impact on the setting of the Grade II Listed North Lodges and Gateway to Lea Castle c. 250m from the site boundary. The long-term impact of the proposed development are considered to be insignificant given the features proposed for inclusion as part of the restoration scheme.

14.5.4 Overall, no clear archaeological constraints have been identified that would render the proposals contrary to the objectives and policies of the development plan.

14.5.5 In terms of cultural heritage, the proposed development and operations will not have unacceptable direct or indirect impact on population and human health; material assets, cultural heritage and the landscape; or the interaction between these factors in accordance with EIA regulations.

15 Water Environment

15.1 Introduction and Policy Context

15.1.1 The development plan contains policies and text concerning the potential for impact on water resources as a consequence of development proposals. In particular, the main policies considered to be relevant to this planning application are:

- NPPF Sections 14 and 17;
- Worcestershire Local Flood Risk Management Strategy 2015-2021 (March 2016);
- Worcestershire Local Flood Risk Management Strategy Action Plan 2015-2021 (undated);
- Worcestershire Local Flood Risk Management Strategy, Strategic Environmental Assessment Environmental Report (2015, inc. Addendum Report, September 2016);
- Worcestershire Surface Water Management Plan (June 2018);
- Wyre Forest Core Strategy policy CP02;
- Wyre Forest Site Allocations and Policies Local Plan policy SAL.CC7;
- Wyre Forest District Water Cycle Strategy (March 2010); and
- Wyre Forest Level 1 & 2 Strategic Flood Risk Assessment (August 2018).

15.1.2 And within emerging policy:

- Worcestershire Minerals Local Plan Fourth Stage Consultation Document policies MLP17 and MLP27; and
- Wyre Forest Local Plan Pre-Submission Version policies 15A, 15B, 15C, 15D, 16A and 16B.

15.1.3 The substance of these policies is consistent with the overarching advice within the NPPF and the associated technical appendix regarding development and the prevention of pollution and protection of water quality. The policies seek to prevent the pollution and the degradation of groundwater resources, standing water bodies, river systems and associated wetlands.

15.2 Competence of Persons Undertaking Assessment

15.2.1 BCL Hydro have carried out a Hydrological and Hydrogeological Impact Assessment including a Flood Risk Assessment (Technical Appendix I). The report provides a thorough assessment of the potential effects of the proposed mineral extraction, mineral operations and site restoration on the surface water and groundwater environment, and flood regime.

15.2.2 BCL is an independent consultancy specialising in all aspects of hydrogeology and hydrology

as they relate to minerals extraction, waste disposal, water supply and related industries. Gavin Chaplin (the author of this report) holds a joint honours Bachelor of Science Degree (Geology & Management Science B.Sc.) conferred by Keele University, Staffordshire, United Kingdom (UK) in 1990 and a Master of Science Degree (Groundwater Engineering M.Sc.) received in 1993 from the Civil Engineering Department of Newcastle University, Newcastle upon Tyne, UK.

15.2.3 BCL has provided specialist services, advice and reporting to the extractive, waste and related industries since 1990. During this time a collective 100+ years of experienced has been earned from involvement with wide variety of assignments.

15.3 Potential for Impact

Introduction

15.3.1 The site is situated upon an elevated interfluvial saddle separating the valleys of the River Stour to the west and Wannerton Brook to its south. In assessing the water environment and the potential for impact on the existing water environment as a result of the proposed development, the Flood Risk Assessment and Drainage Strategy provided by BCL examines the location, land use and topography of the existing site, the geological conditions present, and rainfall data. In addition, the potential for development on hydrology hydrogeology and flooding are set out, as summarised in this section.

Hydrology

15.3.2 There are no significant surface watercourses draining from the site; all but extreme rainfall is therefore drained by percolation to underlying strata. Similarly, due to the ready permeability of soils and underlying strata, there are no significant surface waterbodies present.

15.3.3 As at present, the proposed development will see incident rainfall drained by vertical percolation to underlying strata through the floors of mineral extraction.

15.3.4 In assessing the potential for hydrological impact, ES Technical Appendix I has considered the base flow rates of the site and have also considered the rainfall and catchment characteristics on a site-specific level. Given the absence of surface water courses draining the site, the run off rates within ES Technical Appendix I Table 3 are considered highly likely to overstate the actual rates of storm run-off from the site.

Hydrogeology

15.3.5 Groundwater within the site generally flows towards the River Stour which flows broadly north-south beyond the application site to the west.

15.3.6 Site investigation works and monthly piezometer measurements made at the site between January 2017 and February 2019 shows that the average depth of groundwater is 34.3 metres below ground level. Monitoring data indicates a groundwater level within the SSG aquifer comprising the sub-strata of the site of c. 37m AOD. Interpolation of EA data collected at the site's vicinity and longer-term trends provides a conservation estimate for the maximum likely groundwater level at the site of c. 45m AOD.

15.3.7 Using this data it is established that the deepest planned sections of mineral extraction (and thus subsequent infilling) at the site reside well above the level of watertable contained within the SSG aquifer. It is proposed to work the mineral 'dry' which therefore does not require any dewatering as the base of the excavation does not reach as far as the possible depth the water table.

Flood Risk

15.3.8 The entirety of the application site falls within Environment Agency Flood Risk Zone 1 (comprising land at the lowest risk of annual flooding from fluvial sources). A Flood Risk Assessment has been carried out in accordance with NPPF Paragraph 163 (footnote 50) in which it is established that applications submitted for sites of 1 hectare of greater should be accompanied by a Flood Risk Assessment.

15.3.9 The Flood Risk Assessment by BCL states that the site is entirely free from risk of fluvial flooding for all events up to and beyond the 1:1,000 flood level typical of land within EA Flood Risk Zone 1. PPG defines mineral extraction as 'water compatible'. However the infilling element of the proposed development as part of the restoration of the site is defined as a 'more vulnerable' operation. Nevertheless, all elements of the proposed development, including infilling, are classified as appropriate in EA Flood Risk Zone 1, as out in Table 3, paragraph 067 of PPG.

15.3.10 Storm run-off modelling software has been used to identify the likely levels of surface water run-off in high rainfall events. The modelling has concluded that given the creation of the soakaway ponds, there will be no material increase of flood risk within the site arising from the infilling of inert wastes beneath soil profile (c. 1.8m of soil). The creation of soakaway ponds with provision of a de-minimis volume of attenuation of freeboard is considered to be the only necessary measure to ensure compliance with the NPPF.

15.3.11 In addition, the Flood Risk Assessment by BCL has concluded that there are no expected residual on-site or off-site flooding related risks either during the operation or following completion of restoration.

Restoration and Mitigation

15.3.12 Restoration of the site to agricultural parkland will be at a lower ground level than current prevails, with drainage achieved by soakaways.

15.3.13 The inert waste materials to be deposited to create the required restoration levels will very likely be of significantly lower permeability than that of the host SSG aquifer and thus present a potential impediment to efficient downward percolation of rainfall. The relatively thick topsoil profile of c. 1.2m suggests that water logging of soils above the restoration infill is unlikely. To ensure against this, it is proposed to profile the upper surface of the waste mass to shed water (beneath soil cover) through a network of buried land drains (agricultural under-drainage) towards a series of landscaped soakaway ponds.

15.3.14 The proposed soakaway ponds, which have a design surface totally c. 2,160m^2, are to be situated at the margins of the infill material where they will abut and overly in-situ sandstone of the SSG aquifer. In this way, drainage of rainfall runoff within the restored site will, as at present, be made as percolation to underlying strata (via the soakaway ponds), consequently there will be no overland gravity discharges of rainfall run-off from the site.

15.3.15 During the operational phase of development, the potential for impact on the water environmental are mitigated by the methods to be utilised throughout mineral operations, which include no dewatering on-site or any pumping / overland gravity discharge of rainfall run-off. Incident rainfall will be drained by vertical percolation through the ground as at present.

15.4 Water Environment Conclusions

15.4.1 A full hydrology and hydrogeology assessment has been carried out, and it concludes that the only potential source of water ingress into the quarry extension is by direct rainfall. The proposed development involves only 'dry' mineral extraction which does not propose dewatering or any other physical interference with groundwater. The proposals involve the lowest section of the planned workings remaining c.16 metres to c.24 metres above the water table.

15.4.2 No off-site discharge of storm run-off to any surface watercourse is proposed, with the existing percolation of water to underlying strata to continue throughout mineral operations and restoration. Soakaway ponds are to be provided to ensure that storm run-off from modified substrate will not cause a nuisance to post-restoration on-site activities.

15.4.3 The overall impact of the proposed development is not considered to be significant in terms of impact on the water regime.

15.4.4 In terms of flood risk, the proposed development will not be significant affected by current or future flooding from any source. No exacerbation of flood risk is posed by the proposed development within the application site or beyond its boundaries. The proposals fall within what is classified as 'appropriate' development in EA Flood Risk Zone 1 (land at lowest risk of annual flooding from fluvial sources).

15.4.5 In conclusion, the potential effects on the water environment resulting from the proposed development will not result in an unacceptable impact upon human beings, flora and fauna.

16 Rights of Way

16.1 Introduction and Policy Context

16.1.1 The development plan contains policies and text concerning the potential for landscape and visual impact in connection with development proposals. In particular:

- NPPF Section 13 and paragraph 98; and
- Wyre Forest Site Allocations and Policies Local Plan Policy SAL.UP3.

16.1.2 And within emerging policy:

- Worcestershire Minerals Local Plan Fourth Stage Consultation Document Policy MLP20.

16.1.3 The thrust of these policies are consistent with the advice in NPPF which highlights an aim, where practical, to promote safe and secure pedestrian and cycle routes.

16.2 Potential for Impact

16.2.1 The proposed development would have a direct impact upon PROW Footpath ref. 62 4(B) which is located within the western area of the site. It is proposed to divert this footpath to enable the working and restoration of land within Phase 1 and 2 of the development. The PROW, which currently runs east – west for ~ 300 linear metres and connects footpath and bridleway ref 62 6(B) with footpath 62 2(C). The footpath ref 62 4(B) will be temporarily diverted for approximately one year to the south of its current route (~120m). This diverted route will continue to provide access between footpath references 62 6(B) and 62 2(C) (see Planning Application Drawing No. 9 – Phase 1). On the completion of the working and restoration of Phase 1 the footpath 62 4(B) will be placed back ~20m north of its original route for the duration of ~1.5years to allow for the working and restoration of Phase 2. The footpath returning to original route at this time.

16.2.2 The proposed development would have a direct impact upon PROW Footpath Ref 62 6(B), a footpath and bridleway located along an internal track which separates the western and eastern areas of the site. It is proposed to install a below ground mineral conveyor linking the western extraction area with the plant site. The installation of the conveyor access track will take approximately one week. During this period, a short section of ~30 linear metres of Footpath Ref 62 6(B) will be closed to allow the installation and make good the surface of the track. During this period the footpath/bridleway/track will be diverted approximately 30m to the west. This will be done in advance of the conveyor works to ensure full access is maintained at all times and to the standards required. Once installation has been completed the track/Footpath Ref 62 6(B) will be reinstated on its original route. Once all mineral

extraction and restoration works have been completed within Phase 1, 2 and 3, the temporary diversion of the track ill be re instigated to allow the removal of the conveyor tunnel and the tracks reinstated. This will take approximately one week where upon the 30m section of Footpath Ref 62 6(B) will be reinstated on its original route.

16.2.3 From the Initial Works phase of the proposals a new section of public right of way will be provided. It will connect Footpath 62 2(C) in the south west corner of the site. It will run for ~1.5km. It will allow access off existing roads (Wolverhampton Road and Wolverley Road) for walkers, horse riders and cyclists. The new section of public access will cross the proposed site entrance. At this point traffic and footpath management measure will be in place. This new PROW will be in place throughout the duration of the phased working and restoration of the site. On cessation of operations a further ~ 0.3km of PROW will be installed to provide further opportunities for access and amenity use within the site.

16.2.4 The existing and new sections of PROW within the site will be supplemented by 5N° small pocket parks. The purpose of the parks being to provide a place to sit and observe the landscape. Signage/educational information on the past history of the site and local area, and ecological enhancement will be provided along with sports stations to help promote health and wellbeing. These public spaces have been located around the site (see ED Drawing 3/9).

16.2.5 All impacts to users of the PROW across the site are temporary and although regular users of the site will experience inconvenience, the proposed mitigation measures will reduce this impact as far as possible

16.2.6 An application under Sections 257 and 261 of the Town and Country Planning Act 1990 for temporary diversions of the legal routes will be made to Worcestershire County Council.

16.2.7 Potential impacts from the development proposals upon the PROW has been considered in terms of the direct and indirect impacts. Direct impacts would be caused by any activity that removes, disturbs or destroys a PROW, whereas an indirect impact would broadly relate to the development's potential effect upon the amenity of the right of way.

16.2.8 As mineral can only be worked where they are found, the direct impacts of the scheme on the PROW network in the area will require four temporary diversions, two of these being for approximately one week each as described above.

16.2.9 Other direct impacts on PROW relate to the additionally proposed ~2.3km of new footpaths, bridleway and cycleway, and the five new pocket parks.

16.2.10 During the course of the operations, although the proposals will maintain access to the area along public footpath outside of the site boundary, there will be some impact upon the amenity of users of the PROW. The main issues that have the potential to impact upon the amenity of the PROW in close proximity to the site will include noise, dust, vibration and visual considerations. The potential impacts upon the amenity of the Footpaths is discussed below.

Visual Amenity

16.2.11 A change in the landscape of the site during operations has the potential to impact on views from the PROWs within and adjacent to the site. There will be potential views of both the extraction areas and the plant site (if no mitigation were in place) which will result in impacts to the visual amenity of those that are affected. Visual impacts will however be transient and mitigated where possible.

Noise

16.2.12 The potential impact of noise on users of PROW in close proximity to the site would be a result of either noise generated by plant site operations, vehicle movements and mineral extraction/restoration. The level of impact will depend upon the proximity of the PROW to noise generating operations, the level of noise and the introduction of mitigation measures.

16.2.13 Proposals to place the plant site at a minimum of 7m below existing ground levels combined with setting it behind either higher landform levels or attenuation bunds, levels of noise will be minimal from the plant site.

Dust

16.2.14 Dust in relation to users of the local PROW network could be generated through soil stripping, movement and placement, mineral extraction and processing, vehicle movements and from the creation and existence of mineral stocks and bunds. As discussed above, the plant site will be contained at lower levels.

Restoration

16.2.15 On the phased completion of the development, the site will be returned to an agriculturally managed landscape parkland incorporating all of the existing PROW on their original alignments.

16.2.16 It is considered that the proposals will have a land use benefit of improving the access to the countryside. The diversions are only required for the duration of the operations within the western area of the site and reinstatement will be undertaken at the earliest opportunity.

16.2.17 It is considered that the criteria set out within Section 261 of the Town and Country Planning Act 1990 for the restoration of a temporary diversion is clearly met and 'the footpath or bridleway can be restored, after the minerals have been worked, to a condition not substantially less convenient to the public'.

16.2.18 As discussed, the restoration scheme will also provide an addition 2.3km of new PROW and additional public open space in the form of five pocket parks. The investment in the provision of new public access and space offers significant opportunities for the enhancement of local connectivity avoiding the use of vehicles and potential benefit for health and wellbeing.

16.3 Potential for Mitigation

16.3.1 The potential disturbance to PROW that will arise as a result of the development proposals has been considered from the outset of the scheme formulation, and measures have been taken to both minimise the amount of disturbance, to mitigate for any losses that cannot be avoided and to enhance access within the site, and associated connectivity along with the creation of new area of public open space.

16.3.2 The direct impacts of physically implementing temporary diversions will be mitigated by the establishment of alternative routes adjacent or in close proximity to the PROW effected. An application will need to be made to divert the PROW and it will be undertaken in liaison with the Rights of Way team at Worcestershire County Council and local neighbors. The temporary diversions will ensure that access is maintained at all times with footpaths reinstated at the earliest opportunity following quarry and restoration works. Although diverting the footpath will impact upon the PROW users to some extent, the proposed diversion has been designed to provide the best possible route that will have minimum negative impact upon users of the PROW.

16.3.3 In considering the mitigation of potential impacts, the measures proposed to minimise the generation of airborne dust in relation to PROW users, the mitigation measures stated for noise reduction will also apply to dust along with ensuring that soil storage/attenuation bunds are grass seeded and maintained. Soil stripping operations are not to take place in windy conditions and a wheel wash system is to be in place with all outgoing HGVs having to use it.

16.3.4 In respect of the potential for dust generation it should be noted that there are currently no dust movement measures in place associated with the agricultural land uses which involve the ploughing and cultivation of large areas of the site.

16.3.5 The potential for visual impact associated with the plant site and extraction areas will be reduced / mitigated through the use of soil bunds and hay bales. The bunds are to be seeded and maintained and hay bales are part of the general agricultural land uses. As stated, the plant site will also be situation a minimum of 7m below existing ground levels. Visual mitigation from users of the local PROW network will also be in the form of progressive phased restoration of extracted areas. Thus, minimizing areas of disturbed land at any one time period.

16.3.6 Control measures will be employed, as necessary on site in accordance with BS 5228-1:2009, such as:

- Avoid unnecessary revving of engines and switch off equipment when not required;
- Keep internal haul routes well maintained;
- Minimize drop heights of materials;
- Ensure machinery is regularly well maintained; and

- Ensure perimeter bunds are to the required height, with no gaps or inconsistencies.

16.4 Rights of Way Conclusions

16.4.1 There will be temporary impacts to users of two sections of PROW during the operation of the site. Neither section requires full closures with alternative temporary diversions to be provided.

16.4.2 It is considered that the proposed development will have transient effects on users of the PORW. The diversion of the route would not make any significant difference to the current situation. All connections will be maintained.

16.4.3 The temporary route provided as part of the proposals will be safe, convenient and easy to follow. A process of liaison and consultation with the Worcestershire County Council Rights of Way team and the public engagement during the course of the Application will ensure that all operations for the diversion of the PROW has been considered and the best possible route is introduced.

16.4.4 From the Initial Phase of the scheme, improvement and options for increased public access and uses will be provided. These involve an initial 1,5km of new pathways which will be suitable for walkers, horse riders and cyclists. The new routes will be off road, set back from both the Wolverhampton Road and Wolverley Road. At the end of Phase 3, an additional section of PROW will be provided along with a pocket park on the north western boundary of the western area.

16.4.5 On completion of restoration, a further 0.8km of new PROW will be provided together with four further pocket parks spaced around and within the site.

16.4.6 The restoration proposals in respect of public footpaths, bridleways and cycle ways will provide significant benefits to the area.

16.4.7 The development is temporary, and the site will be restored to a high standard. Therefore, the restoration proposals have the potential to lead to an improvement to the long-term countryside environment and an enhanced PROW.

16.4.8 All impacts upon the amenity of users of the PROW in close proximity and within the site will be mitigated to the highest standard possible to ensure that the development has minimal effect upon the continued use of the area.

16.4.9 Taking account of the proposed temporary diversions, the restoration scheme and proposed enhancement measures, the Lea Castle Farm mineral extraction and restoration scheme can be worked within posing unacceptable harm to the PROW network. The promise of a new system of PROW, over 2.3km for multiple users (walkers, bridleway users and cyclists) providing additional connectivity and alternative routes to local communities and visitors is considered a significant benefit.

17 Lighting

17.1 Introduction and Policy Context

17.1.1 The development plan contains policies and text concerning the potential for impact from lighting in connection with development proposals. In particular:

- NPPF Section 15;
- Worcestershire Waste Core Strategy policy WCS 14; and
- Wyre Forest Site Allocations and Policies Local Plan policy SAL.UP7.

17.1.2 And within emerging policy:

- Worcestershire Minerals Local Plan policy MLP19; and
- Wyre Forest New Local Plan Pre-Submission Version policies 11D, 16A and 27A.

17.1.3 The thrust of these policies is that proposals should demonstrate how light pollution will be avoided or managed to an acceptable level.

17.2 Potential for Impact

Lighting Proposals and Assessment of Potential Impacts

17.2.1 All lighting will be designed and installed to illuminate the site and operation while reducing nuisance lighting to local residents.

17.2.2 All light will be temporary.

17.2.3 Temporary lighting will take the form of general lighting and task specific lighting.

17.2.4 General temporary lighting will be required to ensure the safe movement of personnel and equipment within the following locations:

- Access roads and junctions; and
- Working areas.

17.2.5 All temporary lighting provided during operation will be directed at the working area and away from any nearby residential dwelling and local wildlife.

Hours of Operation

17.2.6 Lighting will be deployed in accordance with the proposed hours of operation and will typically be used at dawn and dusk, however this will be dependent upon natural lighting levels and local weather conditions.

17.3 Potential for Mitigation

Temporary Lighting Examples

17.3.1 Typically, temporary lighting will be provided by mobile towers and light balloons, however more compact lighting units may be required for task lighting applications to accommodate potential access constraints.

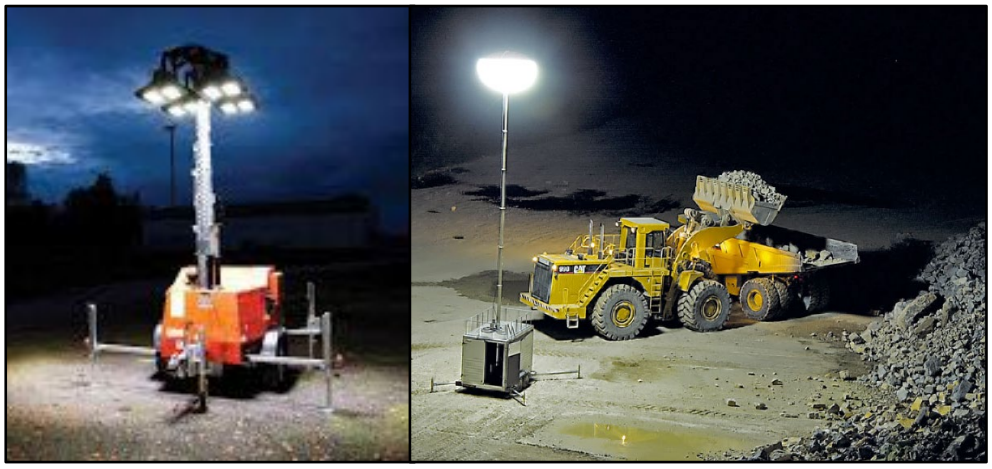
17.3.2 Figure 17.1 below presents typical examples of tower lighting and light balloons.

17.3.3 Lighting balloons are an alternative to mobile towers as they are more compact and flexible in their application. They maximise brightness without glare and as such are recommended for road work, concrete pours and general jobsite illumination.

17.3.4 Illumination levels within a particular unit will vary dependent upon the proposed construction activity requirements.

17.3.5 Height of lighting will vary dependent upon the application but will typically be approximately 3-5m above ground level.

Figure 17.1: Typical Examples of Temporary Lighting



17.3.6 Quarry lighting is critical to health and safety and the security of quarrying operations particularly during Autumn and Winter months where hours of working will extend into dusk/ darkness. It is possible to sub-divide the proposed extraction, processing and restoration works into 4 discrete areas to better understand the lighting requirements needed. These are as follows:

Extraction area

17.3.7 There are no proposals to install permanent lights along any access track within what will become the mineral extraction area because all mobile plant used will have its own lighting installed by manufacturer.

Aggregate Processing Area

17.3.8 The aggregate processing plant will have safety lighting attached to the plant and equipment to illuminate operational areas and walkways. The aggregate processing plant will only be illuminated when operational (maximum 07:00-19:00). All lighting will be directed downwards (below 70^0) illuminating the operational area only. There will be periphery lighting column at the HGV entrance to the aggregate processing area which will only be illuminated during operational hours (07:00-19:00).

Conveyor

17.3.9 The conveyor will have safety lighting attached to the loading and off-loading points to illuminate operational areas. The safety lighting will be motion sensor therefore will only be illuminated when operational. All lighting will be below 1.5m in height and directed downwards.

Weighbridge /Office/ Parking

17.3.10 Weighbridge and wheelwash will have 3m column lighting. The office buildings will have external motion sensor safety lights. The car parking area will have 3m column lighting which will be on timer (07:00-19:00).

17.3.11 Prior to the installation of any lighting, the location and details will be agreed in writing with the Mineral Planning Authority.

17.4 Conclusions

17.4.1 The assessment of the potential impacts of lighting from the development proposals has found that with appropriate mitigation measures the impacts will be acceptable.

17.4.2 In terms of lighting, the proposed development and operations will not have unacceptable direct or indirect impact on population and human health; biodiversity; land, soil, water, air and climate; material assets, cultural heritage and the landscape; or the interaction between these factors in accordance with EIA regulations.

17.4.3 The policies contained in the NPPF, the Development Plan and other material policy considerations are satisfied by the proposed development.

18 Climate Change Adaption

18.1 Introduction and Policy Context

18.1.1 The development plan contains policies and text concerning climate change adaption. In particular:

- NPPF Section 14;
- Worcestershire Waste Core Strategy Policy WCS1; and
- Wyre Forest Core Strategy Policy CP01.

18.1.2 And within emerging policy:

- Wyre Forest Pre-Submission Version Local Plan Policy 5A.

18.1.3 In terms of the national planning policy position, Paragraph 148 of NPPF states that 'the planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience, encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.'

18.2 Potential for Impact and Mitigation

18.2.1 Whilst national planning policy states that new development should be located so as to reduce greenhouse gas emissions, minerals are a finite resource that can only be worked where they are found (NPPF, paragraph 203).

18.2.2 The effects of climate change and the vulnerability of the development proposal to these changes has been considered as part of the preparation of the EIA, particularly in terms of hydrology/ flood risk and ecology (i.e. the impacts of climate change on habitats/ species).

18.2.3 The development proposal would not result in any significant adverse impacts in respect of hydrology/ hydrogeology or flood risk (even when taking account of the predicted effects of climate change). Further information can be found in Hydrogeological and Hydrological Impact Assessment (see Technical Appendix I).

18.2.4 In terms of the transportation of restoration materials for the infilling of the quarry void, it is proposed that 'back-hauling' methods which minimise traffic movements associated with the restoration are implemented. Restoration provides a sustainable solution to the transportation of surplus inert materials to Lea Castle Farm to assist in delivering the restoration of the site.

18.2.5 The proposed development can significantly contribute to the supply of building materials that are likely to be required in the vicinity of the site. In particular, the redevelopment of the former Lea Castle Hospital site will require a large volume of aggregates and other building materials that can be sourced locally and sustainably at Lea Castle Farm without the need for large quantities of traffic movements bringing construction materials to site from afar.

18.2.6 The proposed development will enable the phased landscape-scale restoration of the site. The aims of the proposed restoration include enhancement of the value of the site for biodiversity conservation; to create new wildlife habitats throughout the site that can be sustainably managed and maintained to promote and increase the potential for biodiversity; and to establish a landform, together with land use features and elements, capable of integration and enhancement of the local landscape character and its wider setting whilst enabling public access and community enjoyment of the site.

18.2.7 In the long-term, the restoration scheme will provide mixed habitat coverage on a scale not currently present at the application site. The site's restoration is an opportunity to tailor the final landform to a mix of habitat fabric that is designed to be the most appropriate for the site's location whilst also offering social and community wellbeing benefits through public access.

18.2.8 The Applicant proposes to undertake best practice measures in all aspects of the facilitation of mineral operations, mineral extraction and processing, and in the final restoration stages of the proposal. Site operations will be carried out as efficiently as possible. The Applicant recognises the importance of a commitment to mitigate and manage any exacerbation of climate change. To this end, they aim to ensure that energy efficiency and decarbonization performance continually improve by exploring ways to reduce the carbon footprint of all of NRS's operations.

18.3 Conclusions

18.3.1 In terms of the effects on climate change, taking the above considerations into account, it is evident that the proposed development represents an appropriate use of the site whilst avoiding increased vulnerability to the range of impacts arising from climate change.

18.3.2 In terms of the meeting the challenge of climate change, the proposed development and operations will not have unacceptable direct or indirect impact on population and human health; biodiversity; land, soil, water, air and climate; material assets, the landscape; or the interaction between these factors in accordance with EIA regulations.

19 Leisure and Recreation

19.1 Introduction and Policy Context

19.1.1 The development plan contains leisure and recreational orientated policies and text. In particular:

- The Worcestershire Green Infrastructure Strategy 2013-2018
- Wyre Forest District Council Adopted Core Strategy (December 2010) policies CPO7 and CP13; and
- Wyre Forest Green Infrastructure Strategy (October 2012).

19.1.2 And within emerging policy:

- Wyre Forest Local Plan Pre-Submission Version Policies 9, 14 and 20A.

19.1.3 The thrust of these policies is to ensure that new development contributes positively towards the District's green infrastructure network and opportunities to expand, enhance or maximise existing community uses will be supported.

19.1.4 A Leisure and Recreation Report can be read in full at ES Technical Appendix J.

19.2 Potential for Impact

19.2.1 Based upon desktop and site survey works, nine leisure and recreational resources (receptors) and associated users have been identified. Each of the identified receptors is described below, followed by an assessment of the resource (receptor) and user's sensitivity to change, the magnitude of effect the Proposed Development will have on it/them, and the predicted overall level of Significance of Effect.

<u>Keepers Cottage Strong Farms 1988</u>

19.2.2 This receptor is a private equestrian centre with stables, associated land with local customers/users, including a polo horse client. The Proposed Development will physically take land (phases 4 and 5) from the current rotational agricultural and equestrian land use. The land will be taken for mineral extraction progressively.

19.2.3 Land from within Phase 4 (~1 Ha) will be taken ~4.5 years into the development period for ~3.5 years. Land from Phase 5 (~1 Ha) will be taken ~7.75yrs into the development period for ~3.25yrs.

19.2.4 Keepers Cottage Strong Farms 1988 are the under the control of the applicant. The applicant has alternative land to rotate the associated agricultural and equestrian uses onto during the operational period. On completion of works the restored land will have the potential to be

used again for equestrian and agricultural uses. Strong Farms 1988 also operate a camp site on land located within a valley west of Keepers Cottage. The valley being separated from the wider landscape setting and from the Proposed Development.

19.2.5 It is assessed that the receptor is of Medium Sensitivity and the Proposed Development would result in a High magnitude during the operational period (phases 4 and 5). This would result in a Notable adverse effect that would be *Not Significant*. Post Restoration it is assessed that the magnitude would be Medium. This would result in a Moderate effect that would be *Not Significant*.

Lea Castle Equestrian Centre

19.2.6 This receptor is a private equestrian centre with stables and associated land with local customers/users. The Proposed Development will not physically take land from the receptors control. It is understood that the current facility utilises its own land for riding plus the central Bridleway through the site ref 62 6(B) which then connects to the Wolverley Road to the south and Bridleway ref 62 5(B) to the north which joins Castle Road.

19.2.7 The Proposed Development will result in a temporary change in the landscape and visual ambience/setting of the receptor users in relative proximity to both the stables and the two bridleways. This will be principally associated with operations in Phase 1 and the Initial Works phase. A section of Bridleway 62 6(B) will be diverted for approximately one-week pre-Phase 1 and one-week post Phase 3 to allow for the installation of a below ground section of mineral conveyor. Mineral extraction and the plant site will be screened behind a combination of soil bunds which will be seeded, shrub planted and maintained, and agricultural hay bales.

19.2.8 Based upon the Proposed Development with mitigation measures in place we assess that the Lea Castle Equestrian Centre receptor and its users are of Medium Sensitivity and that during the operational period of the Proposed Development will result in a Medium Magnitude. This would result in a Moderate Adverse effect that would be *Not Significant*.

19.2.9 As part of advanced enhancement measures for an increase in leisure and recreation opportunities through the site, it is proposed to create approximately 1.5 km of new permanent public rights of way including Bridleways. (See Drawing No. KD.L/R .005) The new Bridleway will be accessed off PROW 62 5(B) and progress to land near Castle Barns, then running south around the periphery of the sites eastern boundary and heading west past Broom Cottage and South Lodge where it will connect to PROW 62 6(B).

19.2.10 Based upon the limited opportunity Lea Castle Equestrian Centre currently has for its users riding off road within the local area, we assess that the Proposed Development including the

mitigation and enhancement measures will result in a Medium Beneficial Magnitude which combined with the Medium Sensitivity of the receptor/users will result in a Moderate Beneficial effect. This bridleway will be available in advance of mineral operations.

19.2.11 Post restoration of Phases 1, 2 and 3 a further PROW/ Bridleway enhancement is proposed to allow a new section of access from South Lodge either running on or adjacent to PROW 62 2(C) heading north and then west on or adjacent to PROW 62 4(B). This additional 300 linear metres of PROW will allow a looped riding route opportunity back to the Lea Castle Equestrian Centre.

19.2.12 PROW FP 62 3(B) passes over land under the control of the applicant. It is proposed that his section of current footpath is also upgraded to a Bridleway. This would then allow access westwards to Lea Lane and wider access network. At this stage end of Phase 3/Post Restoration we assess that Lea Castle Equestrian Centre and local horse riders will receive a High Beneficial Magnitude from the Proposed Development a Notable Beneficial effect.

Public Rights of Way within the Site

19.2.13 This receptor being the physical pathways/bridleways with and adjacent to the site for public use. The Proposed Development will physically result in the temporary diversion of PROW 62 4(B) for ~2 years. Alternative routes will be provided in proximity to the current route. The diversion will allow for working of mineral (non-sterilisation). A section of PROW 62 6(B) will also be temporarily diverted for ~one-week pre-Phase 1 and one-week post Phase 3 to allow for the installation of an underground mineral field conveyor. The below ground conveyor will transfer mineral from Phases 1, 2 and 3 to the plant site for processing. Access will be maintained at all times on the PROW route/ diverted routes

19.2.14 The proposed new public access routes described in relation to receptor 2 above will also be available for walkers and cyclists a total of ~1.5km of new PROW will be available pre-operations on Site and further 0.3km of new PROW will be available post Phase 3, with a total of ~2.3km of new PROW being available Post Restoration.

19.2.15 Users of PROW 62 4(B), 62 5(B) and 62 6(B) will observe temporary visual changes as development progresses. These changes specifically relating to temporary seeded planted and maintained soil screening bunds, screening agricultural hay bales and new avenue tree planting. It is assessed that users of the PROW are of Medium Sensitivity (partly due to their transient nature). Based upon the operational period of the Proposed Development with mitigation measures in place we assess that the PROW resource and receptor users will receive between a low to medium Adverse Magnitude. This would result in a Slight to Moderate Adverse effect that would be *Not Significant*.

19.2.16 Post Restoration (part post Phase 3 restoration) PROW receptor and their users are assessed to receive a High Beneficial Magnitude resulting in a Notable Beneficial effect which would be *Not Significant*.

Brown Westhead Park Playing Fields

19.2.17 The physical receptor is a series of grass pitches with changing room facilities. Users include football players and other potential field sports players, spectators and local walkers. The Proposed Development will not physically affect the receptor. Existing landform and vegetation structure will prevent views of the Proposed Development. Mitigation including soil storage/screening bunds will further contain quarry and restoration activities. There will be an increase in vehicle traffic onto the Wolverley Road from the quarry access located ~0.6km to the east of the playing fields with traffic only heading east away from the playing fields.

19.2.18 It is assessed that the receptor and users are of Medium Sensitivity and the Proposed Development would result in None to Low Adverse Magnitude. This would result in a Neutral to Slight Adverse Magnitude. Post restoration the magnitude of the Proposed Development would be None resulting in a Neutral effect that would be *Not Significant.*

Wolverley Camping and Caravanning Club Site

19.2.19 The physical receptor is the infrastructure/ facilities for camping and caravanning. The users are visitors who stay at the club and enjoy its facilities along with those of the local area.

19.2.20 The Proposed Development will not physically affect the receptor. Existing landform and vegetation structure will prevent views of the proposals. Mitigation, including seeded and maintained soil screening bunds, will further contain quarry/restoration activities. There will be an increase in vehicle traffic onto the Wolverley Road from the quarry access located ~0.6km to the east of the playing fields with traffic only heading east away from the receptor.

19.2.21 It is assessed that the receptor is of Medium Sensitivity and that during the Operational Period there may be a Low Adverse Magnitude relating to users of the camp who may travel east on a walk and notice the mitigation measures in place, along with vehicle movement to and from the site. From observations of the camp, most people appear to either stay on site and/or travel west to the canal area. This Low Magnitude combined with Medium Sensitivity resulting in a Slight Adverse effect which is *Not Significant*.

19.2.22 Post Restoration the additional 2.3km of new PROW and the enhanced parkland landscape, pocket parks, could be accessed by users of the club. This is assessed as resulting in a

potential Medium Beneficial Magnitude. When combined with the Medium Sensitivity of the receptor will result in a Moderate Beneficial effect which is *Not Significant*.

Lock Inn (Public House) and Smithy Tea Room

19.2.23 The receptor is located adjacent to a lock on the Worcestershire and Staffordshire Canal. Users include day visitors and locals. The Proposed Development will not physically affect the receptor. The receptor and its users are located ~ 0.5km from the western boundary of the site, set down at a lower elevation with the site screened by both landform and vegetation structure. There will be an increase in vehicle traffic onto the Wolverley Road from the quarry access located ~0.6km to the east of the playing fields with traffic only heading east away from the receptor.

19.2.24 It is assessed that the receptor is of Medium Sensitivity and that the Proposed Development would result in a None to Low Magnitude. This would result in a Neutral to Slight Adverse effect during the operational period. At Post Restoration the Magnitude would be None with a resulting Neutral effect that be *Not Significant*.

Mini Pro Golf

19.2.25 This receptor is located to the west of the Lock Inn and accessed off Wolverley Road. Users can include a mix of locals, day visitors and overnight visitors to the local camp/caravan sits. The Proposed Development will not physically affect the receptor. The activity is located ~ 1km from the site entrance and screened from views of site activities by landform, built structures and vegetation. There will be an increase in vehicular traffic to the east of this receptor with vehicles accessing and leaving the proposed development. This traffic is to be prevented from travelling west along Wolverley Road in the direction of this receptor.

19.2.26 It is assessed that the receptor is of Medium Sensitivity and that the Proposed Development would result in a None to Low Adverse Magnitude during the operational period. This would result in a Neutral to Slight Adverse effect which would be *Not Significant*. Post Restoration there would be a Neutral effect which would be *Not Significant.*

Worcestershire and Staffordshire Canal

19.2.27 The physical receptor is the canal itself with users including local people for pleasure and recreation along its tow path and visitors passing through either on the tow path or on the Canal by barge/water craft. The canal is located at distances of between ~0.1km and 1km from the site. The canal is within a lower valley feature along with the River Stour. The Canal receptor and its users are not in the visual envelope of the site which is screened by intervening landform, topography, building structures and vegetation. The Canal is located

within a Conservation Area. This combined with its links to the wider recreational and leisure network has resulted in its value and susceptibility being considered High Sensitivity.

19.2.28 The receptor will not be physically affected by the Proposed Development. If users access the Canal from the A449 Wolverhampton Road or Park Gate Road they may notice an increase in traffic accessing and leaving the quarry. The overall Magnitude resulting from the proposal is assessed as None to Low. This would result in a Neutral to Moderate effect which would be *Not Significant*.

19.2.29 Post Restoration and as a result of increased public access routes and enhancement landscape planting and amenity opportunities, it is assessed that a None to Low Beneficial Magnitude would occur resulting in a Neutral to Moderate Beneficial effect which would be *Not Significant.*

Park Gate Wolverley

19.2.30 This Public House receptor offers food and drink to receptor users. The main dining room and drinking area being located within the building.

19.2.31 This leisure activity is accessed off Park Gate Road. The Proposed Development will result in a small increase in vehicle traffic along this road.

19.2.32 It is assessed that the receptor is of Medium Sensitivity. The Proposed Development will not physically affect the Public House and the additional vehicle traffic passing by will be of a minor increase. This will result in a None to Low Adverse effect during the operational period of the proposed quarry which will be of a Neutral to Slight Adverse effect and not be Significant. Post restoration there will be a Neutral effect which will be *Not Significant.*

19.3 Potential for Mitigation

19.3.1 In terms of mitigation, the proposed scheme has been designed to deliver the extraction of sand and gravel and to restore the Site in a small scale and progressive manor. Integral to the scheme is the delivery of leisure and recreational opportunities provided through green infrastructure and associated wellbeing opportunities and benefits predevelopment (including ~1.5km of new bridleway, footpath and cycleway, planting of ~200 avenue trees, planting of hedges and woodland blocks). During the Operational Stages (including progressive restoration), delivery a further 0.3km of PROW will allow both a circular walk/ride opportunity within the Site boundary, off road, and provide additional north south connectivity and new connections east west from the Old Lea Castle Hospital Site, through Lea Castle Farm and down to Lea Lane and the Worcestershire and Staffordshire Canal and River Stour corridor. By Post Restoration the scheme will include ~2.3km of new PROW, 8550 new native trees and shrubs with woodland blocks, 5,800 native hedgerow trees and

shrubs, 8.1 Ha of species rich acid grassland, ~200 new avenue trees and 5 pocket parks. Pocket Parks to be designed to promote health, wellbeing and educational activities.

19.4 Conclusions

19.4.1 An assessment of the impacts in terms of the existing leisure and recreational resources (receptors) and associated users within and in close proximity to the proposed development has been carried out.

19.4.2 The multifunctional approach to the whole life development will both reinforce and create a new high-quality landscape and leisure and recreational resource for the local communities. It will also allow movement of people between town and country and offer a variety of Health and Wellbeing opportunities.

19.4.3 The visual quality of the site and local landscape setting will also increase, as well as the scale of new habitat creation, providing a base for sustainable biodiversity. During the operational period of the quarry and progressive restoration, the area of disturbance will be less than half of one of the current field sizes within the site/ land area.

19.4.4 There is just one receptor 'Keepers Cottage Strong Farms 1988 Equestrian Centre' which is assessed as receiving a Notable Adverse effect from the Operational Proposed Development. This will result principally from the physical loss of land currently used for horse paddocks. This receptor is under the control of the Applicant who has the ability to rotate the location of the paddocks as currently happens with agricultural production.

19.4.5 Two other receptors have been identified as receiving a Moderate Adverse effect which is Not Significant during the Operational Period of the proposal. These being Lea Castle Equestrian Centre and users of the immediate PROW network. The equestrian centre will not lose any physical asset controlled by it. The visual nature and ambience currently experienced by users of the immediately located PROW (bridleway/footpath) will temporarily change as a result of the construction of seeded/planted bund and use of agricultural straw bales to screen mineral extraction and the proposed plant site. Users of the equestrian centre/ bridleways and footpath will, however, gain an additional ~1.5km of new bridleway including a circular trail, available prior to extraction commencing. This increases the immediate bridleway access routes by over 100%. Post Phase 3 restoration further PROW/bridleway will be provided to make new connections into the wider PROW network, providing potential access to Lea Road, the River Stour and Worcestershire and Staffordshire Canal tow paths and the wider access network to the west of the site. This is a considerable Notable Benefit. The proposals have also been developed to minimise mineral

extraction in relative proximity to the equestrian centre (Phase 1)- originally proposed for 2 years extraction and now 9 months.

19.4.6 The scheme has been designed to deliver Green Infrastructure, connectivity and activities to promote health and wellbeing/ leisure and recreation opportunities. In these aspects it is considered to be in full accordance with both Worcestershire County Council and Wyre Forest District Councils leisure, recreation and wellbeing policies. The proposals are also supported by the National and Worcestershire Equestrian Society for the local and wider horse-riding community.

20 Health Impact Assessment

20.1 Introduction

20.1.1 A Health Impact Assessment in respect of proposals has been carried out and the full report is attached at Technical Appendix K. The findings of the Health Impact Assessment report are summarised below:

20.1.2 The Health Impact Assessment was requested by the Worcestershire County Public Health Officer and Public Health England.

20.1.3 The scope of the assessment has been discussed with Worcestershire County Council Public Health Team and PHE and follows guidelines set out within the Health Impact Assessments in Planning Toolkit (Public Health, Worcestershire County Council) March 2016.

20.1.4 For this project the main sources for potential health effect are;

- Quarrying and restoration activities and outcomes which could result in environmental change resulting from mineral extraction and restoration activities (i.e. noise, air quality, road safety, public access, visual amenity and water quality); and
- Social change associated with individual and community response to the possibility of development change (i.e. community use of land within the application boundary and surrounding land, understanding risks and community identity.

20.2 Assessment

20.2.1 The assessment identified members/groups of the local population who could be affected, how, and the scale of the potential effect. The work was informed by relevant specialist chapters of this ES, including water and flood risk, highways and traffic, public rights of way, landscape and visual, noise, dust and air quality. Public consultation involving discussions with local residents and two public consultation events also helped to highlight and understand concerns and to guide potential mitigation and enhancement measures. Advice and requests from organisations including Public Health, Local Government and the Environment Agency were also addressed.

20.2.2 The main health and wellness concerns raised relate to potential changes associated with traffic, noise, dust, air quality and safety. The Heath Impact Assessment concludes that with standard good practice design, mitigation and standard working practices, no significant adverse effects to community/population health would occur as a result of the proposal.

20.2.3 It is acknowledged that the uncertainty associated with change can result in increased stress for individuals / the local community. To try and address this, liaison will continue with local residents/schools and businesses and the Parish Council during the application process. If the application is successful, a Liaison Group will be established including representatives of NRS Aggregates Ltd., local residents, parish councillors and statutory bodies, to monitor and share findings, and to advise on operations and their accordance with requirements and good practice.

20.2.4 The assessment has also highlighted the potential benefit to health and wellbeing resulting from the proposed changes. These include the increase in public access which will provide new links between town and county for walkers, horse riders and cyclists. The creation of pocket parks with fitness and reflection design proposals to stimulate mind and body. The recreation of an agriculturally managed parkland setting will raise the visual amenity. It will include the reinstatement of avenue trees and create new habitats to promote biodiversity, adding to the quality of life.

20.3 Conclusion

20.3.1 The scheme has been designed to deliver needed sand and gravel and solid sand in a sustainable location. Integral to the scheme are measures which consider Health and Wellbeing aspects and aim to mitigate changes in the environment which may result in adverse physical and /or mental health and wellbeing issues.

20.3.2 Individual and communities have been identified and assessed in respect of the potential impact of the development. It is considered that the development is temporary, it is contained geographically, and it is limited through a combination of progressive extraction and sequential restoration.

20.3.3 Concerns regarding health and wellbeing have been identified through both the specialist Environmental Impact Assessment process and through consultation with local individuals and communities. The main potential concerns highlight traffic, noise, dust, air quality and the potential risk of silicosis from extracting and processing sand and gravel. Specialist consultants have been employed to consider and address the impact of the concerns. The Health Impact Assessment concludes that with standard good practice, mitigation and standard working practices that significant adverse effects to population health would not occur due to the environmental changes.

21 Socio Economic Assessment

21.1 Introduction and Background

21.1.1 The assessment describes current economic and social conditions in the area around Lea Castle Farm as a precursor to considering likely impacts on the local economy and its population if the proposed operation is or is not approved.

21.1.2 No evaluation has been made of any effects on the existing social infrastructure (e.g. schools, health facilities etc), which would be expected to be very small.

21.2 Geographical scope of assessment

21.2.1 Lea Castle Farm is located within the Wolverley ward. The immediately surrounding area is defined by the following wards which surround the quarry within Wyre Forest District, namely:

- Cookley;
- Wribbenhall;
- Bewdley And Arley;
- Blakedown And Chaddesley;
- Franche; and
- Broadwaters.

21.3 Baseline local economic and socio-economic indicators

21.3.1 The economic and socio-economic data which describes conditions around Lea Castle Farm are drawn from a range of sources. Unfortunately, different sources use different geographical reporting units, and report data from different years. Nevertheless, taken in conjunction they provide a clear picture of the local economy.

Population and Employment

21.3.2 There are 100,700 residents in Wyre Forest District according to the 2017 Office for National Statistics (ONS) mid-year population estimates. It makes up 1.7% of the overall population of the West Midlands.

21.3.3 In terms of employment, Wyre Forest has low levels of unemployment (3.1%) which is lower than the national average of 4.2% and that of the West Midlands of 4.7% (Source: Employment and unemployment (Jan 2018-Dec 2018) - ONS annual population survey).

Social conditions

21.3.4 The Index of Multiple Deprivation (IMD) is a metric used by Government to measure overall deprivation at the local level, by combining a number of specific indicators chosen to cover a range of economic and social (e.g. health, housing and crime) issues. The resulting IMD score shows where the local area concerned lies on the continuum from most deprived (a score of 1) to least deprived (a score of 354 when the measure is being made at local authority (district or unitary authority) level).

21.3.5 Wyre Forest District has an IMD rank 119, which is below the average out of the 325 local authority districts nationally.

21.4 Quarrying's role within the wider economy

21.4.1 It is necessary to turn to national data to obtain a better picture of the relative weight and importance of quarrying in the wider economy.

21.4.2 Table SE1 – please see below/ overleaf – provides data on gross value added (GVA) and employment, by sector of the economy. Gross value added (GVA) is defined by the Office for National Statistics as 'The value generated by any unit engaged in production, and the contributions of individual sectors or industries to gross domestic product. It is measured at basic prices, excluding taxes less subsidies on products.' GVA provides a good measure of economic productivity, together with the calculated GVA per employee. This last column of figures is important for any assessment of the effects of changes in quarrying output.

21.4.3 Employment data in Table SE1 is based on 2012 Labour Market Figures from the Office for National Statistics. The GVA figures are for 2010 and are taken from the National Statistics Blue Book: 2012 Edition - (Table 2.3 Gross value added at current basic prices by industry, 2003–2010) and employment figures from the Office of National Statistics dataset 'JOBS02 Workforce jobs by industry (not seasonally adjusted) – Figures for March 2013). Whilst the two data sets look at slightly different periods (the GVA at current prices provides data from 2010 and the Employment data is from March 2013) it is considered that for the purposes of the point being made in this report that the figures are sufficiently compatible to provide the general impression of the value of GVA and employment market for different sectors at present.

Table SE1 – Structure of the UK Economy

Industry Sector	GVA at Current Basic Prices (£ Million) ONS Blue Book 2012 Table 2.3	**Employment (,000)** ONS Workforce Jobs by Industry (not	GVA per Employee (£)

		Seasonally Adjusted) March 13	
Agriculture	8,333	361	£23,083
Production (Include Mining manufacturing and utilities shown in boxes below)	210,335	3005	£69,995
Mining and quarrying (figures form part of the 'Production' figures)	35,589	68	£523,367
Manufacturing (figures form part of the 'Production' figures)	139,120	2612	£53,261
Electricity, gas, steam and air conditioning supply / Water supply, sewerage, waste mgmt and remediation (figures form part of the 'Production' figures)	35,626	325	£109,618
Construction	83,280	1,992	£41,807
Information and communication	74,601	1,320	£56,515
Financial and insurance	123,021	1,149	£107,067
Real estate	104,583	511	£204,663
Professional and support	152,322	5130	£29,692
Government, health and education (incl. defence)	260,993	8510	£30,668
Pubic Admin, defence compulsory social security NB Figures form part of the 'Government health and education figures	69,918	1577	£44,336
Other Services (incl. Art, entertainment, recreation, Other Service activities et al)	4,4249	1760	£25,141
Totals All Industries	**1,308,962**	**32239**	**£40,601**

21.4.4 As can be seen, the extractive industries are much more capital intensive than any other sector of the British economy, with very high levels of labour productivity (measured by GVA per employee) as a consequence.

21.4.5 Table SE2 – see below – shows how the different sectors of the British economy interact with each other. Each column in Table SE2 shows where the particular sector of the economy spent its money (on both capital investment goods and operating costs) in order to generate its own outputs. These purchases of goods and services are known as 'intermediate consumption'. Thus, for example, it shows that in order to produce a GVA figure of £35.5 billion (see Table SE1), the mining and quarrying sector purchased a total of £5 billion's worth of intermediate consumption, with spending particularly high in the transport and construction sectors.

INTERMEDIATE CONSUMPTION BY INDUSTRY GROUP					
	1	2	3	4	5
	Agriculture	Production	Construction	Distribution, transport, hotels and restaurants	Information and communication
PRODUCTS					
Agriculture [1-3]	2 762	12 074	228	1 632	9
Production [5-39]	7 274	305 268	35 045	69 419	16 436
Other Mining and Quarry Products (8)	***-***	***2 650***	***2 258***	***226***	***10***
Construction [41-43]	370	4 877	60 103	13 427	1 644
Distribution, transport, hotels and restaurants [45-56]	856	15 585	3 384	62 314	4 425
Information and communication [58-63]	205	6 717	1 391	17 234	17 255
Financial and insurance [64-66]	552	11 858	2 877	8 567	1 989
Real estate [68.1-2-68.3]	107	1 746	2 372	15 706	1 215
Professional and support activities [69.1-82]	1 167	25 704	17 788	45 300	20 344
Government, health & education [84-88]	25	2 616	1 265	4 966	1 157
Other services [90-97]	71	1 115	130	1 809	3 126
Total consumption	13 389	387 560	124 583	240 374	67 600
Taxes *less* subsidies on production	-2 521	4 854	1 130	11 808	1 290
Compensation of employees	3 330	116 793	46 408	165 607	47 950
Gross operating surplus	7 524	88 688	35 742	69 829	25 361

Gross value added at basic prices	8 333	210 335	83 280	247 244	74 601
	1	2	3	4	5
	Agriculture	Production	Construction	Distribution, transport, hotels and restaurants	Information and communication
PRODUCTS					
Output at basic prices	21 722	597 895	207 863	487 618	142 201

21.4.6 This data is important, since it provides an indication of the indirect effects of quarrying operations, including how the additional expenditure generated from this activity is likely to be distributed across other parts of the local economy, and hence whether jobs could be retained or generated in these sectors.

21.5 Development proposal and future economic and social conditions

21.5.1 This section seeks to estimate the economic impacts of the proposed quarrying activities at Lea Castle Farm including restoration activities. Granting Planning Permission for the proposed development at Lea Castle Farm would create employment for 11 jobs for approximately ten years if the scheme is approved.

21.5.2 As well as the direct benefits to the Applicant and the employment effects which benefit their workforce, there will be a series of spin-off benefits which are referred to as 'indirect effects'.

21.5.3 Finally, there are 'induced effects', which arise from the income earned by local employees being spent on household and personal goods and services within the local economy. The extent of this effect is a matter of some debate and is usually recognised by multiplying the direct and indirect effects by a further factor (typically about 1.1).

21.5.4 In an assessment of purely local effects it is also important to recognise that some of the benefits (direct, indirect and induced) will not accrue to the local economy (by, for example, purchasing a major item of capital equipment from overseas for the Lea Castle Farm development, or by some of the workers and their families spending their wages on holidays in the Lake District, or Spain). Such effects are referred to as leakage, displacement, and substitution of benefits.

Direct Economic Effects

21.5.5 As set out above, the proposed development would create 11 jobs for approximately 10 years. Furthermore, and not withstanding the identified need for sand and gravel (as set out in the accompanying Planning Statement), the proposed quarry would provide a significant contribution to the local economy. It is estimated that this contribution would equate to approximately £1,000,000 per annum (based on the Applicant's other operations) on external

suppliers and on goods and services over the life time of the development, as well as contributing to the national and local tax base.

Indirect Economic Effects

21.5.6 In theory, it would be possible to allocate the figure of £1,000,000 to different economic sectors (manufacturing industry, utility services, construction etc), using a different multiplier for each sector. In practice, because many of the main suppliers span different sectors (by providing design advice and maintenance services as well as hardware), this is potentially misleading, and it has been concluded that it would be more appropriate to use an average factor which applies across all economic sectors (namely the figure of £40,601 GVA per employee – as outlined in Table SE1: Structure of the UK Economy (Source: ONS Blue Book 2012 and ONS Workforce Jobs by Industry March 2013). This is a lower figure than would apply to manufacturing industry, information and communication, and the financial and insurance sectors, but higher than that applicable to government, health and education (including defence), professional and support, and other services.

21.5.7 The simple calculation of £1,000,000 /£40,601 per employee generates a figure of 25 (no.) employees further down the supply chain whose jobs depend to some degree on Lea Castle Farm Quarry workings. This is not to suggest that if the Site gains permission and is operational, the closure of the quarry would lead to the loss of 25 (no.) employees, but at the very least, some disruption to employment would be expected.

Induced Effects

21.5.8 In the absence of detailed data on the consumption patterns of local employees, it is usual to estimate induced effects by making use of the same guidance from English Partnerships as referred to above. This suggests that an uplift figure of 10% could be applied to existing employment figures to identify an induced employment effect. Hence if the direct employment effect is to create 11 jobs, and the indirect effect is to retain 25 (no.) indirectly affected jobs, then uplifting this total by 10% would provide a reasonable estimate of 4 (no.) jobs for the induced employment benefit.

Overall employment effects

21.5.9 The overall local employment significance of the proposed Lea Castle Farm Quarry is therefore estimated as 11 (jobs to be created at the quarry) plus 25 (indirect) plus 4 (induced) = 40 jobs. As explained above, were non-quarrying jobs at Lea Castle Farm, and other jobs more widely in Wyre Forest District, to be lost the effects of this would be much greater.

21.6 Socio-Economic Conclusions

21.6.1 The National Planning Policy Framework (NPPF) states that if development is to be sustainable it must not only contribute to protecting and enhancing the environment, but also contribute

socially and economically. As the three dimensions to sustainable development given within the NPPF - economic, social and environmental factors should be weighed equally when considering the sustainability of a development. As well as being environmentally acceptable, it is considered that the proposals include a series of positive economic and social contributions. These factors should be given appropriate weight.

21.6.2 The NPPF states that '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' (Paragraph 80). The proposed operations will have a positive impact upon the local economy without creating any unacceptable environmental impacts. There will be economic benefits provided to the local and wider regional economy. Therefore, the development has the potential to help meet the Government's national planning policy objectives for economic growth.

21.6.3 In addition to the creation of jobs associated with the proposed quarry workings, the proposed development at Lea Castle Farm will enable direct and indirect employment to be maintained across a range of industries, many of which depend directly upon quarrying for business.

21.6.4 In addition to the direct and indirect benefits of the proposal, it will also induce benefits to the local and national economy through a multiplier effect.

21.6.5 In addition to the positive impacts of the development upon the economy, the restoration of the site will see beneficial end uses and an overall enhancement to the local landscape. The proposed restoration proposals would provide significant landscape, biodiversity and public amenity benefits that will be undertaken in a phased manner to ensure the completion of restoration at the earliest opportunity, providing long-term economic, social and environmental benefit.

22 Cumulative Impact Assessment

22.1 Introduction

22.1.1 This section of the ES addresses the cumulative impact of the proposed development to examine if any changes will arise from the proposal that, when combined with other developments and activities in the area, will in some way result in the proposed scheme being unacceptable.

22.1.2 Throughout this ES and associated technical appendices, the impacts that the development could potentially have on the site and the surrounding area have been assessed. This report draws together the findings of all the technical assessments and outlines whether any cumulative impacts may emerge from the interaction between different environmental impacts.

22.1.3 Cumulative impacts relate to the way in which different impacts can affect a particular environmental resource or location incrementally. In essence, cumulative impacts are those which result from incremental changes caused by other past, present or reasonably foreseeable developments, together with the proposed development. Therefore, the potential impacts of the proposed development cannot be considered in isolation but must be considered in addition to impacts already arising from existing or planned development.

22.2 Approach and Methodology

22.2.1 Cumulative impact assessment does not have a dedicated section within the NPPF. However, the consideration of cumulative effects from a development is referred to and required when evaluating the environmental impact of a development proposal. In regard to minerals development, NPPF paragraph 204 (f) states that planning policies should set requirements to ensure that permitted and proposed operations do not have unacceptable adverse impacts on the natural and historic environment or human health, taking into account the cumulative effects of multiple impacts from individual sites and/or a number of sites in a locality. The Scoping Opinion from the MPA has also stated that the potential for cumulative impact needs to be addressed as part of this ES.

22.3 Key Impacts of the Proposal

22.3.1 With any quarry operation the key environmental impacts are generally noise, dust, and traffic. Due to the topography, relatively enclosed nature of the site along with the proposed layout and stand-offs, the environmental impacts are generally localised to an area within the

quarry boundaries and therefore will not give rise to impacts significant enough to be able to combine with other off-site impacts and thereby result in an accumulation of impacts.

22.3.2 Noise, dust and traffic can all have effects beyond the site boundary, however, investigations have been undertaken and the scheme has been designed to ensure that any such effects continue to comply with the existing limits and restrictions that apply to the quarry. No other operations in the area are likely to have profiles that will exacerbate noise and dust to unacceptable levels.

22.3.3 In terms of traffic impacts, which is discussed further below, the Transport Assessment (attached at Technical Appendix F), states that the traffic data confirms that the local roads routinely accommodate HGV traffic and that the proposed access has been designed based on observed speed data in accordance with current guidance and the Highway Authority's preference in terms of the visibility standards to be applied. Therefore, in circumstances where a suitable access with appropriate visibility splays can be achieved on a road which currently safely accommodates similar vehicle types and where the normal day to day variations in flow significantly exceed the quantum of development traffic it would be difficult to conclude that there would be an unacceptable impact on highway safety or the residual cumulative impacts on the road network would be severe.

22.3.4 No hydrological or flood risk impacts are expected from the scheme and no other activities around the site are likely to interact with hydrology and flood risk to result in cumulative worsening.

22.3.5 In light of the above, it is clear that there are no anticipated local affects that might, through accumulation with other activities from either within or outside the site, result in a significant worsening of the environment as a result of the proposed scheme.

22.4 Successive Impacts

22.4.1 Historically, the site formed a part of the c.220ha grounds of Lea Castle, which was built around 1762 and demolished in 1945. There has also been a number of applications submitted at the site over the years, in particular, planning applications for the construction of golf courses (one 18-hole and one 9-hole golf courses), with the first submitted to Wyre Forest District Council in March 1999 (ref. WF/0260/99). This application (WFDC) was refused at Planning Committee on 14th March 2000 and a subsequent appeal was withdrawn. However, an application (ref. WF/0211/01) was permitted by Committee on 17th July 2001 for 'construction of two new golf courses (18 hole and 9 hole), new clubhouse and ancillary facilities, new access to Castle Road, Cookley, new driveways and parking facilities, golf

practice area and diversion of public footpaths'. This planning permission was never implemented.

22.4.2 Consideration of the cumulative impact of the proposed development alongside the existing land uses in the direct vicinity of the Site has led to the conclusion that there are no land uses in the locality of the Site that have the potential to result in significant adverse effects on nearby receptors, when combined with the anticipated impacts of this proposal.

22.4.3 The proposed development will therefore not be adding to an existing problem. The proposed development is driven by the geological prospects together with the identified need in both adopted and emerging Minerals Local Plan Policy for the provision of a viable and high quality mineral.

22.4.4 As demonstrated within this Environmental Statement, the proposed development is environmentally acceptable, and the restoration proposals provide environmental benefits.

22.4.5 In light of the above, the successive impacts of the proposal are considered to be negligible.

22.5 Simultaneous Impacts – Other Major Developments in the Locality

22.5.1 A further consideration when addressing cumulative impact is the potential impacts that will arise when combined with committed or proposed development in the area i.e. schemes that are proposed but have not yet been implemented.

22.5.2 A review of Worcestershire County Council and Wyre Forest District Council (WFDC) websites have been undertaken to ascertain whether there are any planning applications or allocated or potential allocated sites within close proximity that may lead cumulatively to adverse/unacceptable impact upon local receptors.

22.5.3 In terms of mineral development, there are no mineral/mining related development in close proximity to the proposals at Lea Castle Farm which would be considered to have a simultaneous cumulative impact upon local receptors.

22.5.4 In terms of recent residential development planning applications, the 2 most relevant for consideration are in relation to the former Lea Castle Farm Hospital (Ref: 17/0205/OUTL), which is approximately 450m from the eastern most extent of mineral extraction and Land off Stourbridge Road (Ref: 18/0163/FULL), which is approximately 660m from the south eastern most extent of mineral extraction.

22.5.5 In terms of the former Lea Castle Hospital, an outline planning application for up to 600 dwellings and a mix of employment, retail and associated infrastructure was approved at WFDC Planning Committee on 21st November 2017 subject to the signing of a S106 agreement

(Ref: 17/0205/OUTL). It is understood from correspondence with WFDC that the S106 is yet to be signed.

22.5.6 The Wyre Forest District Local Plan Pre-Submission Publication (October 2018) also proposes to allocate the land immediately to the north, east and west of the former hospital site as part of a new sustainable community known as Lea Castle Village for around 800 additional dwellings with a mix of employment and retail provision.

22.5.7 With regards, Land off Stourbridge Road, a full planning application for a residential development of 91 dwellings and associated infrastructure was approved on 09th August 2018.

22.5.8 Due to the topography, relatively enclosed nature of the site along with the proposed layout and stand-offs, it is considered that the only potential simultaneous impact that could arise is from transport and traffic. In terms of traffic, the Transport Assessment (attached at Technical Appendix F), the cumulative impact of the proposed development has been assessed taking into account the permitted and proposed mixed development at the former Lea Castle Hospital site off Park Gate Road and also the permitted 91 dwellings off Stourbridge Road. It has found that neither of these developments would compromise the acceptability of the proposed quarry or vice-versa. Indeed, the availability of the proposed quarry to supply sand and gravel to the construction sites and accept arisings from their excavations offers significant potential to support the principles of sustainable transport by reducing the need to travel and minimising transport distances.

22.5.9 In terms of potential air quality impacts from traffic movements on the local road network, a full PM10 assessment has been carried out in the Dust Impact Assessment (Technical Appendix E) in line with the latest recommendations and this clearly shows that the Air Quality Objectives are not expected to be exceeded.

22.5.10 Therefore, the potential for simultaneous cumulative effects is considered negligible.

22.5.11 With the exception of the development subject to this application, all other developments discussed above are permanent forms of development. Therefore, upon cessation of restoration operations, the application site will cease contributing to any simultaneous development effects.

22.5.12 Notwithstanding this, there will be simultaneous effects on the local environment and on local receptors during the course of the development. These will largely be as a result of construction and therefore noise, dust, air quality, transport impact and post completion of permanent forms of development in the form of transport/traffic impact, noise, dust/air quality, visual impact. The main environmental considerations which have the potential to give rise to simultaneous effects are considered below.

22.6 In-Combination Effects

22.6.1 All mineral workings produce effects that occur together, and their combined impact can potentially give rise to significant impacts. In order to assess the combined effects properly it is necessary to consider whether some or all of the individually acceptable environmental effects are so close to being unacceptable, that when combined together, the totality is unacceptable.

22.6.2 Before attempting to combine the potential impacts, it is first necessary to establish the level of objectionability for each area of potential impact. In doing so, careful regard has been had to the specialist environmental reports contained in the Technical Appendices. Set out below is a summary of the findings on each aspect and a view taken on the level of objectionability.

Potential Landscape and Visual Impact

22.6.3 As set out in the Landscape and Visual Assessment, other development local to the Site which may result in change to/within the Sandstone Estatelands LCT appear to be limited to the permitted residential development at the disused Lea Castle Hospital site and the potential additional residential development adjacent to the old hospital site.

22.6.4 This development is in close proximity to the proposed quarry development. Given that much of the Lea Castle Hospital site land is already disturbed/ brownfield, it is assessed that the potential for cumulative landscape impact is very low within the operational period of the quarry and potential beneficial at post restoration given the enhanced landscape and amenity opportunities provided by the quarry application for the land area and its community.

22.6.5 In considering the potential for cumulative visual effects the outline permitted residential development at the disused Lea Castle Hospital site had been considered. It is assessed that the cumulative effect upon visual amenity for both operational and restoration periods is assessed to be Neutral and Not Significant.

22.6.6 In summary therefore, while there is potential for impact, the proposed development is not considered close to becoming an unacceptable adverse impact on the landscape or to visual receptors.

Nature Conservation and Ecology

22.6.7 An Ecological Impact Assessment (EcIA) has been prepared by Pleydell Smithyman (see Technical Appendix B) which is informed by a Desk Study in order to obtain information of designated sites of nature conservation interest, and a suite of ecological surveys undertaken between 2016 and 2019. There are no statutory designated sites present within the

application site. Existing habitats within the site include semi-improved neutral grassland, improved grassland, tall ruderal habitat, arable, hedgerows, scattered trees, hardstanding and surrounding broad-leaved and mixed woodland. Protected species surveys undertaken identified a range of species protected at district, local or parish level.

22.6.8 In terms of potential impacts, the habitats of the highest ecological importance (boundary deciduous woodland) will not be removed by the proposals. Overall, no significant adverse impacts are anticipated on habitats present within the site provided that restoration is delivered as proposed. A net biodiversity gain is anticipated.

22.6.9 A number of mitigation measures have been detailed to ensure that all legally protected species recorded within the site are adequately protected throughout the duration of the works. No significant negative impacts are anticipated on any known protected species present. A landscape and ecological management plan will be produced to ensure long-term biodiversity benefits.

22.6.10 In summary therefore, while there is potential for some impact, the proposed development is not considered close to becoming an unacceptable adverse impact on ecology.

Arboriculture

22.6.11 The findings of the arboricultural survey have shown that where felling is considered necessary, of the five trees to be felled, only one is considered to be Category A (T26 – mature oak). A single Category B tree (T9 – mature oak) s also to be felled. Despite benefitting from a TPO, T10 (mature oak) is classified as Category C with impact of removal classed as 'low'. T22 is a Category C veteran Sweet Chestnut tree. Overall it was assessed as being of poor structural and physiological condition with the impact of its removal is considered to be Low.

22.6.12 The proposed extraction area stand-off from the mature trees present around the sites boundaries ensures that all other trees present on/at the edges of the site will be retained as part of the development proposals. It is proposed that these are protected during the works by erecting tree protection fencing in accordance with the requirements of BS 5837:2012, as part of the development proposals.

22.6.13 By reason of the above, the development will not give rise to a significant adverse impact upon arboricultural assets. Notwithstanding this, as set out in the restoration section of this statement, the proposed restoration scheme will create significant new woodland/scrubland habitat. The scheme will establish ~ 8.1 ha of Acidic Species Rich Plant, ~12,000 new trees and shrubs, (biodiversity habitat target) ~200 Avenue and Parkland Trees, and 579 linear metres of new native hedgerows.

22.6.14 In conclusion it is considered that the impacts of the proposal upon arboriculture are not considered to be in themselves unacceptable nor near the thresholds of becoming an unacceptable environmental impact.

Noise

22.6.15 A Noise Assessment has been carried out by WBM Acoustic Consultants (see Technical Appendix D) in order to establish baseline noise levels, make recommendations regarding site noise limits at the nearest dwellings to the site, and to test compliance with those noise limits to examine the potential noise impact of the proposed development. The potential impact is considered using the known noise output of mineral activities and specific plant and equipment proposed to be used, assessed against the sensitivity of the noise receptor.

22.6.16 The noise calculations assumed that all plant on site is operating simultaneously in the closest likely working areas to each receiver location for the proposed operations, in order to assess a 'worst-case' scenario. Appropriate stand-off distances have been designed-in to the proposed scheme to further soften noise impacts. The Noise Assessment has concluded that calculated site noise levels due to mineral operations at the proposed site comply with the suggested site noise limits at all assessment locations.

22.6.17 In conclusion, with the appropriate noise mitigation in place, the proposed development does not come close to the thresholds of being an unacceptable adverse impact in regards to noise.

Air Quality and Dust

22.6.18 The plant required to work Lea Castle Farm Sand and Gravel Quarry at Worcestershire, together with associated vehicle movements have the potential to generate dust and other airborne pollutants in the immediate vicinity of their operations. A Dust Impact Assessment has been carried out by Vibrock (Technical Appendix E).

22.6.19 Climatic conditions local to the site have been accessed and analysed to give an indication of how often the site could be susceptible to fugitive dust events. Such occasions are relatively few. It is unlikely that any significant decrease in local air quality will occur due to the proposed development at Lea Castle Farm Quarry. Any dust occurrence event will be limited and of short duration and will be minimised by implementation of the dust control recommendations.

22.6.20 Dust control measures are listed at Appendix 3 'Summary of Dust Control Measures' at Technical Appendix E.

22.6.21 With regard to PM_{10} and $PM_{2.5}$ dust levels from the site, analysis has been made of the air quality data. The conclusion of the analysis was that National Air Quality Objectives will not be exceeded.

22.6.22 With the appropriate air quality and dust mitigation measures in place, the proposed development does not come close to the thresholds of being an unacceptable adverse impact.

Traffic and Transportation

22.6.23 In terms of road traffic, a Transport Assessment has been prepared by The Hurlstone Partnership (see ES Technical Appendix F), which demonstrates that the development, including proposed new access location and design, are fully in accordance with both national and local policy. Empirical traffic survey data was obtained and a topographic survey of the road was also undertaken in order to ensure that an appropriate access arrangement with suitable visibility splays could be provided.

22.6.24 The impact of the proposed development on the local highway network has been found to be acceptable. The review undertaken confirms that in the worst case, the proposed development would attract an average of 77 loads / 154 HGV movements per day plus 22 movements (11 in / 11 out) associated with staff trips by the 11 employees within the site. The assessment has been based on the 154 HGV movements per day at the specific request of the Highway Authority, on the basis that back-hauling of sand and gravel exports with a load of imported fill be ignored, in order to represent the worst case. The highest increase in traffic over any baseline flow was found to be 1.7%, which falls well below the 5% threshold considered to represent a material increase in traffic

22.6.25 The Transport Assessment does not identify any unacceptable impact on highway safety or assess that the residual cumulative impacts on the road network would be severe. Data also confirms that the local roads routinely accommodate HGV traffic. The analysis of personal injury accident data recorded over the most recent 5 year period confirmed that there are no inherent characteristics of the local road network that unacceptably compromise safety for or as a result of HGV activity.

22.6.26 The traffic and transport impacts of the proposal do not come close to the thresholds of unacceptability.

Soils, Land Quality and Agriculture

22.6.27 An Agricultural Land Classification and Soil Resource Report has been prepared by Kedd Development Limited (Technical Appendix G) and includes a summary of the existing climate, site, and soils present alongside an assessment of agricultural land classification (ALC) and soil storage/handling methods.

22.6.28 The distribution of agricultural land classification grades across the existing site is summarised as 21.3% Grade2, 66.5% Grade 3a, 1.7% Grade 3b. 10.5% of the site is non agricultural. The soil resources have been assessed as typically Medium Sandy Loam topsoil with overlying Loamy Medium Sand upper subsoil, sitting on sand and soft sandstone in the eastern area or

slightly to moderately stony sand in the western area. The average soil depth overlying the mineral reserve is 0.7m deep.

22.6.29 In order to protect and conserve soil quality as required in the adopted and emerging Development Plan, soil storage and handling measures are recommended in the Report at Technical Appendix G. These measures are to be implemented in the scheme of soil storage and handling employed at the site.

22.6.30 The final restoration scheme will provide for 32.26ha of bmv, which will therefore, be a loss of bmv agricultural land of 8.94Ha, where it will be restored with an alternative land use (acidic grassland, woodland planting and pocket parks). Therefore, the loss of bmv will be offset with a restoration scheme that provides for measurable net gains in biodiversity that is in accordance with local and national policy and provides an overall more balanced restoration scheme.

22.6.31 The impact of the proposal on soils and agricultural land quality does not come close to the thresholds of unacceptability.

Archaeology and Cultural Heritage

22.6.32 An Archaeological Desk-Based Assessment has been prepared by Worcestershire Archaeology (see Technical Appendix H.1) and a geophysical assessment has been carried out which considers the site's potential for containing assets of archaeological significance, and the potential impacts of the proposed development on archaeology and the existing 'baseline' heritage value of the site and it's setting. The findings of the Assessments are summarised below:

Archaeology

22.6.33 The Desk-Based Assessment found that there is limited evidence of prehistoric or Roman activity in the study area. There is also limited evidence for early medieval and medieval activity. Early historic mapping indicates that the site was probably agricultural (or common) land until the late 18th or early 20th century. The study area for the Desk-Based Assessment found very limited representation of any prehistoric, Roman, early medieval and/or medieval activity and therefore the potential for survival of assets dating to these periods within the site has been assessed as 'low'.

22.6.34 Historic mapping and other documents indicate that the site was formerly parkland around Lea Castle during the early 19th century prior to the conversion of the site to agricultural use. The western part of the site was also formerly used as a grass landing strip. Any archaeological evidence from the post-medieval and modern periods would probably relate to agriculture, parkland and/or the landing strip and therefore is considered as only locally informative and

of low/negligible significance. The proposed development is not considered to pose a significant risk of damage / loss of any non-designated or below ground assets.

22.6.35 In terms of the geophysical assessment, the results suggest that nothing of significance will be found. Therefore, it is clear that the potential for impact on buried archaeology is sufficiently low to allow the application to be determined without the need for any further post determination archaeological work. It is considered that in terms of the requirement for any future archaeological investigation, the imposition of a condition on archaeology is appropriate in planning terms and is supported by the evidence. Following grant of permission, further dialogue will take place on archaeological considerations and appropriate submissions made.

Cultural Heritage

22.6.36 The Assessment has identified no designated monuments within or immediately adjacent to the site. Overall, it is not anticipated that any designated assets recorded in the study area will be significantly affected by the development, although there will be a minor adverse impact of the Grade II listed North Lodges and Gateway to Lea Castle, which is located c. 250m from the site boundary. Restoration of some of the parkland features, including the tree lined avenues and Broom Covert will reduce the long-term impact of mineral extraction to an insignificant level and to a degree which is considered to be policy complaint.

22.6.37 In summary therefore, the proposed development is not considered close to becoming an unacceptable adverse impact on archaeology or cultural heritage receptors.

Impact on Water Resources

22.6.38 BCL Hydro Consultant Hydrogeologists Limited have undertaken a Flood Risk Assessment and Drainage Strategy, and Hydrological and Hydrogeological Impact Assessment (see ES Technical Appendix I) with regard to the proposed development at Lea Castle Farm.

Flood Risk and Drainage Strategy

22.6.39 The Flood Risk Assessment (FRA) has considered the existing drainage of the application site and outlines that as at present, the operational and post-restoration site will be drained by percolation to underlying strata. The Assessment has determined that the only measure necessary to ensure compliance with the requirements of the NPPF is that the provision of a de-minimis volume of attenuation as freeboard with soakaway ponds to ensure that storm run-off from modified substrate will not cause a nuisance to post restoration on-site activities.

22.6.40 Upon implementation of the attenuating soakway ponds, the FRA demonstrates that the proposed development will not be significantly affected by current or future flooding from

any source, and that the proposals will not increase flood risk elsewhere. In terms of EA Flood Risk Zonations, the proposed development is appropriate.

Hydrological and Hydrogeological Impact Assessment

22.6.41 The hydrological and hydrogeological impact assessments have initially assessed the baseline conditions at the application site to form a comprehensive understanding of the extant groundwater and surface water regimes. The Impact Assessment has concluded that the proposed development will not result in primary impacts on water resources (such as derogation of groundwater and surface water levels/flows/quality) and therefore no secondary impacts on water resources (such as volumes/quality of water available to existing or potential abstractions and/or flora/faunal communities).

22.6.42 Measures to reduce the potential for hydrological and/or hydrogeological impact have been designed into the proposed scheme, such as profiling materials during the operational phases of development to shed percolating rainfall via field drains to a number of unlined soakaways. No mineral operations will take place sub-water table or employ any dewatering.

22.6.43 In the proposed site restoration, prior to the backfilling of the voids with inert materials, a suitable liner will be used to minimise the risk of contaminating the underlying SSG aquifer. In addition, all incoming materials will be subject to inspection and segregation prior to landfilling.

22.6.44 The potential impact on water resources of the proposal do not come close to the thresholds of unacceptability.

<u>Lighting</u>

22.6.45 There are no proposals to install permanent lights along any access track within what will become the mineral extraction area because all mobile plant used will have its own lighting

22.6.46 The aggregate processing plant will have safety lighting attached to the plant and equipment to illuminate operational areas and walkways. The aggregate processing plant will only be illuminated when operational (maximum 07:00-19:00). All lighting will be directed downwards (below 70^0) illuminating the operational area only. There will be periphery lighting column at the HGV entrance to the aggregate processing area which will only be illuminated during operational hours (07:00-19:00).

22.6.47 The conveyor will have safety lighting attached to the loading and off-loading points to illuminate operational areas. The safety lighting will be motion sensor therefore will only be illuminated when operational. All lighting will be below 1.5m in height and directed downwards.

22.6.48 Weighbridge and wheelwash will have 3m column lighting. The office buildings will have

external motion sensor safety lights. The car parking area will have 3m column lighting which will be on timer (07:00-19:00).

22.6.49 Prior to the installation of any lighting, the location and details will be agreed in writing with the Mineral Planning Authority.

22.6.50 All lighting will be designed and installed to illuminate the site and operation while reducing nuisance lighting to local residents.

22.6.51 The proposed development does not come close to the thresholds of being an unacceptable adverse impact.

Combining the potential environmental effects

22.6.52 As set out above, each individual area of potential impact is not, on balance, objectionable and none of the impacts of the scheme would come close to the thresholds of acceptability. There is no proposed direct conflict with development plan policy and these individual issues would not come close to being objectionable.

22.6.53 Therefore, because none of the impacts come close to being objectionable or conflict with Development Plan Policy either individually or in combination with one another, the totality of the development would not be objectionable.

22.7 Assessment of Potential Combined Effects

22.7.1 The methodology for determining whether development has a combined adverse environmental effect has been established by Justice Burton as part of the Long Moor Inquiry (reference EWHC Admin 1427 2007). He advised that an assessment of cumulative impact on the basis of simple value judgements with no supporting reasons is inappropriate. As part of that judgement, 4 tests were provided that could be used to ascertain the impact. These are discussed to follow:

22.7.2 Test 1 – Even though each individual area of potential impact was not objectionable yet each such feature was close to objectionability that, although none could be said to be individually objectionable, yet because each was nearly objectionable, the totality was cumulatively objectionable.

22.7.3 In the above section, it has been considered that each individual area of potential impact is not, on balance, objectionable. Although the potential traffic, landscape, visual, noise, dust, lighting and ecological impacts of the scheme would give rise to some negative impacts during the course of the operations, there would be no direct conflict with development plan policy and these individual issues would not come close to being objectionable. Similarly, the

potential impacts on interests related to the water environment and cultural heritage are not considered to come close to being objectionable on an individual basis.

22.7.4 Therefore, overall, none of the individual areas of potential impact is considered to be close to being objectionable. Whilst it is accepted that other individual areas would give rise to varying degrees of negative impact during the course of the permission, they would not come close to being objectionable on an individual basis. It is therefore concluded that, because none of the impacts come close to being objectionable or conflict with Development Plan Policy, the totality would not be objectionable.

22.7.5 Test 2 – One, two, three or four of the particular features were close to being objectionable and that would be an important matter to take into account when looking at the totality.

22.7.6 In this case it is considered that none of the individual areas of potential impact is considered to be close to being objectionable. There is not therefore any combination of particular features that are considered to be important matters that could give rise to objections in regard to test two.

22.7.7 Test 3 – One particular combination of two or three otherwise unobjectionable features could cause objectionability in their totality.

22.7.8 In consideration of this matter there are individual features (impacts) which are related in terms of subject matter or in regard to the receptors in which they have the potential to impact upon and could therefore be considered in combination, namely:

I. Landscape/Visual Impact, Cultural Heritage and Ecological Impact; and

II. Local Amenity impacts such as Noise, Dust, lighting and Traffic.

22.7.9 In relation point one, as discussed above, neither ecology, landscape and visual or cultural heritage effects are considered to be close to being objectionable. Therefore, in combination their totality would not amount to being objectionable.

22.7.10 In relation to the second suggested combination (local amenity impacts), as set out above, it is considered the Noise Impact Assessment has found that with appropriate mitigation measures, the relevant site noise limits set out in Technical Appendix D can be complied with.

22.7.11 In terms of the potential for fugitive dust emissions, the Dust and Air Quality Assessment has found that with appropriate mitigation measures, the impacts of dust and air quality should be acceptable.

22.7.12 With regards lighting, any lighting will be low key to reduce any potential nuisance lighting to local residents.

22.7.13 In terms of traffic, the Transport Assessment does not identify any unacceptable impact on highway safety or assess that the residual cumulative impacts on the road network would be severe.

22.7.14 In light of the above it is concluded that there are no particular combination of two or three otherwise unobjectionable features that could cause objectionability in their totality.

22.7.15 In conclusion, it is considered that the above combination of impacts is not significant enough (due to the imposition of appropriate levels of mitigation) to give rise to objections in regard to test 3.

22.7.16 Test 4 – The fourth test to consider is whether there could be some unusual feature or some unusual combination of features that could, when combined, result in objection when the individual features were not.

22.7.17 In terms of unique features or some unusual combination of features, neither of these elements of test 4 are activated by the Lea Castle Farm site. As discussed above, neither the landscape and visual impacts, cultural heritage impacts or ecological impacts come close to being objectionable.

22.7.18 Furthermore, other potential negative environmental effects are short term and the overall impacts are not considered to be close to the thresholds of unacceptability.

Conclusions

22.7.19 It is considered the approach and methodology to assessing the combined negative effects is thorough and robust. Following an assessment of each of the four tests it has been concluded that no objectionable combined negative effects would be brought about by the proposed development at Lea Castle Farm.

22.8 Assessment of the Combination of Potential Positive Effects

22.8.1 In order to assess the overall cumulative impact of the proposal in a balanced manner it is logical that the potential positive impacts of the scheme are identified and aggregated to indicate a potential cumulative positive effect. This enables them to be weighed, in combination, into an overall judgement of cumulative acceptability or otherwise. The proposal would bring about a number of benefits to the local/regional area and also meet a number of the Government's objectives in relation to mineral supply.

22.8.2 The potential benefits of the scheme can be summarised into four main areas:

- Need for mineral supply;
- Environmental and sustainability benefits as part of restoration; and

- Socio Economic benefits.

Need for mineral supply

22.8.3 As set out in section 5 of the accompanying Planning Statement, the Applicant has shown that it is clear that due to the delay with "specific site" and "preferred area" site allocations, it is important that the County Council supports appropriate planning applications such as the proposed sand and gravel extraction at Lea Castle Farm in order to maintain the landbank and meet anticipated demand.

22.8.4 The sites' appropriateness for mineral extraction has been considered by Worcestershire County Council throughout the production of the Emerging Minerals Local Plan and it is apparent the County Council recognise the appropriateness of sand and gravel extraction at Lea Castle Farm and subject to overcoming any potential environmental or technical considerations, the site can contribute to the future sand and gravel supply in Worcestershire.

Environmental and sustainability benefits as part of restoration

22.8.5 The restoration strategy has been developed with the principles of sustainable development at the forefront of the long-term land uses for the site, which are proposed to include a high proportion of quality green and blue infrastructure.

22.8.6 The proposed after-uses of the site will provide an exemplar role model to help meet government policy on Green Belt, localism and realization of Garden City principles in land use change to meet an evolving range of environmental, social and economic challenges.

22.8.7 Lea Castle Farm forms one element of a wider strategic development north of Kidderminster which includes land from Keepers Cottage to the north of the application site and the former Lea Castle Hospital site to the east, as far south-west as the Staffordshire Canal to the south west.

22.8.8 It is proposed that the specific restoration scheme for Lea Castle Farm is congruous with the adjacent properties at Brown Westhead Park, Wolverley Road, Castle Barns, and the Lea Castle Equestrian Centre. The scheme will provide additional connections both east-west and north-south to allow off-road access for walkers, cyclists and equestrian users. The scheme will also deliver benches along the proposed tree-lined avenue connecting the existing Wolverley Road access to the site to the Lea Castle Equestrian Centre off-site to the north.

22.8.9 The restoration scheme will provide significant landscape, biodiversity and public amenity benefits that will be undertaken in a phased manner to ensure the completion of restoration at the earliest opportunity.

Socio Economic Benefits

22.8.10 Section 16 of this ES contains a socio-economic assessment of the proposal and concludes that the proposal would secure a number of positive economic benefits to the local and regional area. The main socio-economic benefit of the proposal is that it would create employment for 11 jobs for approximately ten years if the scheme is approved.

22.8.11 The economic benefits are considered to have additional positive weight, particularly as it will enable employment to be maintained across a range of industries, many of which depend directly upon quarrying, for business.

22.8.12 In addition to the direct and indirect benefits of the proposal, it will also induce benefits to the local and national economy through a multiplier effect. The overall contribution to the local economy from the site is significant.

22.9 Summary of Cumulative Impacts

22.9.1 In summary the proposals have been assessed against other committed and proposed major developments in the area and there are no cumulative impacts that will arise from the scheme in combination either within itself or with other existing/ proposed developments that would render the proposed quarry extension unacceptable.

23 Conclusion

23.1.1 This ES has been prepared in accordance with the Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2017. It sets out baseline and background environmental information and also sets out the details of the development having regard to the location scale and nature of the proposals.

23.1.2 This ES identifies the likely significant impacts and the relevant national and development plan policies that will be used in the determination of the application. In this regard the proposal is considered to be compliant with the main planning policy tests set out in the development plan and advice set out in national planning policy.

23.1.3 This ES has considered the main potential negative environmental and local amenity effects of the proposal and has concluded that, subject to the imposition of conditions/obligations to secure appropriate mitigation measures, no unacceptably adverse impacts will arise.

23.1.4 Geological investigations have identified the present of a split of sand and gravel and Solid Sand resources beneath the application site. The Applicant proposes to extract these mineral reserves over a 10-year period, with progressive restoration of the site following mineral extraction in each phase of development. The proposed development will provide 11 jobs and will assist in the maintenance of the county's sand and gravel landbank.

23.1.5 The proposals also include for the importation of 600,000 m^3 (60,000 m^3 per annum) of restoration materials to create the final restoration profiles. Restoration materials can be imported by 'back-hauling' methods which minimise traffic movements associated with the proposals. The level of proposed importation of restoration materials would strike an appropriate balance between creating an acceptable landform whilst minimising the amount of material that would need to be imported. Furthermore, it would provide significant landscape, biodiversity and public amenity benefits that will be undertaken in a phased manner to ensure the completion of restoration at the earliest opportunity.

23.1.6 No unacceptable impacts have been identified in relation to residential amenity, air quality and dust, archaeology, designated nature conservation sites, the wider environment, landscape character, soil resources, or the highway network. In terms of main constraints, the assessment work has concluded that the proposal will not adversely affect any nationally or regionally important designations (such as SSSI, SPA, AONB etc.).

23.1.7 Concerns regarding health and wellbeing have been identified through both the specialist Environmental Impact Assessment process and through consultation with local individuals and communities. The main potential concerns highlight traffic, noise, dust, air quality and the potential risk of silicosis from extracting and processing sand and gravel. Specialist consultants have been employed to consider and address the impact of the concerns. The Health Impact Assessment concluded that with standard good practice, mitigation and standard working

practices that significant adverse effects to population health would not occur due to the environmental changes.

23.1.8 In terms of economic considerations, aside from the sand and gravel need (as set out above), the proposed development will help create 11 jobs which will contribute to the local economy through wages, business rates, use of local suppliers, and at a national level; to the economy through aggregates levy and other taxation processes. The development would make a significant contributor to the local economy. It is estimated that this contribution would equate to £750,000 to £1,000,000 per annum based on the applicant's other operations.

23.1.9 All mitigation can be formalised as appropriate through the imposition of planning conditions and other development control mechanisms. The potential environmental and local amenity impacts are therefore considered acceptable and the proposal accords with Development Plan policy.

23.1.10 In overall conclusion, it is considered that the proposals are environmentally acceptable and supports the economic, social and environmental roles of sustainable development required in NPPF. Where adverse impacts do arise they are not significant and appropriate mitigation can be promoted that will be capable of further reducing the effects of any such impact. All mitigation can be formalised as appropriate through the imposition of planning conditions and other development control mechanisms. The potential environmental and local amenity impacts are therefore considered acceptable and the proposal accords with Development Plan policy.

23.1.11 Where proposals conform with the definition of sustainable development in NPPF and comply with Section 38(6) of the Planning and Compulsory Purchase Act 2004 (i.e. that have regard to the development plan) NPPF, paragraph 11 advises that it is national level policy that in decision taking such development proposals should be approved without delay. Accordingly, the findings of this ES suggest that overall, the development will be environmentally acceptable and will accord with the development plan. In line with paragraphs 11 of the NPPF, it is respectfully requested that planning permission be granted.

Appendix 1: Scoping Opinion

worcestershire
county council

TOWN AND COUNTRY PLANNING
(ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2017

SCOPING OPINION

PROPOSED SAND AND GRAVEL QUARRY AND RESTORATION SCHEME FOR LAND AT LEA CASTLE FARM, NEAR WOLVERLEY, WORCESTERSHIRE

Site Area: Approximately 45 hectares

Grid Ref: (E) 384070 (N) 2279015

Contents

Background

1. Worcestershire County Council, as County Planning Authority (CPA), received a request from Kedd Limited on behalf of NRS Aggregates Limited on 30 April 2018 to adopt a scoping opinion for the above proposed development.

2. Prior to submission of this Scoping Opinion Request, the applicant assessed their proposal against Schedule 1 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (from herein on referred to as the EIA Regulations 2017). The screening concluded that the proposal would be subject to Environmental Impact Assessment (EIA) due to exceeding the threshold of 25 hectares for quarries identified in Part 19 of Schedule 1.

3. This scoping opinion request will inform the Environmental Statement (ES) that will accompany the future planning application for the scheme.

Introduction

4. On 30 April 2018, under Regulation 15 (1) of the above EIA Regulations 2017, Kedd Limited on behalf of NRS Aggregates Limited (the Applicant) requested that the CPA prepare a Scoping Opinion for the above proposed development. The applicant's request included a Request for a Scoping Opinion Report with associated drawings. This Scoping Opinion should be read alongside the applicant's request document (see Appendix 1), the consultation responses (see Appendix 2) received from the relevant consultation bodies, and public comments (see Appendix 3).

5. The Scoping Opinion sets out what information the CPA considers should be included in the ES for the proposed development. This Scoping Opinion will allow the developer to be clear about what the CPA considers to be the main effects of the proposed development, and therefore, the topics which the ES should focus on.

6. EIA is not merely the production of the ES, but the totality of the environmental information provided in that statement, including any further information and all consultation responses to it. The ES submitted by the applicant is not itself the EIA, but is a step in an evaluation procedure. An ES comprises a document, or series of documents, which provides certain specified information for the purpose of assessing the likely impact upon the environment of the development proposed to be carried out.

7. In accordance with Regulation 15 (6) of the above EIA Regulations 2017 before adopting a Scoping Opinion the CPA shall take into account:-

- Any information provided by the application about the proposed development;
- The specific characteristics of the particular development;
- The specific characteristics of development of the type concerned; and
- The environmental features likely to be affected by the development.

8. The Scoping exercise should provide a ground plan for subsequent steps by making a preliminary assessment of:-

- The project's potential impacts on component receptors estimated from the project description (including its size, construction requirements, operational features and secondary developments such as access roads) and the nature of components and receptors;
- The impact area/zone within which impacts are likely to be effective, estimated from the impact types and the nature of the surrounding area and environmental components, e.g. impacts on air or water may be effective at considerable distances from the project site;
- Possible mitigation measures;
- The need and potential for monitoring;
- The methods and levels of study needed to obtain reliable baseline information that can be used to evaluate the baseline conditions, make accurate impact predictions and formulate adequate mitigation measures and monitoring procedures.

9. This opinion has been prepared by the CPA with all reasonable skill, care and diligence. It is based on information provided to the CPA by the applicant and the comments and opinions resulting from consultation with the applicant and other consultation bodies prior to adopting this opinion.

10. The opinion is made freely available to members of the public.

11. The fact that the CPA has given this opinion shall not preclude it from subsequently requiring the developer to submit additional information and evidence (in terms of the ES) in connection with any submitted development application to the CPA, in accordance with Regulations 15 (9) and 25 of the EIA Regulations 2017.

Consultation

12. Under Regulation 15(4) of the EIA Regulations 2017, the CPA has a duty to carry out consultation on the Request for a Scoping Opinion Report submitted by the applicant. The following bodies were consulted on the Request for a Scoping Opinion Report. The responses received to the consultation can be found in Appendix 2:-

- Wyre Forest District Council
- Wyre Forest District Council Conservation Officer
- Wyre Forest District Council Countryside Services
- Wolverley and Cookley Parish Council
- British Horse Society
- Councillor Ian Hardiman
- Councillor Rob Adams
- Councillor Paul Denham
- County Public Rights of Way

- County Archaeology
- County Ecology
- County Highways
- County Landscape
- County Minerals and Waste Planning Policy
- County Public Health
- County Sustainability
- The Campaign to Protection Rural England
- Earth Heritage Trust
- Environment Agency
- Natural England
- Forestry Commission
- Garden History Society
- Hereford and Worcester Garden Trust
- Historic England
- Lead Local Flood Authority
- Line Search Before You Dig
- North Worcestershire Water Management
- Open Space Society
- Public Health England
- Ramblers Association
- The Woodland Trust
- Worcestershire Regulatory Services
- Worcestershire Wildlife Trust

13. The ES submitted by the applicant should demonstrate consideration of the points raised by the consultation bodies. It is recommended that a table is provided in the ES summarising the scoping responses from the consultation bodies and members of the public and how they are, or are not, addressed in the ES.

The Proposal

14. The proposed development is for a sand and gravel quarry together with its progressive restoration on land at Lea Castle Farm, near Wolverley, Worcestershire.

15. The proposal would involve mineral extraction across an area measuring approximately 30 hectares.

16. The applicant states that investigation of the site for potential mineral resource in 2015 identified a reserve area of approximately 3 million tonnes of sand and gravel. The applicant states that the EIA will assess a proposed potential output of approximately 300,000 tonnes per annum, which they state could provide ten years of supply.

17. The applicant states that the works would be phased to minimise areas of disturbed ground at any one point in time.

18. In terms of the proposed phasing, the applicant states that the following would occur:

- Phase 1 soils would be stripped and stored to place a temporary screen bund on the western boundary of the site. The soils and overburden from Phase 1 would facilitate a programme of progressive mineral extraction through phases 1, 2, 3, and final extraction of the plant site area.

- 'As dug' material would be conveyed to the plant site via dump truck for processing with the sequential restoration of disturbed land combining both imported inert restoration material to create restoration formation levels on to which indigenous site soils would be placed.

- Approximately 60,000 m^3 per annum of imported inert material would be used for the restoration scheme.

- The applicant states that detailed phasing work and restoration schemes would be submitted as part of any planning application together with detailed volumetrics associated with soil and overburden stripping movement and placement.

19. Access to the site is proposed directly off the B4189 Wolverley Road in the south eastern area of the site. The applicant states that this route would provide direct access to the A449 and on to Kidderminster and Stourbridge.

20. The applicant states that the restoration strategy for the site would be for the land to return to agricultural use, together with enhanced landscape planting and potential biodiversity gains. A section of Public Right Of Way (no. WC-624) would require temporary diversion for approximately 2 weeks, and would be restored back on its original alignment.

Site

21. The site is located approximately 2.3 kilometres to the north of the centre of Kidderminster, 0.7 kilometres to the east of Wolverley, and 0.37 kilometres to the south west of Cookley.

22. The site is located immediately to the north of the B4189 Wolverley Road and immediately to the west of the A449 Wolverhampton Road.

23. The site measures approximately 45 hectares in area and is mainly comprised of agricultural land within the historic parkland setting of Lea Castle, which was built around 1762 and demolished in 1945.

24. The site is bounded to the south west, west, and north west by woodland. The irregularly shaped northern boundary is mainly comprised of agricultural fields interspersed with farm buildings and residential properties. The eastern boundary is comprised of the A449, beyond which lie agricultural fields. The southern boundary is comprised of a wall adjacent to the B4189, individual areas of vegetation and trees, and residential properties.

25. The site is located within the vicinity of several residential and commercial properties. The nearest properties include South Lodge and Broom Lodge on the southern boundary, Castle Barns and Lea Castle Equestrian Centre on the northern boundary, and residential properties at Brown Westhead Park on the western boundary.

26. The site is located wholly within the Green Belt.

27. A Public Right Of Way (no. WC-624) runs across the western section of the site. Bridleway no. WC-626 runs on a north-south alignment from the southern boundary to the centre of the site, and then to the north eastern corner of the site along existing tracks.

28. There are a number of Listed Buildings within the vicinity of the site. The Grade II Listed North Lodges and Gateway of Lea Castle lies approximately 275 metres to the north east of the site. The Grade II Listed Sion Hill House lies approximately 260 metres to the south west of the site. The Grade II Listed Wolverley Court is located approximately 545 metres to the west of the site. The majority of the site is located within the Sionhill House Bartholomew Park and Garden.

29. The Staffs and Worcs Canal Conservation Area is located approximately 625 metres to the west of the site. The Wolverley Conservation Area is located approximately 700 metres to the west of the site.

30. A number of Sites of Special Scientific Interest (SSSIs) are located within the vicinity of the site:

- Stourvale Marsh SSSI is located approximately 930 metres to the south of the site
- Puxton Marshes SSSI is located approximately 1080 metres to the south of the site
- Hurcott Pasture SSSI is located approximately 665 metres to the south east of the site
- Hurcott and Podmore pools SSSI is located approximately 660 metres to the south of the site

31. A number of Local Wildlife Sites (LWSs) are located within the vicinity of the site:

- The River Stour LWS is located approximately 520 metres to the west of the site
- The Gloucester Coppice LWS is located approximately 330 metres to the north west of the site
- The Staffs and Worcs Canal LWS is located approximately 450 metres to the west of the site
- The Wolverley Marsh LWS is located approximately 680 metres to the west of the site
- The Wolverley Court Lock Carr LWS is located approximately 610 metres to the south west of the site
- The Puxton Marsh LWS is located approximately 800 metres to the south west of the site
- The Hurcott and Podmore Pools (Pastures) LWS is located approximately 670 metres to the south of the site

- The Island Pool LWS is located approximately 1.3 kilometres to the north east of the site
- The Caunsall Marsh LWS is located approximately 1.4 kilometres to the north east of the site

32. Gloucester Coppice Ancient Semi Natural Woodland is located approximately 310 metres to the north west of the site.

33. There are 30 trees with Tree Preservation Orders (TPOs) located across the site.

34. The south eastern corner of the site is located in Source Protection Zone 3.

35. The site is categorised as Best and Most Versatile Agricultural Land.

36. The site is located in Flood Zone 1 (a low risk zone).

Environmental Statement Structure

37. The CPA directs the applicant to Schedule 4 of the EIA Regulations 2017, which requires information for inclusion in ES's. This shall include a description of the reasonable alternatives studied which are relevant to the proposed project and its specific characteristics (for example in terms of the development design, technology, location, size and scale), and an indication of main reasons for selecting the chosen option, including a comparison of the environmental effects; the data necessary to identify and assess its main environmental effects. There must also be a non-technical summary of the information, and the statement may contain other specified matters by way of explanation or amplification.

38. Regulation 18(5) requires the applicant to ensure that the ES is prepared by competent experts, and that the ES must be accompanied by a statement from the applicant outlining the relevant expertise or qualifications of such experts. The CPA considers that this statement should be appended to the applicant's ES and detail all experts involved in its preparation, together with their relevant expertise or qualifications.

39. In determining and establishing the significance of any impact within the ES, transparent methodologies based on defined, up-to-date and recognised standards, legislation, policy and expert opinion should be utilised. The methodologies for surveys and studies required to inform the ES should be agreed with the relevant consultees. The ES should be explicit and specifically include reference to:-

- The methodologies utilised;
- Assumptions and underlying rationale;
- Fact, interpretation of facts, opinions, judgements based on facts;
- Characteristics and dimensions of the impacts, i.e. nature, magnitude, extent, timing, duration, reversibility, likelihood and significance; and

- Confidence limits associated with predictions, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.

40. The ES will need to establish accurate baseline information and provide analysis of the impacts for the lifecycle of the project. The CPA considers that it is essential that the whole lifecycle of the development is assessed by the EIA - pre-construction, construction, operation and decommissioning where relevant (if a finite life cycle is envisaged). The environmental baseline should be established through consultation by the applicant with the relevant consultees.

41. The ES should describe 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). Mitigation measures should not be developed in isolation as they may relate to more than one topic area. The effectiveness of mitigation should be apparent. Only mitigation measures which are a firm commitment should be taken into account as part of the assessment. For each topic the ES should also set out impact and mitigation monitoring measures proposed to be undertaken.

42. The CPA considers that the following should be covered in individual sections within the ES:-

- Population and Human Health
- Noise, Vibration, Dust and Lighting
- Transport Movement and Access
- Ecology and Biodiversity
- Soil Resource and Agricultural Land Classification
- Water Environment
- Air Quality
- Cultural Heritage and Archaeology
- Landscape and Visual Impact
- Climate
- Cumulative Effects

Population and Human Health

43. The CPA considers that population and human health should be included in the ES. The CPA agrees that a recreational users assessment should be included in the ES and contained within this section. The following comments should be taken into account and addressed in the ES:

County Public Health Officer

44. They comment that they recommend an initial Health Impact Assessment screening on the proposed development, and that the applicant should consider carrying out a consultation exercise with local residents using a model or map of the application site identifying which measures the applicant will put in place to protect the health and amenities of local residents.

45. They comment that Brown Westhead Park and Playing fields are located around 100 metres to the west of the site and that a caravan and camping site is near to these playing fields. Consideration should be given to loss of public rights of way, access, recreation and open space.

46. They comment that the developer should detail what provision is in place for mitigating the health effects on people who use the playing areas and public rights of way, potentially creating new playing fields in alternative locations.

47. They comment that there are a number of residential properties in general proximity to the site and that these may be adversely affected by site traffic, noise and dust, as well as potential run-off from dangerous substances extracted on site.

48. They comment that consideration should be given to mental health issues, such as stress and anxiety which may affect those in the vicinity of the site, or those who are losing accessibility to green spaces for recreation.

49. They comment that the site borders a housing estate at Sion Hill, Broadwater, and housing at Cookley and Wolverley. There are two primary schools and a nursery near to the site (St. Oswalds C of E Primary and Heathfield Knoll, and First Steps Nursery). Care homes are also in the vicinity. Consideration should be given to the health impact on those who are vulnerable including young children, elderly people, and those with pre-existing health conditions (especially respiratory). Consideration should also be given to safe routes (including walking) to schools which may be affected by extra site traffic.

50. They comment that mineral extraction can have an impact on health due to various chemicals used in the mining process, and potentially damaging compounds and metals removed from the ground. The developer should consider the health impacts on those directly employed in the minerals industry and the subsequent effects that may be felt more widely, for example by family and friends (not limited to health).

51. They comment that plans to restore the site can be long term depending on the amount of minerals removed from the site, but this will not mitigate the immediate effects on residents or employees.

Public Healthy England (PHE)

52. They comment that the applicant should provide sufficient information to allow the potential impact of the development on public health to be fully assessed. They consider the ES should contain a dedicated section addressing Health.

53. They comment that the summation of other matters relating to Health (air quality, emissions to water, waste, contaminated land etc.) into a specific section the ES provides a focus to ensure public health is given adequate consideration.

54. Key information should be summarised including risk assessments, proposed mitigation measures, conclusions and residual impacts relating to human health. Compliance with the requirements of National Policy Statements and relevant guidance and standards should also be highlighted.

55. They attached an appendix to their response which outlines generic areas that should be addressed in the EIA, which is located in Appendix 2 of this Opinion. Any assessments undertaken should be proportionate to the potential impacts of the proposal. In cases where the applicant decides a particular assessment is not required, or where a qualitative rather than quantitative methodology is required, a rationale should be provided to fully explain and justify this decision in the ES.

56. They comment that they are happy to assist the applicant should they wish to discuss their proposals in view of their advice.

Wyre Forest District Council

57. They comment that the effects and benefits regarding recreation should be assessed in the ES.

58. They comment that a Health Impact Assessment (HIA) is required and that any assessments should take into account the District Council's plans for growth as part of their Local Plan Review.

Wolverley and Cookley Parish Council

59. They comment that there are five local schools near the proposed site. Children walk along the path adjacent to the wall on Wolverley Road and will be affected by noise, air quality and safety aspect.

60. They comment that children from Heathfield School opposite the site will be affected by noise and air pollution whilst playing.

61. They comment that Wolverley and Cookley have many local businesses that will be affected. The Caravan Park could be affected by noise, dust and air pollution and reduced visitor numbers due to its proximity. They comment that the Brown Westhead football pitches would be affected in a similar manner.

62. They comment that the Lea Castle Equestrian Centre, at the heart of the development would be most impacted.

Noise, Vibration, Dust and Lighting

63. The CPA agrees with the applicant that noise and dust should be included in the ES. In addition, the CPA considers vibration and lighting should be addressed in this chapter. The following comments should be taken into account and addressed in the ES:

County Public Health Officer

64. They comment that noise and vibration could be generated by drilling and blasting operations, from excavation activities, loading and unloading of rock, crushing and conveying operations. Vehicle movements may reach levels that are hazardous to health.

65. They comment that noise pollution can have a direct impact on the local population and is likely to be a significant area of concern. This carries direct and indirect potential negative health impacts.

Wyre Forest District Council

66. They comment that consideration needs to be taken of existing properties, approved properties and future expansion as part of the Council's Local Plan Review, particularly around the Lea Castle Hospital Site.

Wolverley and Cookley Parish Council

67. They comment that they have serious concerns over the level of noise that will result from JCB diggers, dump trucks, crushing, sorting, lorry loading/unloading and machinery inside the site. They are also concerned at noise from trucks entering and exiting the site.

68. They comment that noise disturbance will be considerable and it will need to be known if noise levels will be acceptable, and whether they affect properties close to the proposed development. They comment that an independent report should be undertaken on noise.

Worcestershire Regulatory Services – Noise, Vibration, Dust and Lighting

69. They comment that the scoping document appears to adequately address potential Dust and Noise issues and agree that the ES should include impact assessments for both. They also comment that section 7.2 of the scoping document mentions vibration and lighting. They consider these issues should also be addressed in the ES.

The Campaign to Protect Rural England

70. They comment that the site comes very close to the back of houses in Brown-Westhead Park, Wolverley. The residents ought to be protected from the noise inherent in mineral extraction.

Transport Movement and Access

71. The CPA agrees that transport and highways should be included in the ES. The following comments should be taken into account and addressed in the ES:

County Public Health Officer

72. They comment that the local highway network will experience additional traffic movements affecting the flow of traffic and air quality. They request the applicant takes measures to limit the effects on the local transport network from extra traffic.

Wyre Forest District Council

73. They comment that they agree a Transport Assessment is required. The new access point will also need to be considered from a cultural heritage perspective and addressed in the EIA.

Wolverley and Cookley Parish Council

74. They comment that the application would result in heavy traffic on the B4189 Wolverley Road. The proposed site access off the B4189 into the site is on the brow of a hill in an unrestricted area and would be dangerous.

75. They comment that the number and types of vehicles or equipment should be detailed.

76. They comment that the proposal for Footpath no. 624b running through Phases 1 and 2 of the site should be set out.

The British Horse Society

77. They comment that as part of the restoration scheme, bridleway access provision should be created around the periphery of the site to provide much needed safe off road access for horse riders. This would link into the existing bridleway providing riders with a choice of rides.

County Footpaths Officer

78. They comment that the application appears to affects PROW nos. WC-622 and WC-624, and Bridleway nos. WC-625 and WC-626. They enclose a map for the applicant's information.

79. They comment that there appear to be minor discrepancies between the plans submitted by the applicant and the definitive lines of the footpaths. The most significant is the missing link section between PROWs WC-624 and WC-623. The applicant should contact the County Footpaths Officer for a full PROW search.

80. They comment that vehicular access to, and within, the site, appears to be in part via the PROWs. Under Section 34 of the Road Traffic Act 1988, any person who, without lawful authority drives a motor vehicle on a footpath / bridleway / restricted byway commits an offence. The applicant should make themselves satisfied that they, and anyone else who may use the public rights of way for private vehicular access in connection with the development, has a right to do so. They may wish to seek legal advice on the matter.

81. They comment that the County Council is responsible for maintaining the rights of way to a standard suitable for their public use as a footpath, not for maintaining a surface to be suitable for private vehicular use.

82. They comment that any application should include:

- Identification of all public rights of way on their definitive lines and how these will be protected and enhanced during the works and on restoration.

- details of any diversion temporary or permanent required.

- detail of how footpath WC-624 will be retained following the installation of screening bunds.

- details of how public safety along the any public rights of way retained on their line during the quarrying works will be ensured.

83. They comment that the applicant should also be aware of the following obligations towards PROWs:

- No disturbance of, or change to, the surface of the paths or part thereof should be carried out without our written consent.
- No diminution in the width of the rights of way available for use by the public.
- Buildings materials must not be stored on the rights of way.
- Vehicle movements and parking to be arranged so as not to unreasonably interfere with the public's use of the rights of way.
- No additional barriers are placed across the rights of way. No stile, gate, fence or other structure should be created on, or across, a public right of way without written consent of the Highway Authority.
- The safety of the public using the rights of way is to be ensured at all times.
- If the development cannot be carried out without temporarily closing the public rights of way for the safety of the public during construction, application should be made at least 6 weeks in advance to the Mapping Team of the Countryside Service at Worcestershire County Council.

84. They comment that the applicant should note that all PROWs crossing or adjoining the proposed development site must be marked on the plan to be submitted with the planning application. They should make clear how the potential development will impinge on PROWs.

85. They comment that the applicant should note Policy RST3 of the Worcestershire County Structure Plan, which aims to ensure development does not reduce the utility, convenience, recreational value, attractiveness, and historic significance of PROWs.

86. They comment that the applicant should also be aware of the Department of Environment Circular 1/09 (part 7) which explains that the effect of development on a PROW is a material consideration in the determination of applications for planning permission. The grant of planning consent does not entitle developers to obstruct a PROW.

87. They comment that the Definitive Map is a minimum record of PROWs and does not preclude the possibility that unrecorded PROWs may exist, nor that higher rights may exist than those shown.

County Highways Officer

88. They comment that the Highways Authority has no opinion on whether the development constitutes EIA or not. They note that the applicant has identified that a Transport Assessment (TA) will be needed. They agree with this approach.

89. They comment that the applicant should agree the scope of the TA with the County Highways Authority well in advance of the application being submitted to ensure a suitable evidence base is provided to justify the proposal.

The Campaign to Protect Rural England

90. They comment that there are public footpaths running across or near the site, whose setting will be impacted by such a development.

The Ramblers Association

91. They comment that they wish to see an analysis of how the PROWs will be affected. They request knowing whether the method of working will require the closure of Bridleways WC-625 and WC-626, and Footpath WC-624. If closures are thought to be necessary, they request temporary diversions.

92. They request information on the impact of lost riding routes on local horse riders and nearby riding establishments. They question whether restorations can be utilised as an opportunity to enhance walking and riding in the area.

Ecology and Biodiversity

93. The CPA agrees that biodiversity should be included in the ES. The following comments should be taken into account and addressed in the ES:

Wolverley and Cookley Parish Council

94. They comment that the proposal covers a biodiverse area where many animals and fungi are likely to be affected. A full investigation will be required. The site also contains a number of trees which need to be protected.

95. They comment that the site is described as 'acid sand' which provides a unique habitat for various flora and fauna which would be lost forever.

County Ecologist

96. They concur that the proposal constitutes an EIA scheme. They welcome detailed consideration of Ecology as part of the ES.

97. They comment that they support the proposal to undertake an Ecological Impact Assessment (EcIA) in line with current CIEEM guidance (Guidelines for Ecological Impact Assessment in the UK and Ireland, 2nd Ed, January 2016). They advise that practice and reporting should be compliant with BS42020:2013 (Biodiversity: Code of Practice for Planning and Development).

98. They request that the application documents consider locally important sites in accordance with Worcestershire County Council's Planning Validation Document, including the Staffordshire and Worcestershire Canal and River Stour Local Wildlife Sites and Grassland Inventory sites including Cookley Rough.

99. They note the proximity of the site to the Wyre Forest Biodiversity Delivery Area. They request the application and detailed restoration strategy draw appropriate reference to the Worcestershire Biodiversity Action Plan (BAP) and Biodiversity Delivery Area priorities. They comment that it is widely recognised that mineral

extraction poses significant opportunities to contribute towards BAP objectives. The CPA expects these objectives to be reflected in a meaningful way within the final restoration strategy. They comment that it is their preference that priority habitats to be created are established within manageable blocks as these will be more sustainable to manage long-term economically. Ribbon grassland will likely have greater maintenance costs with low ecological value unless designed specifically as an ecologically connective feature.

100. In terms of baseline information, they direct the applicant to Worcestershire County Council's Worcestershire Habitat Inventory website, particularly with reference to the spatial extent and distribution of priority habitat networks and the opportunities which mineral site restoration strategies can realise in order to contribute towards their coherence and resilience.

101. They direct the applicant to the Green Infrastructure Requirements in the Emerging Minerals Local Plan and the Worcestershire Green Infrastructure (GI) Framework document 1. In particular, the Hagley Hinterland Environmental Character Area where the GI objectives are to 'restore environmental quality', specifically Wyre Forest's acidic grassland and woodland habitats. They direct the applicant to the Technical Research Paper: Biodiversity and Mineral Sites in Worcestershire, Guidance for the Sustainable Management of Biodiversity Action Plan Habitats at Worcestershire Mineral Sites, specifically Appendix 2 'Habitat Creation Toolbox' for creation and maintenance of habitats.

102. They recommend a Green Infrastructure Concept Plan is prepared for the site and submitted in support of the application to provide sufficiently detailed treatment demonstrating cohesion between, and long term positive management, of GI assets within each of the GI themes.

103. They request an assessment of alternatives, including the 'no project' option is provided within the ES.

104. They request a strategy to evaluate the viability and effectiveness of primary, secondary and tertiary mitigation measures for any forecast likely significant environmental effects. An environmental mitigation measure monitoring and reporting framework should be articulated within the ES. This framework should address frequency, duration, methodology, roles, reporting and intervention triggers, and contingencies in the event mitigation measures do not achieve set thresholds of success over a reasonable aftercare period.

Natural England

105. They comment that they agree with the list of themes requiring assessment as described at section 5.5 of the Scoping Report. They attach Natural England's further detailed advice on the scope of the EIA for this development at Annex A to their letter, located in Appendix 2 of this Opinion.

The Environment Agency (EA)

106. They comment that the site is of limited sensitivity regarding biodiversity and habitats. However, the opportunity for innovative restoration schemes should not be ignored. The site provides opportunity to provide exemplar Green and Blue infrastructure post extraction and provides net habitat betterment contributing

towards greater landscape connectivity. This could include permanent and ephemeral wetland habitats to provide wider connectivity with Stourvale and Puxton Marshes and Hurcot and Podmore Pools. They welcome further discussion with the CPA and applicant about this.

Worcestershire Wildlife Trust

107. They comment that they note the site falls within open agricultural countryside and that it contains some semi-natural habitats that may be of value (both in their own right and in terms of species they may hold). They are pleased to see ecology is included in the list of issues to be considered in the EIA.
108. They recommend the ES considers a broader ecological envelope than just the red line boundary given the proximity of nearby high-value ecological receptors. They comment that commentary on likely offsite impacts on the Local Wildlife Site watercourses, nearby woodlands and species will be important.

109. They comment that specific issues that appear likely to be relevant within the site include direct habitat loss (hedges, trees, potentially grassland), hydrological impacts resulting from void creation and impacts on species (badgers, bats, birds, dormice and possibly reptiles and amphibians) that may be utilising habitats on or adjacent to the working areas.

110. They comment that a site wide Preliminary Ecological Appraisal, supported by a background data search from the Worcestershire Biological Records Centre, should inform specialist surveys in line with guidance in BS42020:2013 Biodiversity – Code of practice for planning and development and the relevant methodologies. The potential for ecological impacts arising from noise, vibration, dust and light pollution should be considered along with direct habitat loss or changes resulting from landform alterations (slope and aspect changes etc.) and drainage implications. They comment that if these matters are fully considered in the ES, the CPA should be in receipt of sufficient ecological information to be able to determine the application in line with the relevant law and guidance.

111. They comment that in view of the comments set out above, they expect any permission that the CPA may be minded to grant to include conditions covering a Construction and Environment Management Plan (CEMP) and Landscape Environment Management Plan (LEMP). These will depend on the outcome of surveys.

Wyre Forest District Council's Countryside Manager

112. They comment that the site is in proximity to SSSIs and other wildlife sites. The SSSIs have complex and dependent hydrology that might be impacted upon by mining. At least one SSSI is dependent on low nutrient conditions that could be negatively impacted by particulate deposition that an open cast mining operation could create.

113. They comment that Dormice are known to be in proximity to this location and the mining operation could impact on the available habitat and dispersal routes of this protected species. Bat species with low levels of light tolerance are known to exist in the area. The lighting of the mineral working may have some potential impact on forage and distribution of the species.

Soil Resource and Agricultural Land Classification

114. The CPA agrees that soil resource and agricultural land should be included in the ES. The following comments should be taken into account and addressed in the ES:

Wyre Forest District Council

115. They comment that they agree an Agricultural Land Appraisal is required.

Wolverley and Cookley Parish Council

116. They comment that there is no detail on what type of material would be imported with reference to item 4.2 of the scoping request report (60,000m^3 per year), and how this will affect the environment.

Water Environment

117. The CPA agrees that hydrogeological and hydro geographic water matters should be included in the ES. The following comments should be taken into account and addressed in the ES:

The Environment Agency (EA)

118. They comment that the site is located on a Principal Aquifer of the Wildmoor Sandstone Formation within the Source Protection Zone 3 of the Cookley Water Supply. The hydrogeological setting at this location is sensitive and will need careful assessment in any resultant ES. Quarrying physically removes the aquifer and usable groundwater resources within aquifers, which can lead to severe impacts on the water environment as groundwater flows can alter. Particularly if watercourses derive base flows from the same source of groundwater, or wetlands rely on this water for their existence.

119. They comment that the natural baseline conditions can change significantly from quarrying activities. Assessments will be needed and mitigation where appropriate to reduce any risks to the water environment to a minimum. They have concerns where quarries are worked sub-water table to enable sand and gravel extraction. Dewatering by pumping can lower the water table and impact surrounding water features, such as watercourses, ponds, springs and wetlands which rely on the same groundwater source.

120. They comment that there are several watercourses in the area which may derive baseflows from groundwater in these deposits. These should be considered as part of any ongoing appraisal. A Water Features Survey (WFS) should identify those sources on the ground within a designated radius of the proposed site which could be at risk.

121. They recommend a Hydrogeological Impact Assessment (HIA) should be undertaken. All aspects of the water environment should be considered. Thus should include a WFS and quantitative assessment of potential impacts to the water environment from the proposal.

122. They consider the quantitative assessment through the HIA should be a priority within the EIA. The HIA is required to assess the full potential of any quantitative impacts on the water environment which could take place from the activity of quarrying, notably from any dewatering activity in voids. They recommend an appropriately qualified hydrogeological consultant undertakes the HIA work.

123. They suggest the HIA should assess 4 points, which can be found on page 2 of their response contained within Appendix 2 of this Opinion.

124. Regarding Groundwater Quality Protection, they comment that certain activities taking place within and around a quarry environment can give rise to water quality pollution issues. These include:

- The potential for fuels to contaminate local groundwater supplies if not stored and used correctly. Vehicle accidents are a common cause for oil and fuel release into the environment. Management strategies should be put in place to manage such events.

- The potential for onsite sewerage facilities to pollute water if harmful effluents are discharged into the environment without an appropriate discharge consent permit.

- The potential for gravel workings to affect groundwater quality in the surrounding aquifer, creating turbidity in the water. The EA would like to know if the mineral product is to be washed on site (using groundwater), and where this water would be discharged to. Further detail should be provided as to where and how this water will be treated and discharged.

- The potential for the deterioration in the ecological value or physico-chemical quality of any watercourse as a result of the development. The EA require the operator to demonstrate that this will not occur.

125. They comment that regarding Landfill locations, the EA will normally object to any proposed landfill in groundwater SPZ1 in Statement E1 of their response. For all other proposed landfill site locations, a risk assessment must be conducted based on the nature and quantity of waste and the natural setting and properties of the location. Where the risk assessment demonstrates that active long-term site management is essential to prevent long-term groundwater pollution, the EA will object to the following sites:

- Those below the water table in any strata where the groundwater provides an important contribution to river flow, or other sensitive receptors.
- Those within SPZ2 or 3, or in a principal aquifer.

126. They comment that the EIA should assess opportunities to deliver Water Framework Directive (WFD) objectives. A WFD screening should be carried out to inform the EIA. The development should seek opportunities to help maintain and improve WFD status. No development should be permitted if it will result in the deterioration in the quality of the water-bodies.

127. They expect that where existing watercourse channels within and near to the development site have been straightened, culverted and/or deepened by previous land use (primarily to aid agricultural activities), the watercourse should be naturalised and 'opened up' as part of the development.

128. They comment that WFD Waterbody information for this catchment is available from their area 'Customers and Engagement' team at Enquiries_Westmids@environment-agency.gov.uk and their Catchment Data Explorer tool at: http://environment.data.gov.uk/catchment-planning/OperationalCatchment/3456

129. They comment that local level actions and decision making can help secure improvements to the water environment. This is known as the 'catchment-based approach' and has been adopted to deliver requirements under the WFD.

130. They comment that the site falls within Worcestershire Middle Severn sandstone groundwater body. Specifically, groundwater body reference GB40901G300800. This currently has 'Poor Overall Status' with an ambition to reach 'Good' by 2027. The proposal should seek opportunities to provide betterment and highlight the importance of assessing WFD in the ES.

131. Regarding Flood Risk, they comment that the site is located in Flood Zone 1 (low risk zone) and would not intend making bespoke comment on the flood risks to and from the development. They recommend early liaison with the Lead Local Flood Authority to discuss surface water management of the site during and post extraction. They highlight that climate change allowances were updated recently and have attached an area climate change allowance guide for the applicant's information. They advocate exploring opportunities to provide net flood risk betterment.

132. They welcome the opportunity to discuss the site at an early stage. The issues are complex and the scope for betterment post extraction vast. Early collaborative discussions would be beneficial.

North Worcestershire Water Management (NWWM)

133. They comment that the site is located within the catchments of the Stour and the Blakedown Brook, which is a tributary of the Stour. The site does not contain many natural or manmade surface water drainage features suggesting the area is predominantly drained via infiltration. Infiltrated water slowly recharges the wetland SSSIs present in the valleys to the west (Stour: Puxton and Stourvale Marsh) and to the east (Blakedown Brook: Hurcott and Podmore Pools).

134. They comment that the scoping report states the development lies 30-40 metres above the local ground water table and that presumably no or only limited dewatering will be required.

135. They request that the Hydrological, Hydrogeological and Flood Risk Assessments should cover the following as a minimum:

- Hydrology and Hydrogeology of the site and the interaction with the surrounding areas (including the water dependent SSSIs)

- Flood risk on the site and the effects of the development on flood risk off site.

- Effects of the proposal during the operational phase (including dewatering) and following restoration (the effect of imported inert materials)

- Methods to safeguard ground and surface water.

136. They request the application will be accompanied by a surface water drainage strategy (standalone or incorporated into the Hydrological, Hydrogeological and Flood Risk Assessment. This should set out how surface water will be dealt with during the operational phase and following restoration. They comment that they would seek compliance with the non-statutory technical standards for Sustainable Drainage Systems (SuDS) – Defra 2015.

Air Quality

137. The CPA agrees that air quality should be included in the ES. The following comments should be taken into account and addressed in the ES:

Wyre Forest District Council

138. They comment that advice from Worcestershire Regulatory Services should be taken regarding air quality.

Wolverley and Cookley Parish Council

139. They comment that the inert material used to infill could dramatically affect the local air quality.

140. They comment that the dust generated and the nature of the particulates will represent a risk to local air quality, particularly to lungs.

141. They comment that the NPPF is clear that a planning authority must ensure there are no unacceptable adverse impacts on human health. Assurance on this will need to be provided.

Worcestershire Regulatory Services – Air Quality

142. They comment that the Scoping document appears to adequately address potential Air Quality and Climate issues. They agree that the ES should include impact assessments for both.

Cultural Heritage and Archaeology

143. The CPA agrees that cultural heritage and archaeology should be included in the ES.

144. The following comments should be taken into account and addressed in the ES:

County Archaeologist

145. They comment that there are no known or recorded heritage assets or archaeological interest within the application area, with the exception of a World War II grass landing strip. The presence of unrecorded, as yet unknown, below-ground heritage assets (archaeological remains) cannot be discounted. Stray finds of archaeological material including a silver denarius of Vitellius (AD-69-69) have been made in the application area.

146. They comment that on this basis, the EIA needs to fully investigate and understand these impacts. A heritage statement should be produced describing the significance of any heritage assets affected by the proposal, including any contribution made by their setting. The level of detail should be proportionate to the importance of the asset and no more than is sufficient to understand the potential impact of the proposal on their significance.

147. The heritage statement should include an assessment of the impact of the development on the setting of any designated heritage assets in the vicinity of the application area including, but not limited to the following assets:

- Grade II listed Sion Hill Court (NHLE 1100640) to the south
- Grade II Listed North Lodges (NHLE 1296589) to the northeast.

148. The heritage statement should also incorporate the results of a geophysical survey and field evaluation (trial trenching at 4% of the application area), which will provide information on the presence or absence, extent, date and local, regional or national significance of any archaeological remains, including palaeoenvironmental deposits.

149. They comment that in the event of planning permission being granted, in accordance with Paragraph 141 of the NPPF, where archaeological remains are found to be present within the application site that cannot be proposed in-situ then further archaeological works would be required to mitigate the impact of the development on the threatened remains. These works should be secured by a suitably worded condition.

150. They also comment that any archaeological investigations should comply with specifications agreed in advance with Worcestershire Archive and Archaeology Service and conform to the Chartered Institute for Archaeology's Standard and Guidance.

Wyre Forest District Council

151. They comment that the comments of the Conservation Officer should be noted and that there is some discrepancy between the scoping report and the Conservation Officer's response. The Conservation Officer's comments are located in Appendix 2 of this Opinion.

152. The Conservation Officer identifies impacts that will occur to the significance of assets as a result of the proposal and identifies mitigation measures. They also comment that a desk based archaeological assessment to identify above ground and potential below ground archaeology will be required. An archaeological assessment should accompany or be incorporated into a Heritage Statement submitted with the planning application.

153. They comment that a full Heritage Impact Assessment should be undertaken along with an Archaeological Assessment. The Archaeological Assessment should be scoped with the County Archaeologist, which may include Geophysical, as well as intrusive investigations.

Wolverley and Cookley Parish Council

154. They comment that the proposed access would break through a historical 19th Century wall. This is a local landmark and will be greatly affected by the proposal. Quarrying works could damage the structural integrity of this wall.

The Wolverley and Cookley Historical Society

155. They comment that the proposal would create such a change in the landscape that it would not be recognised as the historic site it is.

156. They comment that the neo-gothic castle was built by the Knights and surrounded by parkland. The grounds could have been in picturesque taste according to *Survey of Parks and Gardens: Lockett 1997*. The area defined as 'former parkland' is included in part of phases 2 and 3 on the proposal plan.

157. They comment that there remains a C19th wall that defines the boundary of the mansion house demolished in 1945. The wall has served as a focus for community races with lodges serving as entrances at the end of long straight driveways at the northern and southern gates. They feel that these structures help to characterise the heritage of the two villages and should be viewed in context with the whole parkland. They comment that a drop in ground level during and post extraction could lead to destabilising a long stretch of the wall.

158. They note the intention to break through the wall to create the site access which would destroy a considerable length of the historic C19th wall.

159. They comment that there are well used public footpaths along the driveways and between the areas marked phase 1 and 2. They are shown as early on the tithe map of 1837. Medieval documents refer to a settlement at The Lea, which was undoubtedly in the area of Lea Castle.

Historic England

160. They comment that the quarry could have an impact on several designated heritage assets and their settings in the area around the site. They expect the ES to contain an assessment identifying heritage assets which could be affected, the elements contributing to their significance (including setting), likely impacts of the development on the elements, and any resulting benefit, loss or harm to their significance. The assessment should consider the impact from quarrying activities and any restoration works, including works introducing a different land use, management, or landscape than the existing.

161. They comment that the assets include, but aren't limited to, the Wolverley and Staffordshire Canal Conservation Areas to the west and northwest of the site, as well as several Grade II Listed Buildings.

162. They comment that the assessment should give full consideration to the potential impact associated activities (construction, maintenance, traffic, noise,

light) might have on perceptions, understanding and appreciation of the heritage assets in the area. The assessment should consider, where appropriate, the likelihood of alterations to drainage patterns that might lead to in situ decomposition or destruction of below ground archaeological remains and deposits, and can also lead to subsidence of buildings and monuments.

163. They expect the ES to consider the potential impacts on non-designated features of historic, architectural, archaeological and artistic interest. They request any archaeological assessment should consider the potential impact to Palaeolithic sediments and artefacts within the area, as well as organic deposits and palaeochannels.

164. They comment that should there be potential for waterlogged archaeology, the assessment would need to cross reference with any hydrological studies being undertaken to ensure this is taken into account.

165. They recommend consultation with the Worcestershire Historic Environment Record, the Historic Environment Advisor at Worcestershire County Council's Archive and Archaeology Service, and the Conservation Officer at Wyre Forest District Council. They are best for advising on local issues and priorities, how the proposal can be tailored to avoid and minimise potential adverse impacts on the historic environment, the nature and design of any required mitigation measures, and opportunities for securing wider benefits for the future conservation and management of heritage assets.

Landscape and Visual Impact

166. The CPA agrees that landscape and visual matters should be included in the ES.

167. In addition, the CPA recommends that the applicant includes annotated 3D visualisations of the application site in its existing form, the proposed quarry form (including phasing), and the proposed restoration form. Such visualisations would be in line with industry best practice as demonstrated at the 2018 Mineral Products Association/Royal Town Planning Institute Mineral Planning Conference 2018. 3D visualisations would also be invaluable for communicating the above surface impacts of the proposed development to the public and other interested parties.

168. The following comments should be taken into account and addressed in the ES.

Wyre Forest District Council

169. They comment that they agree that a Landscape and Visual Impact Assessment (LVIA) should be carried out and that the CPA should consider employing a suitably qualified consultant to assess any submission.

Wolverley and Cookley Parish Council

170. They comment that the proposed bunds may not hold together and will look unsightly. There will also be a clear view of the quarry from the A449 as there is no bund proposed.

The Campaign to Protect Rural England

171. They comment that the site involves a hilltop and that there will be a substantial landscape impact from the development.

County Landscape Officer

172. They that the ES should will include a Landscape and Visual Impact Assessment (LVIA) in accordance with GLVIA 3rd ed. The Assessment should consider the following:

173. The site is within the broad landscape character type Sandstone Estatelands. It is important to note the site is located within a transitional landscape that moves from a more typical Sandstone Estatelands character east of the site, towards a post-medieval historic landscape character of mixed irregular fields, meadows and woodland, influence in part by the Stour Valley.

174. The site is located within an area of former medieval designed landscape adding another layer of inherited landscape character. This includes distinctive structural features and historic buildings, the settings of which will be affected by the proposed quarry.

175. They request that the LVIA address the nuances of the landscape setting to accurately assess sensitivity, impact, mitigation and define restoration opportunities.

176. They request Worcestershire County Council is consulted in advance of the LVIA's production to agree view points for the assessment.

177. They comment that the Stour and Staffordshire and Worcestershire Canal Corridor is a strategic Green Infrastructure (GI) link that should inform further refinements of the restoration strategy for the site. This should include opportunities to create, enhance and connect with existing landscape assets providing an east-west framework of connected habitats linked to the strategic corridor.

The Ramblers Association

178. They comment that the landscape between Cookley and Kidderminster at Lea Farm is attractive with blocks of woodland surrounding the site and a pleasant rolling, somewhat hilly nature. The site is used for quiet informal leisure purposes with a number of PROWs across and around it well used by people from local communities. The site is highly visible from higher ground to the north east but not particularly prominent from Wolverley Road. The site is screened by woodland from the west and north west. The site is within the West Midlands Green Belt.

179. They comment that for the reasons above, the ES must address short and long term impacts on the landscape and leisure uses carried out upon it. They are concerned to know how extraction will damage the curving slopes of the land and whether the restoration will provide a new landscape compatible with the old. They are concerned that it should be demonstrated how extraction will affect the surrounding blocks of woodland which must be protected from any reductions in

the level of the water table and dust. They are concerned the table relating to potential effects avoids making an assessment in the case of landscape. They anticipate very damaging short or long term effects.

180. They request detailed restoration proposals be provided which are respectful of the existing landscape character and the Green Belt status of the land.

Climate

181. The CPA considers that climate should be included in the ES. The following comments should be taken into account and addressed in the ES:

Wyre Forest District Council

182. They comment that they agree climate needs consideration through the assessments outlined in the applicant's scoping request report.

Worcestershire Regulatory Services – Climate

183. They comment that the Scoping document appears to adequately address potential Air Quality and Climate issues. They agree that the ES should include impact assessments for both.

Cumulative Effects

184. The CPA agrees that cumulative effects should be included in the ES. The applicant should assess the cumulative effects from several developments in Worcestershire.

185. Individually, these developments may be insignificant, but when considered together, they could amount to a significant cumulative effect.

186. The following developments should be considered in the ES:

- Proposed Allocations set out in Wyre Forest District Council's Local Plan Review 2016-2034 *Preferred Options Document,* dated June 2017. These proposed allocations are identified in Part C and Appendix A of the document.
- Planning Permission 17/0205/OUTL FORMER LEA CASTLE HOSPITAL PARK GATE ROAD KIDDERMINSTER DY103PT: Outline planning application to include up to 600 dwellings (C3), up to 3,350sqm of Class B1 employment uses, 150sqm of Class A1/A3/D1 uses (local shop/café/community space), public open space, ecological mitigation, drainage works, infrastructure and ancillary works. Detailed approval is sought for access arrangements, to include the main access from Park Gate Road, secondary access from The Crescent and limited access to a small number of properties from Axborough Lane, with all other matters reserved.

Other Matters

187. The CPA considers that the applicant should address the matters and comments raised below by consultees and the public within their ES and the planning application.

Planning Policy Context and Analysis

188. The CPA considers that a Planning Statement should accompany the planning application submission and should assess the proposed development against the Development Plan and other material considerations. In this respect the current Development Plan consists of the adopted Worcestershire Waste Core Strategy, Saved Policies of the adopted County of Hereford and Worcester Mineral Local Plan, adopted Wyre Forest District Council Core Strategy (2006-2026), adopted Wyre Forest District Council Site Allocations and Policies Local Plan 2006-2026, and adopted Kidderminster Central Area Action Plan 2006-2026. Consideration should also be given to the Emerging Minerals Local Plan for Worcestershire and the Emerging Wyre Forest District Council Local Plan 2016-2034, but at the time of writing this Scoping Opinion, limited weight should be attached to these.

189. The CPA recommends that the ES should summarise the relevant planning policies and guidance, and that a supporting Planning Statement considers the relevant planning policies and guidance in detail. Many ES's contain an extensive analysis of planning policies and argue that a proposal is in compliance with the policies, however, it is considered that this advocacy role is in conflict with the impartiality that should characterise an ES. Such detailed analysis should, therefore, be confined to a separate Planning Statement, and the ES should deal with the planning policy issues that relate specifically to the environmental impact of the development proposals, for example where policy identifies an environmental receptor, such as ecological designation or requires the provision of a particular mitigation measure.

190. The CPA would like to draw your attention to the following planning policies:-

- Policy WCS 5: 'Landfill and disposal' of the adopted Worcestershire Waste Core Strategy;

- Saved Policy 2: 'Other Sand and Gravel Deposits' of the adopted County of Hereford and Worcester Mineral Local Plan;

- Draft Policy MLP 5 'North West Worcestershire Strategic Corridor' of the Emerging Minerals Local Plan for Worcestershire (Worcestershire's Minerals Local Plan – Third Stage Consultation) DRAFT

191. In addition to the above, an updated Local Aggregates Assessment using 2016 data is due to be published very shortly so it is recommended that the applicant makes use of this.

192. The applicant is also advised to take into account the response from Wyre Forest District Council to the CPA's Mineral's Local Plan Consultation, which is located in Appendix 2 of this Opinion. The response sets out the District Council's

concerns regarding proposed mineral extraction north and south of Wolverley Road, which could have a detrimental impact by virtue of dust, noise, and disturbance for the duration of the period of extraction on residents in the Lea Castle area, and development of the site here. There is also concern at impacts on the Listed North Lodges structures and the Locally Listed structures at the northern and southern entrances to the former Wolverley Castle respectively, and on the Staff and Worcs Canal Conservation Area. The applicant will need to demonstrate how the proposal either preserves or enhances the Conservation Area.

Wyre Forest District Council

193. They comment that they have significant concerns over the development but understand that the consultation relates to the scoping request under the EIA Regs and not on the merits of the case.

194. They comment that they agree that the proposal is EIA development.

Councillor Ian Hardiman

195. He comments that he has some concerns regarding the proposal but that he will consider any application with an open mind. His concerns relate to the proximity of the quarry proposal to the 600 new homes recently granted outline planning permission by Wyre Forest District Council at the Lea Castle (former hospital) site.

196. Councillor Marcus Hart and Councillor Ian Hardiman (joint letter).

197. They comment that they have a number of concerns about the proposal in terms of the effects on the green belt, open countryside, highways infrastructure, noise, and environmental issues, and will be articulating these as it progresses through the process.

198. They comment that they will ensure they do not have a pre-determined mind whilst articulating concerns raised by their communities. They comment that they will judge this application on its merits or otherwise at the appropriate time.

Wolverley and Cookley Parish Council

199. They comment that they are totally opposed to the proposal and feel that it would have a devastating effect on the ancient parish of Wolverley and Cookley.

200. They comment that the proposed bunds are limited and do not cover the whole site so do not protect residents on Wolverley Road and Brown Westhead.

201. They request details of the proposed operating times and any proposals for artificial lighting.

202. They comment that proposals for restoration of the landscape are unacceptable because they are not phased.

203. They comment that the proposal will have an impact on local house prices and deter new residents onto the proposed housing developments at Sion Hill and Lea Castle.

The Campaign to Protect Rural England

204. They comment that they object to the application.

205. They comment that the site lies in the Green Belt in a strategic gap between Kidderminster and the villages of Wolverley and Cookley. The gap is being eroded by permission being granted for the redevelopment of Lea Castle Hospital, which will result I sprawl that will join Kidderminster and Cookley. The countryside along the B4189 currently appears very open, despite the proximity of developed areas.

206. They comment that one of the options in the last consultation on Wyre Forest's Green Belt Review suggested taking a further area out of the Green Belt between Lea Castle and Kidderminster, which would be a significant encroachment into the open countryside. This area of Green Belt is already being severely encroached upon by development of various kinds and is in danger of ceasing to be countryside at all.

207. They comment that they appreciate mineral extraction is a special case to which usual Green Belt rules against development do not apply. Several of the five purposes of Green Belt are impacted by any development in the Protected Area.

Public Comments

208. 72 letters were received from 69 members of the public commenting on the Scoping Opinion Request. Their comments are summarised below:

- Objection to the proposal.

- Object on the grounds that the proposal would be unacceptable in a village setting.

- Objection because of the negative landscape and visual impact of the proposal. The site is high up and there are views of it from all around. Visual impact will be from as far away as Cookley, Wolverley, Sion Hill, Broadwaters and the eastern end of Hurcott Road. The site is also very visible from two roads circling it; the visual impact will be huge.

- Object on the grounds that the proposal would be inappropriate in an area with unique geological and historic features, and because the proposal would destroy an area of historic interest.

- Object on the grounds that the proposal would be detrimental to the neighbourhood of Cookley, the environment, the Greenbelt, and the impact on an existing quiet rural village in outstanding rural countryside.

- Concern that the identity of Cookley village is being attacked from all sides from housing and a quarry development. The character of the local neighbourhood must be considered as it will be changed dramatically. Cookley and Wolverley are quiet villages that aren't appropriate for heavy industry.

- Object on the grounds that the proposal would be located near a young family.

- Object on the grounds that the proposal would lead to devastation of greenbelt habitats. Objection against the proposal's impact on the greenbelt and its openness. Construction of new buildings, facilities and roads etc. on greenbelt land is neither desirable nor permissible. The greenbelt would be destroyed over the mining period.

- Object on the grounds that the proposal would be too close to existing properties in Cookley.

- Object on the grounds that the proposal would be within 200 metres of a number of residential properties, a rule existing presumably for health grounds. If one property is within 200 metres, the site should not be considered.

- Object on the grounds that the proposal would remove a well-used Public Footpath in Cookley, as well as concern at the impact on the footpath running through the site. These footpaths are used by people for keeping fit, which should be a priority issue for the Council.

- Object on the grounds that the proposal would impact two public rights of way (624B and 626B) across the site, 622C and 625B along the borders of the site, and 623B within a metre of the site. Noise, pollution, heavy vehicles and machinery will render the footpaths unpleasant and probably unusable. There would be enormous visual impact to these heavily used routes. Many children use the public rights of way to get to school so thought would need to be given to alternatives.

- Object on the grounds that the proposal would have negative environmental impact on top of the planned 1500 houses at Lea Castle. There is too much building work planned nearby. The proposal would also have health impacts on the new properties through dust pollution.

- Object on the grounds that the proposal would lead to additional traffic on an overcrowded road network, including the A449. Dozens of accidents and issues have occurred on the road for more than 40 years, which would be exacerbated by gravel-laden trucks and heavy plant entering and exiting the area. Notwithstanding the additional traffic due from the large housing estate at the former Lea Castle hospital site.

- Concern that no information has been given regarding the number and types of vehicles and equipment that would be needed Access routes within the site also need to be detailed.

- Object on the grounds that the proposal would lead to significant traffic problems when combined with the development at Lea Castle, which will effectively join Cookley to Kidderminster.

- Concern at the potential for cumulative effects of local development.

- Object on the grounds that there would be traffic chaos and danger near to Heathfield Knoll School. Objection against the impact on other nearby schools with already busy roads and limited footpaths.

- Concerns that the proposal would be accessed via the B4189, which is a very busy road with commuter traffic, no lighting and poor pavements.

- Objection to the proposed access onto the B4189 near the Wolverhampton road just below the brow of a hill on safety grounds. The speed limit is national and visibility is very poor at this point. Planners previously determined that the only safe access was at the point where Broom Cottage is located. Highways would have to fully investigate the proposed access.

- Concern that lorry drivers would seek out safer access routes to the site, taking them down public rights of way and tracks, endangering walkers, cyclists and horse riders.

- Concern that the proposal will generate unwanted noise, dust and vibrations.

- Object on the grounds that the proposal would lead to environmental issues relating to clean air for nearby communities, particularly Heathfield Knoll School and nearby residential properties. This could seriously affect the children of the school and their education.

- Object on the grounds that the proposal could shorten life through the health risks of the project. The proposal would also seriously affect the quality of life for local residents and their general health.

- Object on the grounds that the proposal would be large scale and hazardous near a residential area. Noise, dust and mud impacts would be unacceptable. Professional advice needs to be taken as to whether noise levels will be acceptable in the local area, and whether properties near the development would be inhabitable. The sand quarry at Sandy Lane near the M5 is used as an example of the filth created in wet conditions and dust in the dry.

- Object on the grounds that Cookley has already put up with one quarry in Wolverley and that it is unfair to revisit a second time.

- Concern at the consequences of large lorries and heavy machinery near residential properties.

- Object on the grounds that there are more suitable sites to be considered.

- Concern at what will happen when minerals have been extracted and the quarry is deemed 'empty'.

- Concern at what inert materials are proposed for replacing the removed minerals. 'Inert' materials would need substantial clarification and legal control to avoid a waste disposal site.

- Concern that very little information has been provided as to the methods of quarrying. It needs to be made clear whether quarrying will be even across the site in terms of the figure of 3 million tonnes, or whether some areas will be more

heavily affected than others. The applicant should provide this information in accessible format, for example the volume of material to be removed and how the depth of the quarry varies across the site.

- Concern as to why two fields to the west of the A449 have been included in the site, as well as woodland to the south of 'phase 2' and buildings to the south of the 'plant site'. These areas do not enter into the phased delivery plan. It needs to be made clear why these are included and whether they are intended for further extension of operations.

- Concern at whether lighting would be required and its effects on the local population and wildlife.

- Object on the grounds that the proposal would harm the general health, mental health, and well-being of horses at the old Lea Castle riding school, which sits at the middle of the site.

- Concern for the livelihood of the owner of the riding school at the centre of the site, and the caravan park.

- Objection at the knock on effect for business directly opposite the proposal. Objection at the wider negative economic impact in the area including on camping and tourism. The Lock pub, businesses in Cookley and Wolverley villages, the putting green and tea shop would be affected.

- Object on the grounds that the proposal would cause unacceptable harm to wildlife. The proposal covers a very biodiverse area and would affect animals, insects, birds, reptiles, butterflied, moths, plants, trees, mosses lichens, and fungi. Owls, pole cats (and related species), bats, hedgehogs, skylarks, thrushes, sparrows, lapwings, yellowhammers, and undoubtedly many other species have been seen or heard at the site. Adders are also thought to be present at the site. Muntjac would also be affected.

- Object because of the little consideration that has been shown to the local wildlife, including its thriving bird community with numerous birds from the red status of Birds of Conservation Concern list, including Lesser Spotted Woodpeckers, Skylarks, Starlings, Song Thrush and Sparrows. Birds on the amber list include House Martins and Kestrels. Kestrels are located on the proposed site and successfully breed every year. Buzzards would also be affected. Hedgehogs are also at the site in dwindling numbers. Badgers are seen across the site, possibly even with a sett in the proposed area. Bats live in a barn development and they are protected. The fields provide them with a feeding habitat and mining could have a detrimental impact on them. No number of nest boxes would protect them. Other roosts could also be located across the site. Some of this wildlife would be destroyed and never return.

- Concern at the proposal's impact on the land at the site, which is thought to be 'acid sand' that supports particular flora and fauna including lichens, fungi and mosses, which do not survive in other areas. A full investigation is required. The removal and replacement of this soil with different soils would be extremely detrimental.

The 600,000 tonnes of backfill would significantly change the site and the types of flora and fauna it supports.

- Concern at the impact on trees with preservation orders scattered throughout the Lea Castle Estate. Many date back to the Lea Castle Estate and remain a visual reminder of Cookley and Wolverley's history.

- Concern at the impact on trees and hedgerows in the area in terms of their aesthetics, and because of the support they provide for wildlife, which appears to be in perfect balance with how it is thriving.

- Concern at the existing power lines going over the proposed area. What will happen to these?

- Object on the grounds that the proposal would lead to drainage issues and catastrophic impacts on the Stour river's tributaries. The impact from flooding issues as a result of excavation on Wolverley and Broadwaters would need to be calculated.

- Concerns that the proposal would lead to a significant increase in water run-off causing flooding issues for the new housing at Lea Castle Hospital, and exacerbating flooding issues along the river at Wolverley. Investigation needs to be made into the impact on the canal from flooding.

- Object on the grounds that the proposal would detrimentally impact the wall enveloping the Lea Castle Estate, an important local landmark. In addition, the environment of the Grade II Listed gatehouse to the north of the proposed site would be hugely affected. The structure should be checked by the conservation officer. The gatehouses at the other end of the site would also be affected in the same way.

- Objection to the impact of noise, pollution, water run-off, and traffic on Listed buildings and their setting within a half mile radius of the site.

- Object on the grounds that the proposal is the selfish pursuit of financial gain with no thought for the wellbeing of the community or the surrounding area. The proposal would only benefit two parties, the landowner and quarry operator, who aim to profiteer from a ridiculous scheme which will be at the detriment to many people.

- Object on the grounds that the proposal includes bunds, which would be an eyesore. The bunds would be unlikely to hold together considering the area's sandy soil. Surrounding areas would be damaged by the bunds washing away and blowing away in the wind.

- Object on the grounds that sleeping in the day time would not be possible for a respondent who works shifts.

- Object on the grounds that Broom Cottage will be badly affected by noise and dust, especially during phase 3 of the operations. The proposals will make it difficult to sell the property and the proposal could blight a respondent's remaining years.

- Request that the reports and professional opinions required for the proposal will need to be independent and have careful consideration as to who has paid for them, and whether all findings are published, or just those that suit the funder. All research should be as general as possible in nature because without research, it is impossible to know what the ecosystem holds in the area.

- Request that neighbours and local residents are informed of the proposal. Landowners bordering the site have not been notified. Anyone who would be affected by this development should be notified, including anyone within earshot, within visual range, local businesses, the school, and anyone with a property bordering the site. The mapping provided with the proposal needs to be checked for accuracy because a respondent's property does not show on it adjacent to the site.

Western Power Distribution

209. Western Power Distribution have assets within the red line boundary. They comment that all equipment on site should be assumed to be live until Western Power Distribution prove otherwise and provide the applicant with confirmation to this effect in writing. The applicant is advised to refer to the Line Search Before You Dig response from Western Power Distribution.

210. Please note that the adequacy of the ES is primarily a matter of judgement of the decision maker. It is strongly advised that you contact the CPA to discuss the adequacy of the draft ES and planning application once they have reached a stage at which such feedback would be useful. Please note that Worcestershire County Council do not currently charge for pre-application discussions / meetings.

211. We recognise that these comments are extensive, but consider them necessary to ensure that all the relevant information is submitted with the planning application for the proposed scheme.

212. If you wish to discuss any of the points raised in this Scoping Opinion, or any other matters relevant to the EIA, please do not hesitate to contact either Joshua Scholes – Planning Officer (Development Management) (Tel: 01905 844485), Steven Aldridge – Team Leader (Development Management) (Tel: 01905 843510), or Mark Bishop - Development Manager (Tel: 01905 844463).

Adoption

Date of Adoption of Scoping Opinion 29 June **2018**

Signed on behalf of the County Planning Authority:

M. Bishop

Mark Bishop
Development Manager

Appendices

Appendix 1 – Scoping Opinion Request

Appendix 2 – Consultation Responses:-

- Wyre Forest District Council
- Wyre Forest District Council Conservation Officer
- Wyre Forest District Council Countryside Services
- Wolverley and Cookley Parish Council
- British Horse Society
- Councillor Ian Hardiman
- Councillors Marcus Hart and Ian Hardiman
- County Public Rights of Way
- County Archaeology
- County Ecology
- County Highways
- County Landscape
- County Minerals and Waste Planning Policy
- County Public Health
- The Campaign to Protection Rural England
- Environment Agency
- Natural England
- Historic England
- Line Search Before You Dig
- Western Power Distribution
- Lead Local Flood Authority
- North Worcestershire Water Management
- Public Health England
- Ramblers Association
- Worcestershire Regulatory Services
- Worcestershire Wildlife Trust

Appendix 3 – Public Comments