Extensions to Areas Approved for Sand & Gravel and Clay Extraction and Non Hazardous Landfill, Retention of MRF, Secondary Aggregate Recycling and Continued Clay Extraction at Variance to Conditions

Finmere Quarry, Banbury Road, Finmere

Environmental Statement – Main Text (Volume 2)

AT Contracting & Plant Hire Limited

February 2019

Table of Contents

1. Introduction

1.1 Preamble

This Environmental Statement (ES) accompanies six applications for planning permission which have has been submitted to Oxfordshire County Council (OCC) by AT Contracting & Plant Hire Limited ('ATC&PH').

ATC&PH is the owner and operator of Finmere Quarry.

Briefly, the applications seek permission to:

- extend the area approved for sand & gravel extraction to include land between the existing non-hazardous waste landfill and the A421 (Banbury Road) and to retain the processing and concrete batching plants and compound for a further temporary period;
- extend the area to be restored following landfilling with non-hazardous waste to include land between Finmere Plantation and the area safeguarded for the development of HS_2;
- enable the approved sand and gravel mineral processing plant to also be used for the recycling of secondary aggregate from incoming inert waste materials;
- extend the area approved for the extraction of clay for use in on-site landfill engineering to include the land to the south of Foxley Fields Farm;
- continue the operation of the approved material recovery facility (MRF) until non-hazardous waste landfilling is completed; and
- enable the current clay extraction area to be worked in accordance with an alternative scheme and for this part of the site to be restored to broadleaved woodland, nature conservation and a pond - instead of to agriculture.

1.2 Environmental Impact Assessment

The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 as amended (referred to as the 2017 EIA Regs. hereafter) came into force on May 16th 2017 and set out the circumstances when an application for planning permission must be accompanied by an ES and/or when the local planning authority (LPA) needs to decide if it considers that an ES is required.

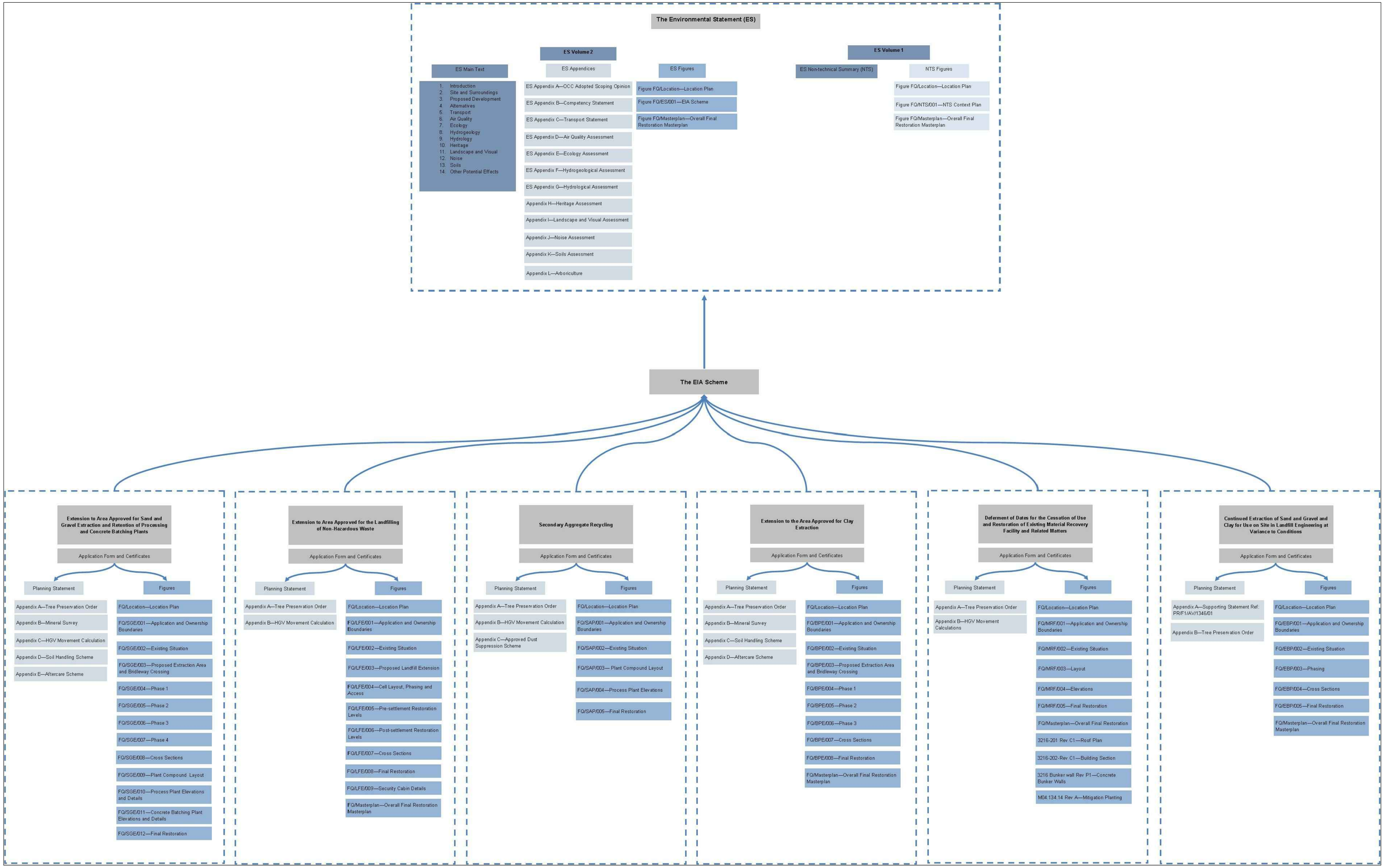
In this case, pre-application discussions held with OCC indicated that the County Council was likely to adopt a positive EIA screening opinion (i.e. require that the applications for planning permission are accompanied by an ES) if one was requested – having regard to the likely environmental effects and the applicable thresholds and criteria set out in Schedule 2 of the 2017 EIA Regs.

In view of this, ATC&PH decided not to submit a request for OCC to adopt an EIA screening opinion in accordance with Regulation 6(1) and to submit this ES on a voluntary basis instead.

Again in accordance with the pre-application discussions held with OCC, this ES has been prepared as a single document in which the potential environmental effects of the developments proposed in each application is assessed as one overall scheme.

Diagram 1.1 below illustrates how the applications relating to Finmere Quarry are structured and also shows the structure and content of the ES and Non-Technical Summary that are common to all of the applications.

Diagram 1.1


The Environmental Statement (ES)
ES Volume 2
ES Main Text
1. Introduction
2. Site and Surroundings
3. Proposed Development
4. Alternatives
5. Transport
6. Air Quality
7. Ecology
8. Hydrogeology
9. Hydrology
10. Heritage
11. Landscape and Visual
12. Noise
13. Soils
14. Other Potential Effects
ES Appendices
ES Appendix A—OCC Adopted Scoping Opinion
ES Appendix B—Competency Statement
ES Appendix C—Transport Statement
ES Appendix D—Air Quality Assessment
ES Appendix E—Ecology Assessment
ES Appendix F—Hydrogeological Assessment
ES Appendix G—Hydrological Assessment
Appendix H—Heritage Assessment
Appendix I—Landscape and Visual Assessment
Appendix J—Noise Assessment
Appendix K—Soils Assessment
Appendix L—Arboriculture
ES Figures
Figure FQ/Location—Location Plan
Figure FQ/ES/001—EIA Scheme
Figure FQ/Masterplan—Overall Final Restoration Masterplan
ES Volume 1
ES Non-technical Summary (NTS)
NTS Figures
Figure FQ/Location—Location Plan
Figure FQ/NTS/001—NTS Context Plan
Figure FQ/Masterplan—Overall Final Restoration Masterplan
The EIA Scheme
Extension to Area Approved for Sand and Gravel Extraction and Retention of Processing and Concrete Batching Plants
Application Form and Certificates
Planning Statement
Appendix A—Tree Preservation Order
Appendix B—Mineral Survey
Appendix C—HGV Movement Calculation
Appendix D—Soil Handling Scheme
Appendix E—Aftercare Scheme
Figures
FQ/Location—Location Plan
FQ/SGE/001—Application and Ownership Boundaries
FQ/SGE/002—Existing Situation
FQ/SGE/003—Proposed Extraction Area and Bridleway Crossing
FQ/SGE/004—Phase 1
FQ/SGE/005—Phase 2
FQ/SGE/006—Phase 3
FQ/SGE/007—Phase 4
FQ/SGE/008—Cross Sections
FQ/SGE/009—Plant Compound Layout
FQ/SGE/010—Process Plant Elevations and Details
FQ/SGE/011—Concrete Batching Plant Elevations and Details
FQ/SGE/012—Final Restoration
Extension to Area Approved for the Landfilling of Non-Hazardous Waste
Application Form and Certificates
Planning Statement
Appendix A—Tree Preservation Order
Appendix B—HGV Movement Calculation
Figures
FQ/Location—Location Plan
FQ/LFE/001—Application and Ownership Boundaries
FQ/LFE/002—Existing Situation
FQ/LFE/003—Proposed Landfill Extension
FQ/LFE/004—Cell Layout, Phasing and Access
FQ/LFE/005—Pre-settlement Restoration Levels
FQ/LFE/006—Post-settlement Restoration Levels
FQ/LFE/007—Cross Sections
FQ/LFE/008—Final Restoration
FQ/LFE/009—Security Cabin Details
FQ/Masterplan—Overall Final Restoration Masterplan
Secondary Aggregate Recycling
Application Form and Certificates
Planning Statement
Appendix A—Tree Preservation Order
Appendix B—HGV Movement Calculation
Appendix C—Approved Dust Suppression Scheme
Figures
FQ/Location—Location Plan
FQ/SAP/001—Application and Ownership Boundaries
FQ/SAP/002—Existing Situation
FQ/SAP/003— Plant Compound Layout
FQ/SAP/004—Process Plant Elevations
FQ/SAP/005—Final Restoration
Extension to the Area Approved for Clay Extraction
Application Form and Certificates
Planning Statement
Appendix A—Tree Preservation Order
Appendix B—Mineral Survey
Appendix C—Soil Handling Scheme
Appendix D—Aftercare Scheme
Figures
FQ/Location—Location Plan
FQ/BPE/001—Application and Ownership Boundaries
FQ/BPE/002—Existing Situation
FQ/BPE/003—Proposed Extraction Area and Bridleway Crossing
FQ/BPE/004—Phase 1
FQ/BPE/005—Phase 2
FQ/BPE/006—Phase 3
FQ/BPE/007—Cross Sections
FQ/BPE/008—Final Restoration
FQ/Masterplan—Overall Final Restoration Masterplan
Deferment of Dates for the Cessation of Use and Restoration of Existing Material Recovery Facility and Related Matters
Application Form and Certificates
Planning Statement
Appendix A—Tree Preservation Order
Appendix B—HGV Movement Calculations
Figures
FQ/Location—Location Plan
FQ/MRF/001—Application and Ownership Boundaries
FQ/MRF/002—Existing Situation
FQ/MRF/003—Layout
FQ/MRF/004—Elevations
FQ/MRF/005—Final Restoration
FQ/Masterplan—Overall Final Restoration
3216-201 Rev C1—Roof Plan
3216-202-Rev C1—Building Section
3216 Bunker wall Rev P1—Concrete Bunker Walls
M04.134.14 Rev A—Mitigation Planting
Continued Extraction of Sand and Gravel and Clay for Use on Site in Landfill Engineering at Variance to Conditions
Application Form and Certificates
Planning Statement
Appendix A—Supporting Statement Ref: PR/F1/AV/1346/01
Appendix B—Tree Preservation Order
Figures
FQ/Location—Location Plan
FQ/EBP/001—Application and Ownership Boundaries
FQ/EBP/002—Existing Situation
FQ/EBP/003—Phasing
FQ/EBP/004—Cross Sections
FQ/EBP/005—Final Restoration
FQ/Masterplan—Overall Final Restoration Masterplan

1.3 EIA scoping

To inform the preparation of this ES, a request for OCC to adopt an EIA scoping opinion was submitted in accordance with Regulation 15(1) of the 2017 EIA Regs on 12th December 2017. The request was accompanied by the information required under Regulation 15(2).

OCC duly adopted its EIA scoping opinion on 26th January 2018 and a copy of that opinion is included at Appendix A of this ES.

In accordance with Regulation 18(4)(a) of the 2017 EIA Regs, the ES has been based the County Council's adopted EIA scoping opinion.

The scope of the ES also pays regard to the Planning Practice Guidance published by the DCLG, namely:

"*Whilst every Environmental Statement should provide a full factual description of the development, the emphasis of Schedule 4 is on the "main" or "significant" environmental effects to which a development is likely to give rise. The Environmental Statement should be proportionate and not be any longer than is necessary to assess properly those effects. Where, for example, only one environmental factor is likely to be significantly affected, the assessment should focus on that issue only. Impacts which have little or no significance for the particular development in question will need only very brief treatment to indicate that their possible relevance has been considered*" (Paragraph: 035 Reference ID: 4-035-20140306).

For these reasons, while potential effects in terms of the matters listed in Regulations 4(2), 18(3) and Schedule 4 of the 2017 EIA Regs are considered; the potential effects assessed in detail are limited to those listed in section 1.4 below.

1.4 Content

This ES summarises the findings from the EIA of the proposed development.

The purpose of this ES is to ensure that:

- relevant environmental issues are appropriately assessed having regard to the embedded mitigation included in the scheme design;
- the proposed embedded mitigation will be effective and that (if not) further mitigation is proposed in order to ensure that residual impacts are reduced to an acceptable degree; and
- interested parties are given the opportunity to address any relevant issues.

The ES comprises three volumes. The Non-Technical Summary (Volume 1) provides a summary of the ES in non-technical language. The ES Main Text document (Volume 2) describes the site, its surroundings, the proposed development and summarises the detailed assessments made and includes assessments of other potential effects. The ES Appendices (Volume 2) include copies of each of the detailed assessment reports.

The ES Main Text document (Volume 2) is structured in 16 sections as follows:

1	Introduction
2	Site and Surroundings
3	Proposed Development
4	Alternatives
5	Transport*
6	Air Quality*
7	Ecology*
8	Hydrogeology*

9	Hydrology*
10	Heritage*
11	Landscape and Visual*
12	Noise*
13	Soils*
14	Arboriculture *
15	Socio-Economics
16	Other Potential Effects

* Detailed assessment reports are also included in the ES Appendices

1.5 Methodology

The likely environmental effects of the proposed development have been considered by reference to baseline conditions at the time of preparing the ES, the embedded mitigation included in the scheme design and any further mitigation proposed.

The severity or magnitude of environmental impacts are, in most cases, categorised in this ES as Major / High / Substantial / Severe", "Moderate / Medium", "Minor / Low / Slight" or "Negligible" - depending upon the relevant assessment criteria. The significance of any likely potential effects has then been assessed on the basis of the magnitude of the impact and the sensitivity of the receptor or the importance / value of a resource, receptor or group of receptors – as appropriate.

Account has also been taken of i) whether likely potential effects are considered to be positive or negative, permanent or temporary, ii) whether the likely potential effect is direct or indirect, iii) the duration and frequency of the effect and iv) whether or not any secondary effects are likely.

1.6 Figures

The following Figures are appended to this ES:

FQ/Location – Location Plan

FQ/ES/001 – EIA Scheme

FQ/Masterplan – Overall Final Restoration Masterplan.

The following figures are included in each of the 6 applications for planning permission to which this ES relates and together serve to define the 'project' for EIA purposes.

Table 1.1: EIA Figures

Planning application	Figure number	Figure Title
Sand & Gravel Extension	FQ/Location	Location Plan
	FQ/SGE/001	Application and Ownership Boundaries
	FQ/SGE/002	Existing Situation
	FQ/SGE/003	Extent of Phasing
	FQ/SGE/004	Phase 1
	FQ/SGE/005	Phase 2
	FQ/SGE/006	Phase 3
	FQ/SGE/007	Phase 4
	FQ/SGE/008	Cross Sections
	FQ/SGE/009	Plant Compound Layout

	FQ/SGE/010	Process Plant Elevations and Details
	FQ/SGE/011	Concrete Batching Plant Elevation and Details
	FQ/SGE/012	Final Restoration
Non-hazardous Landfill Extension	FQ/Location	Location Plan
	FQ/LFE/001	Application and Ownership Boundaries
	FQ/LFE/002	Existing Situation
	FQ/LFE/003	Proposed Landfill Extension
	FQ/LFE/004	Cell Layout Phasing and Access
	FQ/LFE/005	Pre-settlement Restoration Levels
	FQ/LFE/006	Post-settlement Restoration Levels
	FQ/LFE/007	Cross Sections
	FQ/LFE/008	Final Restoration
	FQ/LFE/009	Security Cabin Details
	FQ/Masterplan	Overall Final Restoration Masterplan
Secondary Aggregate Recycling	FQ/Location	Location Plan
	FQ/SAP/001	Application and Ownership Boundaries
	FQ/SAP/002	Existing Situation
	FQ/SAP/003	Plant Compound Layout
	FQ/SAP/004	Process Plant Elevations
	FQ/SGE/005	Final Restoration
Clay Extraction Extension	FQ/Location	Location Plan
	FQ/BPE/001	Application and Ownership Boundaries
	FQ/BPE/002	Existing Situation
	FQ/BPE/003	Proposed Extraction Area and Bridleway Crossing
	FQ/BPE/004	Phase 1
	FQ/BPE/005	Phase 2
	FQ/BPE/006	Phase 3
	FQ/BPE/007	Cross Sections
	FQ/BPE/008	Final Restoration
	FQ/Masterplan	Overall Final Restoration Masterplan
Retention of MRF	FQ/Location	Location Plan
	FQ/MRF/001	Application and Ownership Boundaries
	FQ/MRF/002	Existing Situation
	FQ/MRF/003	Layout
	FQ/MRF/004	Elevations
	FQ/MRF/005	Final Restoration
	FQ/Masterplan	Overall Final Restoration Masterplan
	3216-201 Rev C1	Roof plan
	3216-202 Rev C1	Building Section
	3216-Bunker wall Rev P1	Concrete Bunker Walls
	M04.134.14 RevA	Mitigation Planting
Clay Extraction at Variance to Conditions	FQ/Location	Location Plan

	FQ/BPE/001	Application and Ownership Boundaries
	FQ/BPE/002	Existing Situation
	FQ/BPE/003	Phasing
	FQ/BPE/004	Cross Sections
	FQ/BPE/005	Final Restoration
	FQ/Masterplan	Overall Final Restoration Masterplan

1.7 Documents for Purchase and Inspection

Paper copies of the planning applications and the accompanying ES and NTS are available to purchase from AECOM (Royal Court, Basil Close, Chesterfield S41 7SL) at a cost of £25.00 (per application), £100.00 (ES) and £10 (NTS) respectively.

Copies of the planning applications and the accompanying ES and NTS are available on CD (in Adobe Acrobat format) from the same address at a cost of £40.00 each.

The application and ES documents are also available for inspection:

- at the offices of Oxfordshire County Council (Speedwell House, Speedwell Street, Oxford OX1 1NE); and
- on the County Council's website.

1.8 Competency Statement

The Regulation 18(5) of the 2017 EIA Regs requires that any ES must be prepared by competent experts and that it must be accompanied by a statement outlining the relevant expertise or qualifications of such experts.

This ES has been prepared on behalf of ATC&PH by AECOM Infrastructure & Environment UK Ltd. (AECOM) working in collaboration with Ecological Services Ltd. (ESL)

Information is provided at Appendix B to demonstrate that the requirements of Regulation 18(5) have been met in this case.

2. Site and Surroundings

2.1 Site

Finmere Quarry is located approximately 450 metres to the south west of Finmere village, to the north west of Newton Purcell and approximately 12km north east of Bicester in the north east of Oxfordshire (see Figure FQ/ES/001). Access is gained direct from Banbury Road (A421). Finmere Quarry mainly comprises:

- an area at the northern end of the existing quarry (and to the east of the disused railway line) approved for the landfilling of non-hazardous wastes until January 2028 under planning permission number 17/01189/CM (MW.0004/17);
- a further area to the west and south of Finmere Plantation (and to the east of the disused railway line) approved under planning permission number 17/01189/CM (MW.0004/17) - but with restoration to a waterbody, grass / heathland and agricultural use without landfill;
- an area mainly to the west of the disused railway line and east of Widmore Farm previously approved for sand and gravel extraction and landfilling with inert wastes under planning permission number 10/01516/CM (MW.0142/10) and now subject of application number 16/02524/CM (MW.0142/16) for permission to continue that development subject to a revised end date; and
- an area to the south of Finmere Plantation approved for use as a MRF until December 2021 under planning permission number 15/02059/OCC; and
- an area to the south east of Finmere Plantation for the excavation of sand and gravel and clay for use in on-site landfill engineering currently approved under planning permission number 17/02083/CM (MW.0083/17).

Access from one part of the quarry to another is gained via internal haul roads and does not necessitate traffic along the local highway or public rights of way network.

The area of Finmere Quarry that is the subject of the EIA and this ES is shown on Figure FQ/ES/001 – attached to this ES.

2.2 Surroundings

The surrounding area is predominantly agricultural land with scattered farmsteads and woodland / plantations.

The nearest residential properties are at:

- Boundary Farm to the east;
- Barley Fields to the south east;
- the bungalow at Foxley Fields Farm adjacent to the eastern site boundary; and
- Widmore farmstead adjacent to the western quarry boundary.

2.3 Public Rights of Way

There are a number of public rights of way within Finmere Quarry and in the adjoining area.

Bridleway 4 runs along the southern boundary of Widmore Plantation to the west before turning north east on its diverted route and then runs in an easterly direction before turning north east towards the A421. Bridleway 6 runs in a north to south direction from the A421 south of Finmere village before turning south east at the south eastern corner of the landfill. The diverted route of Bridleway 7 runs from the south eastern corner of the landfill and adjacent to the southern boundary of the clay extraction area and the southern boundary of the processing plant area before turning north westerly then south westerly crossing the former railway line. Footpath 14 runs between Bridleways 4 and 7 adjacent to and along the south western boundary of the westernmost extraction area.

The Bridleway 4 Temporary Diversion Order came into force on 20th December 2016 and expires on 31st December 2019. The Bridleway 7 Temporary Diversion Order also expires on 31st December 2019.

Further applications will be made under Sections 257 and 261 of the Town and Country Planning Act 1990 to extend the duration of the temporary diversions of Bridleway 4 and 7 and to temporarily divert a section of Bridleway 6.

At the expiry of the diversion orders it is assumed that all of the Bridleways will be reinstated to the definitive map route.

The routes at restoration for Bridleway 4, 6 and 7 are shown on Figure FQ/Masterplan – Overall Final Restoration Masterplan. It is acknowledged at this stage that any future proposals put forward by HS2 may impact on the restored route of Bridleway 4, however given that no applications for diversions have been made by HS2 to OCC to date it is assumed that for the purposes of these applications it will return to the definitive map route.

The current know route of the future proposed diversion route for HS2 is shown for information only as a possible future route variation.

In addition new permissive path routes have been proposed.

2.4 Tree Preservation Order

Various trees within or adjacent to the quarry are the subject of a Tree Preservation Order made by Cherwell District Council on 3rd July 2017.

2.5 Designations

There are no major environmental designations either within or in the vicinity of Finmere Quarry i.e. AONB, Special Areas of Conservation or Sites of Special Scientific Interest. The quarry also falls well outside the Oxford Green Belt.

The woodland at Finmere and Grassy Plantations are included on the Priority Habitat Inventory.

Widmore Farmhouse to the west of Finmere Quarry is a Grade II Listed Building.

The main designation affecting parts of the quarry is the area safeguarded for the development of HS_2.

3. Proposed Development

3.1 Introduction

As stated above, the development proposed at Finmere Quarry is the subject of six individual applications for planning permission. The applications seek permission to:

- extend the area approved for sand and gravel extraction to include land between the existing non-hazardous waste landfill and the A421 (Banbury Road), retain the previously approved processing plant and compound and erect a concrete batching plant – all for a further temporary period;
- extend the area to be landfilled with non-hazardous waste to include land between Finmere Plantation and the area safeguarded for the development of HS_2;
- enable the sand and gravel mineral processing plant to also be used for the recycling of secondary aggregate from incoming inert waste materials;
- extend the area approved for the extraction of clay for use in on-site landfill engineering (and incidental deposits of sand and gravel for processing and sale to customers) to include the land to the south of Foxley Fields Farm;
- continue the operation of the approved MRF until landfilling is completed; and
- enable the current clay extraction area to be used in accordance with an alternative scheme and to be restored to broadleaved woodland, nature conservation and a pond - instead of to agriculture

Each of these proposals are described in more detail below and in each Planning Statement (PS) and the development details are shown on corresponding set of Figures (see Table 1.1).

3.2 Method of Working

Sand and Gravel Extension

The proposed sand and gravel extension will be prepared and worked on an annual campaign basis over approximately five months in the summer, with a further month for subsequent restoration. The sand and gravel will be worked by stripping and storing the soils in accordance with recognised best practice, excavating the mineral using a Cat 352 360° excavator in a phased programme moving from east to west. Any perched groundwater influx will be managed by establishing a collection / re-charge system (or suitable alternative) and the mineral will be transported to the processing plant site in Cat 730 dump trucks along internal site roads.

HGVs transporting outgoing deliveries of processed sand and gravel will be loaded from stockpiles within the plant site and then weighed, checked and documented at the new site office adjacent to Finmere Plantation. Regrading of the worked out areas and the spreading of returned soils will be carried out using Cat D6 bulldozers.

Silt arising from the washing of the sand and gravel will be deposited / managed in the silt pond which has been provided within Phase 1 of the existing clay extraction area.

See Figures FQ/SGE/004 to FQ/SGE/007 (appended to the Sand and Gravel Extension PS) for the phasing details.

Non-hazardous Waste Landfill Extension

The proposed non-hazardous waste landfill extension will be prepared by removing unsuitable materials and engineering new landfill cells by, inter alia, placing and compacting clay excavated from elsewhere within the quarry site. The landfill cells will be constructed using a Cat 352 360° excavator and by placing clay hauled via internal site roads in Cat 730 dump trucks. The new cells will be filled with residual waste arising from the MRF using a Cat 836 compactor in a phased programme which progresses generally in an anticlockwise direction.

After the designed maximum pre-settlement “top of waste” levels have been reached, the cells will be progressively capped, covered with suitable soils or soil making materials sourced offsite and restored to a mix of agricultural land and woodland to the north and species-rich neutral grassland and woodland edge habitat in the south (see Figure FQ/LFE/008 appended to the Non-hazardous Waste Landfill Extension PS). Regrading of the

filled areas and the spreading of soils / soil making materials for restoration will be carried out using a Cat D6 bulldozer.

See Figures FQ/LFE/003, FQ/LFE/004 and FQ/LFE/007 (appended to the Non-hazardous Waste Landfill Extension PS) for the phasing details.

A security cabin will be constructed to the south of the existing Bridleway 4 crossing in accordance with the details shown on Figure FQ/LFE/009 (appended to the Non-hazardous Waste Landfill Extension PS).

Secondary Aggregate Recycling

The operation of the processing plant will continue to take place in accordance with the limitations and controls relating to such matters as dust suppression, noise and lighting as have been approved under the current planning permission. Silt arising from the washing of the recovered secondary aggregates will be deposited / managed in the silt pond which has been provided within Phase 1 of the existing clay extraction area (see Figure FQ/SAP/002 appended to the Secondary Aggregate Recycling PS).

All incoming deliveries of Construction, Demolition and Excavation (CDE) waste will be weighed, checked and documented at the new site office adjacent to Finmere Plantation before being directed to the processing plant compound (see Figure FQ/SAP/003 appended to the Secondary Aggregate Recycling PS).

HGVs transporting outgoing deliveries of secondary aggregates will be loaded from stockpiles within the processing plant compound and then weighed, checked and documented at the new site office before being allowed to leave the site.

Clay Extraction Extension

The proposed clay extension will be prepared and worked on an annual campaign basis over approximately five months in the summer - with a further month for subsequent restoration. The clay will be worked by stripping and storing the soils in accordance with recognised best practice (as set out in the soil handling method statement included at Appendix C), excavating the clay using a Cat 352 360° excavator in a phased programme moving generally from south to north and transporting the clay to the landfill areas in Cat 730 dump trucks along internal site roads.

Incidental deposits of sand and gravel will be processed for sale.

As clay extraction proceeds the void will be progressively backfilled with overburden drawn from the temporary stockpile in Phase 2 of the current clay extraction area and/or similar materials excavated during the course of landfill engineering works elsewhere within Finmere Quarry. Re-grading of the backfilled areas and the spreading of returned soils will be carried out using a Cat D6 bulldozer.

See Figures FQ/BPE/004 to FQ/BPE/006 for the phasing details.

Retention of MRF

As part of bringing the MRF back into operation, new processing equipment has been installed to sort and process waste to generate recyclable materials. The MRF will be used solely for the processing on non-hazardous C&I wastes and all processing of waste will be undertaken inside the MRF building.

It is expected that 10,000 tonnes of the incoming non-hazardous C&I wastes will be classified as unsuitable for processing at the MRF and will therefore be re-directed to the adjacent non-hazardous waste landfill for disposal. From the remainder, 30,000 tonnes of material will be recovered either as recyclate or refuse derived fuel (RDF) for delivery to reprocessors and/or treatment plants elsewhere. The other 110,000 tonnes will comprise the residual materials which remain following processing at the MRF and will be disposed of at the adjacent non-hazardous waste landfill.

The replacement processing plant to be installed in the MRF building will comprise a range of screening, sorting and baling equipment. Selected materials will be removed by hand picking. The MRF building will also accommodate offices and changing/mess facilities. External stairs will be provided at the rear (northern side) of the MRF building to provide access to the offices and changing/mess facilities inside. Electrical generators and associated fuel tanks (together with air management equipment) will be located on the northern side of the MRF building. Air from the air management equipment will be directed back into the MRF building and will not be discharged to atmosphere.

Wastes delivered to the MRF will predominantly comprise mixed loads plastic, cardboard, paper, timber, textiles and other composite materials. Following acceptance of the waste, vehicles will enter the MRF building and deposit the waste on the concrete floor of the building. Wheeled loading shovels and conveyors will be used to transfer the waste from the floor of the building to the waste processing plant within the MRF building.

The recovered materials will be collected in storage containers in the MRF building or in bays beneath the discharge points of conveyors or the picking stations. Storage containers will be kept in the MRF building prior to being loaded and removed from the site. Materials which are not likely to generate fugitive emissions of dust, litter or odour (e.g. wrapped bales of RDF, baled recyclate and recyclate stored in closed or sheeted containers) may be transferred to the storage area located to the south of the building prior to removal from the site. The storage area and the yard area between the storage bay area and the MRF has a concrete surface and an integral drainage system.

Clay Extraction at Variance to Conditions

It was previously recognised that the base of excavation in the south eastern part of Finmere Quarry (see Figure FQ/EBP/001 attached to the Clay Extraction at Variance to Conditions PS) may be below the piezometric level of the groundwater in the Forest Marble and White Limestone Formations. It was therefore proposed that a 1 metre thick layer of clay be left in-situ in order to counter the risk of basal heave due to the pressure of the groundwater in the underlying limestone strata. This mitigation measure was approved by the Environment Agency and although the excavation of sand & gravel and clay has largely been completed, this agreed mitigation measure will continue to be adopted.

The overburden and other site derive materials currently stockpiled in the southern part of the application area will be progressively removed and used in the restoration of other parts of Finmere Quarry (see Figures FQ.EBP/003 and FQ/EBP/004 attached to the Clay Extraction at Variance to Conditions PS). The transportation of that material will mainly be via the internal haul road to the south and west of Finmere Plantation (rather the currently approved route to the east of Finmere Plantation). If the material is required to backfill and restore the proposed Clay Extraction Extension Area it will be transported via a new crossing point over the diverted route of bridleway 7.

None of the material transported from the application area will be routed via the public highway (other than at the crossing points over bridleways).

In the event of groundwater ingress, the level of the groundwater in the Forest Marble and White Limestone Formations will be controlled at the base of the clay either by pumping from boreholes installed at and around the site or by pumping water collected in the void. Should groundwater control in the limestone formations prove to be necessary, the water will be pumped to the silt lagoon and then to the adjacent clean water lagoon / soakaway.

3.3 Access

Vehicle access will continue to be via the existing entrance from the A421 (Banbury Road).

The surfaced site access road connecting all parts of Finmere Quarry to the A421 (Banbury Road) will be maintained and swept as necessary to prevent the carry-over of mud on to the highway. South of the security cabin the main internal access roads will be maintained and/or surfaced with concrete where this has not already been done.

Vehicles accessing the MRF, the landfill and the processing plant compound will first pass through the reception area alongside Finmere Plantation. The reception area comprises site offices, weighbridges, wheel cleaning facilities and a mess room. Vehicles will pass over the weighbridge as part of the waste acceptance process.

3.4 Duration and Traffic Generation

Sand and Gravel Extension

The sand and gravel extraction west of the disused railway line previously approved under planning permission number 10/01516/CM (MW.0142/10) (and now subject of application number 16/02524/CM (MW.0142/16) for permission to continue that development subject to a revised end date) is likely to take up to 5 years to complete and generate an average of 21 HGV movements per working day (where a movement is either an inbound or an outbound leg of a journey) if the HS_2 holding objection is removed and OCC grants permission.

The proposed sand and gravel extraction extension meanwhile is likely to continue this level of HGV traffic generation for a period of just over 4.5 years – after the raw materials currently stockpiled in the plant compound have been processed beginning in 2020 and ending in 2024 / 2025 (or for just over 4.5 years following the completion of the sand and gravel extraction proposed in application number MW.0142/16).

Non-Hazardous Waste landfill Extension

The proposed extension to the area of non-hazardous waste landfill will be operational largely (but not exclusively) after the current landfill area approved under planning permission number 17/01189/CM (MW.0004/17) has been completed and will be mainly filled with residual wastes arising from processing at the MRF. It will therefore have the effect of extending the duration of landfilling, rather than intensifying it.

The approved landfilling was resumed in November 2017 and has consent to accept waste until 6th January 2028 (excluding the additional period required for the importation of restoration materials). The remaining approved void space (658,400m^3 as at 15th January 2017) is expected to be filled with MRF residual wastes at a rate of around 120,000m^3 per annum and is therefore likely to be filled well before the approved end date and in around 5.5 years.

At the expected rate of filling, the non-hazardous landfill operation is likely to generate an average of 35.5 HGV movements per working day (where a movement is either an inbound or an outbound leg of a journey).

The proposed extension to the non-hazardous landfill area is likely to continue this level of HGV traffic generation over a further 5.5 years - ending at the beginning of 2028.

Secondary Aggregate Recycling

Incoming inert waste which is deemed to be suitable for processing to recycle secondary aggregates(around 38,000 tonnes per annum) is likely to generate an additional 15 HGV movements per day on average (on the basis that deliveries of secondary aggregate will be backhauled i.e. transported to the customer in the same HGVs used to bring in the inert wastes).

It is proposed that the secondary aggregate recycling operation will continue to operate alongside the landfill and MRF operations i.e. until 2028.

Clay Extraction Extension

The proposed clay extraction is for use in on-site landfill engineering and will not therefore generate any HGV movements on the local highway network. The processing and sale of incidental deposits of sand and gravel will not generate a significant amount of HGV traffic.

Retention of MRF

The existing MRF approved under planning permission number 15/02059/OCC has permission to operate until 31st December 2020 and is limited to an annual throughput of 150,000 tonnes. The details submitted as part of that application stated that up to 90,000 tonnes of material would be recovered for re-use elsewhere.

The HGV traffic likely to be generated by the export of recovered materials as proposed in planning application number 15/02059/OCC is 42 HGV movements per day on average.

As the recycling of secondary aggregates from incoming inert wastes is now proposed to be carried out using the sand and gravel processing plant, the full capacity of the MRF will be available for the recovery of materials from incoming non-hazardous commercial and industrial (C&I) wastes.

On this basis, it is estimated that 10,000 tonnes of the incoming non-hazardous C&I wastes will be classified as unsuitable for processing at the MRF and will therefore be re-directed to the non-hazardous waste landfill site for disposal. From the remainder, 30,000 tonnes of material will be recovered for export to reprocessors and for re-use elsewhere. The other 110,000 tonnes will comprise the residual materials remaining following processing at the MRF and will be disposed of at the adjacent non-hazardous waste landfill.

The development now proposed includes the deferment of the end date for operations from 31st December 2020 until 6th January 2028 - the same end date as is currently approved for the landfill.

The HGV traffic likely to be generated by the proposed export of recovered materials is 14.5 HGV movements per day on average.

Clay Extraction at Variance to Conditions

The proposed continued development of the current clay extraction area at variance to conditions relate to various temporary operational uses and changes to the restoration scheme which will not generate any HGV movements on the local highway network.

Summary

The HGV traffic generation arising from the proposed developments is summarised in Table 3.1 below.

Table 3.1: HGV Traffic Generation

Activity	Average Daily HGV Movements	
	As Currently Approved	As Now Proposed
Sand and gravel extraction	21*	21*
Inert waste landfill	22.5*	N/A
Non-hazardous waste landfill / MRF	35.5	35.5
Secondary aggregate recycling	N/A	15
Clay extraction	0	0
MRF	42	14.5

* as proposed in application number MW.0142/16, subject to removal of the current HS_2 holding objection and approval by OCC.

3.5 Duration

The currently approved and proposed programmes of development are shown indicatively in Table 3.2 below.

Table 3.2: Currently Approved and Proposed Programmes of Development

Activity	As Currently Approved		As Now Proposed	
	Operational End Dates	Final Restoration End Dates	Operational End Dates	Final Restoration End Dates
Sand and gravel extraction and backfilling with inert waste west of the disused railway and processing	TBC*	TBC*	TBC*	TBC*
Sand and gravel extension and backfilling with on-site materials	N/A	N/A	2025 or just over 4.5 years following the completion of the sand and gravel extraction proposed in application number MW.0142/16	2027 or 2 years following the completion of the sand and gravel extraction in the proposed extension area.
Non-hazardous waste landfill	2028	2032	2023	2027
Non-hazardous waste landfill extension	N/A	N/A	2028	2032
MRF	2020	2021	2028	2029
Secondary aggregate recycling	N/A	N/A	2028	2029
Clay extraction	2030	2031	2030	2031
Clay extraction extension	N/A	N/A	2030	2031

* as proposed in application number MW.0142/16, subject to removal of the current HS_2 holding objection and approval by OCC.

Table 3.3: Average Daily HGV Generation and Duration of Activities

Approved Activity i.e. 'do nothing' (or assumed to be approved – see note 2 and 4 below)

Proposed Activity

ACTIVITY / YEAR[1]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Sand and gravel extraction[2]		21	21	21	21	21							
Sand and gravel extraction extension[3]							21	21	21	21	21		
Inert waste landfill[4]			22.5	22.5	22.5	22.5	22.5						
Inert waste landfill extension (backfilling with site materials)								0	0	0	0		
Non-hazardous waste landfill	35.5	35.5	35.5	35.5	35.5	35.5							
Non-hazardous waste landfill extension							35.5	35.5	35.5	35.5	35.5		
Secondary aggregate recycling		15	15	15	15	15	15	15	15	15	15		
Clay extraction	0	0	0	0	0	0	0	0	0	0	0	0	0
Clay extraction extension[5]	0	0	0	0	0	0	0	0	0	0	0	0	0
MRF[6]	42	42*	42*										
Retention of MRF[6]		14.5*	14.5*	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5		
TOTAL AVERAGE DAILY HGVs (DO NOTHING)	77.5	98.5	121	79	79	79	22.5	0	0	0	0	0	0
TOTAL AVERAGE DAILY HGVs (AS NOW PROPOSED)	77.5	86	108.5	108.5	108.5	108.5	108.5	86	86	86	86	0	0
TOTAL DIFFERENCE	**0**	**-12.5**	**-12.5**	**29.5**	**29.5**	**29.5**	**86**	**86**	**86**	**86**	**86**	**0**	**0**

1. The durations shown do not include restoration timescales - this table shows operational duration only.

2. This activity is as proposed in application number MW.0142/16 (subject to removal of the current HS_2 holding objection and approval by OCC). For the purposes of identifying the maximum potential average daily HGV movements it has been assumed that this application will be approved.

3. This assumes that this activity will follow on from the sand and gravel extraction proposed as part of pending application MW.0142/16. If MW.0142/16 is not approved then this activity would commence in 2019 (or once approved – whichever is earlier).

4. This activity is as proposed in application number MW.0142/16 (subject to removal of the current HS_2 holding objection and approval by OCC). For the purposes of identifying the maximum potential average daily HGV movements it has been assumed that this application will be approved.

5. It is likely that the proposed clay extraction extension will be progressed once the existing clay extraction area is exhausted however it is not known when this will be – as there are no off0site HGV movement associated with either activity these are shown as both taking place in parallel in the above table.

6.**If the proposed development for the MRF is approved then the average HGV numbers associated with the MRF will reduce from 42 to 14.5 per day in 2019. An overlap is shown in the table for the purposes of demonstrating that during 2019 and 2020 the proposed development for the MRF would result in a reduction in average daily HGV movements.

3.6 HS_2 Safeguarding

The proposed development excludes all land subject of the HS_2 Safeguarding Direction dated August 2016.

To ensure that suitable support is maintained for the HS_2 safeguarding area:

- stand-offs of between 5 and 10 metres in width will established along all relevant sections of the boundaries with the HS_2 safeguarding area; and
- any excavations up to the side of the stand-off areas will have a sidewall gradient no steeper than 1 in 1.5 and will have other material battered against such sidewalls (to final restoration gradients no steeper than 1 in 6) within 6 months.

In addition, drainage ditches will be excavated within the relevant stand-off areas to ensure that surface water run-off from Finmere Quarry is collected and managed within the site and litter screens will be erected along the boundaries of the proposed non-hazardous waste landfill extension area.

These measures will ensure that the construction and operation of HS_2 will not be adversely affected by the proposed development.

3.7 Hours of Operation

It is proposed that the currently approved hours of operation which generally apply at Finmere Quarry will also apply to the proposed developments i.e.

- 07:00-18:00 hours Mondays to Fridays (excluding Public Holidays); and
- 07:00-13:00 hours Saturdays

In relation to the operation of the MRF (once equipped with the approved acoustic barriers) it is similarly proposed to operate within the currently approved hours of operation i.e.

- 05:00 to 01:00 Mondays to Saturdays.

In relation to the hours during which waste and recovered materials may be transported to and from the reception compound and MRF via the access on to the A421, it is proposed that these be amended to:

- 06:00-19:00 hours Mondays to Fridays (excluding Public Holidays); and
- 06:00-13:00 hours on Saturdays.

3.8 Other Embedded Mitigation

In addition to the embedded mitigation measures referred to above, other embedded mitigation measures will be taken to ensure that:

- relevant wildlife habitats are safeguarded by retaining the adjoining field boundary hedgerows and trees and by replanting any sections which need to be removed for operational reasons as part of the final restoration scheme;
- the surface water and groundwater regimes are not adversely affected by i) ensuring that the quality and quantity of any discharges to the surrounding surface water ditch system complies with the terms of the related Environmental Permit (to be sought from the Environment Agency), ii) ensuring that the underlying clay is not disturbed iii) ensuring that no chemical or fuel containers are located within the site and iv) ensuring that there is no permanent dewatering of the Great Oolite Series aquifer;
- noise is minimised to an acceptable degree by i) limiting the hours of operation, ii) ensuring that noise levels do not exceed the limits deemed appropriate by Cherwell District Council's Environmental Health Officer when measured out the nearest houses, iii) ensuring that all site plant is properly maintained and fitted with effective silencers and that site mobile plant is fitted with silent or low-noise impact audible reversing alarms;
- dust and particulate emissions are suitably controlled by the use of a water bowser;
- any archaeological assets are suitably investigated and recorded in accordance with a scheme to be agreed with OCC; and

- visual effects and effects on bridleway users are minimised by i) constructing a suitable screen bund sown with grass alongside the relevant routes, ii) diverting parts of the routes where necessary, iii) by limiting the height of any stockpiles, iv) not installing external lighting unless the details are first approved by OCC and v) ensuring that vehicles only cross at purpose designed crossing points.

3.9 Restoration and Aftercare

Relative to the currently approved schemes, the restoration scheme now proposed for Finmere Quarry (as a whole) proposes much more extensive areas of new broadleaved woodland and areas designed to enhance nature conservation. Each part of the proposed overall scheme (and the related aftercare arrangements) is described in detail in each of the PS.

The overall restoration scheme is shown on Figure FQ/Masterplan (appended to this ES) and includes the retention of existing woodland, hedges and certain water features and introduces positive enhancement through the creation of considerable new areas of wildlife habitat and landscape features, in addition to the restoration of land to agriculture.

In quantitative terms, the proposed restoration scheme can be summarised as shown in Table 3.4 below.

Table 3.4: Restoration Habitats

Habitat Type		Area (ha)	Length (m)
Existing / Retained			
	Woodland	5.82	-
	Hedgerows	-	2,976
	Surface water drains	-	457
Proposed		**-**	**-**
	Woodland	14.93	-
	Woodland edge scrub	1.27	-
	Agricultural land	22.83	-
	Species rich neutral grassland	14.14	-
	Nutrient poor species rich grassland with scrapes	4.48	-
	Marsh / marshy grassland	1.07	-
	Ephemeral pools	0.1	-
	Re-established or new hedgerows	-	1,063
	Surface water drains	-	2,259
	Waterbodies	0.68	-

The new woodland will be created by planting broadleaved locally-native species and will include open glades to encourage ground flora and a range of invertebrates.

The new or replacement hedgerows will be created by planting locally-native species and have been designed to connect the new areas of woodland. The hedgerows will contain woody species to maximise diversity and provide a wide range of nectar, berries and fruit. This will provide new and increased habitats for nesting birds and invertebrates and will improve commuting and foraging opportunities for bats.

New permanent ponds will be created as part of the restoration plan. All will be a minimum of 400m², will be lined with clay and will be planted around the margins with locally-native species to maximise the benefits for a broad range of species.

Two lagoons have been created to the east of Finmere Plantation South. Whilst the primary use of the northern lagoon is to manage surface water and the southern lagoon is for the management of silt generated by the processing plant, these lagoons will be available for use by wildlife for the duration of the scheme. The northern lagoon will be retained, re-profiled and planted up with locally-native species to improve its suitability for wildlife under the restoration plan.

A series of shallow pools and scrapes will be created in the restored eastern clay extraction extension area. This will deliberately comprise a range of low nutrient soils made up of overburden, sub-soil and gravels to create a low, open sward with bare areas suitable for a range of farmland birds.

The new areas of species-rich grassland and neutral grassland will provide a valuable nectar source for a wide range of invertebrates that in turn will provide increased foraging opportunities for birds and bats. The grassland will also provide increased habitat for important ground-nesting species such as skylark.

In the areas which are not to be restored to agriculture the opportunity will be taken to create habitats specifically for scarcer arable plants and invertebrates e.g. beetle banks.

Two new proposed permissive path routes have been included within the restoration design to enhance the existing Public Right of Way network (see Figure FQ/Masterplan).

A total of 40 Schwegler 1FF bat boxes will be fixed to suitable trees in Finmere Plantation. This will provide additional roosting habitats for local bat populations and enable them to take full advantage of the new habitats as they become established. Based on experience from other projects, this box design is suitable for all species recorded using the site to date.

After-care of the each part of Finmere Quarry will take place for a period of 5 years following completion of the restoration works in each area in accordance with the schemes included in the relevant PS as Appendices E and D respectively or those to be submitted pursuant to a planning condition for OCC's approval.

4. Alternatives

4.1 Introduction

Regulation 18(3) and Schedule 4 Paragraph 2 of the 2017 EIA Regulations require that an ES includes *"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*".

As the location of Finmere Quarry is predetermined, the alternatives considered by the applicant in this case have been those relating to the scheme design. The consideration given to each of these aspects is described below.

4.2 Alternatives Studied and Reasons for Chosen Option

Sand and Gravel Extraction Extension

The size and scale of the proposed extension to the area approved for sand and gravel extraction is determined i) by the extent of the remaining deposit within ATC&PH's ownership and ii) the need to provide suitable stand-offs from the land safeguarded for the development of HS_2 and the adjoining woodland.

The scheme design meanwhile has sought to i) maintain provision for the public right of way, ii) leave the maximum time for HS_2 to confirm if all the safeguarded area will be required, iii conserve the good quality soils, iv) provide suitable access while safeguarding nearby protected trees v) record and/or safeguard archaeological assets and vi) achieve restoration back to a landform and appearance in keeping with the original and to productive agricultural use.

The option chosen is judged to be the most suitable having regard to these considerations.

Non Hazardous Landfill Extension

The size and scale of the proposed extension to the area approved for sand and gravel extraction is largely determined by i) the extent of the current non-hazardous landfill permission, ii) the wish to limit the extension to one which can be completed within the currently approved timescales and to one where the overall final appearance of the landfilled area will be enhanced and v) provide suitable stand-offs from the land safeguarded for the development of HS_2.

The scheme design meanwhile has sought to i) orientate the direction of working to enable landfilling and restoration in a phased manner to minimise potential adverse effects on amenity and protected species, iii) maintain access to the MRF, the aggregate processing plant compound and the clay extraction area, and iv) achieve restoration back to a suitable landform and appearance and to a beneficial use of value to nature conservation.

The option chosen is judged to be the most suitable having regard to these considerations.

Secondary Aggregate Recycling

The size and scale of the proposed secondary aggregate recycling operation is largely determined by i) the plant to be installed for the prime purpose of processing sand and gravel, ii) the amount of inert waste which is likely to be brought to the site which is suitable for processing and iii) the need to provide suitable stand-offs from the land safeguarded for the development of HS_2.

The scheme design meanwhile has sought to minimise potential adverse effects on amenity by confining all processing, product storage and related activities to the currently approved processing compound and reception area.

The option chosen is judged to be the most suitable having regard to these considerations.

Clay Extraction Extension

The size and scale of the proposed extension to the area approved for clay extraction is determined i) by the extent of the remaining deposit within ATC&PH's ownership, ii) the need to provide suitable stand-offs from the

adjoining hedgerows and iii) the amount of clay which is likely to be required for the engineering of the existing and proposed non-hazardous waste landfill.

The scheme design meanwhile has sought to i) maintain provision for the public right of way, ii) conserve the soils, iii) provide suitable access while safeguarding the uses of diverted bridleway number 7 and iv) achieve restoration to a combination of uses of value to the amenity of users of the rights of way network and to nature conservation.

The option chosen is judged to be the most suitable having regard to these considerations.

MRF Retention

The size and scale of the MRF are predetermined and so were not factors in the choices made by ATC&PH.

The proposal has sought to i) increase the amount of C&I waste to be recycled relative to the previously approved scheme and thereby improve the performance of the MRF in terms of the 'waste hierarchy' and ii) increase the area to be restored to neutral grassland and thereby achieve restoration back to a suitable landform and appearance and to a beneficial use of value to nature conservation.

The option chosen is judged to be the most suitable having regard to these considerations.

Clay Extraction at Variance to Conditions

The size and scale of the current clay extraction area are predetermined and so were not factors in the choices made by ATC&PH.

The amended scheme design has sought to i) enable a replacement surface water management pond to be established, ii) enable parts of the area to be used for the temporary stockpiling of restoration materials and the disposal of silt generated by the processing of sand and gravel and iii) achieve restoration to a combination of uses of value to the amenity of users of the rights of way network and to nature conservation.

The option chosen is judged to be the most suitable having regard to these considerations.

4.3 Comparison of Environmental Effects

The main reasons for ATC&PH's choice pays regard to the environmental effects which will result – as described above.

4.4 Overall

Following its study of the above alternatives, ATC&PH chose the options which now make up the proposed scheme for a number of reasons, the foremost of which were that they:

- can be achieved within the same timescale as that currently approved for the non-hazardous waste landfill;
- will safeguard the amenity of local residents and known assets e.g. protected species and trees, potential archaeological assets and good quality agricultural land; and
- will result in the creation of an improved final landform and a mix of uses which will be a greater value for nature conservation and public amenity purposes.

5. Transport

5.1 Introduction

This chapter provides a summary of the potential effects of the proposed development in terms of transportation and highways as detailed in the report included at Appendix C.

5.2 Methodology

A transport assessment has been produced to assess and mitigate the impact of the traffic generated by the proposed development on the local highway network. The assessment has been produced in accordance with the Guidance on Transport Assessment (GTA, Department for Transport, 2007).

An Automatic Traffic Count (ATC) was conducted between the 14th and 20th of October 2017 (inclusive) on the A421, to the east of the quarry access. It recorded all vehicle movements on this section of the highway network, including traffic volumes, classifications and speeds.

In addition, road safety collision statistics were obtained via the CrashMap database for the period 1st January 2012 to 31st December 2016 and for a study area comprising the A421 c.20km either side of the site entrance and the first c.10km section of the A4421 south of its junction with the A421.

The Institute for Environmental Assessment's (IEA) *Guidelines for the Environmental Assessment of Road Traffic* were used to judge, in broad terms, the environmental effects of the traffic generated by the proposed development.

5.3 Baseline Conditions

The site is currently accessed via the A421, which routes from its junction with the A43 at the Barleymow roundabout, Oxfordshire, to the junction with the A1 at St Neots in Cambridgeshire. At the point of the site access, the road is a 60mph single carriageway, two way route. About 0.5 miles to the east of the site, the A421 connects with the A4421 at a 4 arm roundabout junction.

The nearest major trunk road to the proposed site is the M40, which is to the south west of the site. The nearby towns of Buckingham, Bicester and Banbury are all easily accessible from the site.

The ATC survey recorded an Annual Average Daily Traffic (AADT) figure of 11,370 and an average weekday HGV percentage of 20.9%. For comparison, a new single carriageway two-way rural road would be expected to accommodate up to 13,000 AADT (Design Manual for Roads and Bridges, DMRB, Volume 5).

A total of 9 collisions have occurred within the road safety study area since 2012 - 5 of which occurred at the A142/A4421 roundabout junction. No collisions have occurred at the location of the site access, although one 'serious' collision was recorded on the A412 to the east of the site access (single vehicle involved). Seven collisions were classified as 'slight', whilst 2 collisions classified as 'serious', both of which occurred in 2014. There have been no 'fatal' collisions within the study area over the past 5 years of collision data.

5.4 Assessment of Effects

The changes in HGV movements and end dates are given in Table 3.3 of this ES with maximum daily HGVs shown. This shows that the 'Do Nothing scenario' creates the largest number of HGVs in a single year, but that the 'now proposed' scenario creates larger average number of HGVs over a longer time frame.

Two scenarios have been considered when assessing the capacity of the access road junction with the A421 to test the impact of changing the proportions of vehicles turning into and out of the junction. Using the modelling technique recommended by the DfT for measuring the capacity of this junction type, the analysis carried out shows that the site access the junction will operate well within capacity and that there very little difference in the performance of the junction with or without the traffic generated by the proposed development.

The terms of the potential environmental effects it can be seen that the expected traffic generation represents an increase of only 1.06% relative to current flows. By reference to the assumption in the IEA Guidelines that projected changes in traffic of less than 10% create no discernible environmental, there is unlikely to be a material environmental impact.

Given the lack of collision locations requiring mitigation at the current time, it is not anticipated that the proposed development will lead to any change in road safety risk.

5.5 Cumulative Effects

There is a disused former railway line that runs through the site that is to be used for the development of HS_2. During the construction phases of the line, HGV's and other construction vehicles may require access to this stretch of the HS_2 route, which may potentially create additional traffic on the local highway network.

As the proposed development has little bearing relative to the level of traffic generated by developments at Finmere Quarry which already have the benefit of planning permission and the transport assessment undertaken by HS_2 (as approved through the grant of Royal Assent for the High Speed Rail (London – West Midlands) Act 2017) should have taken cumulative effects into account, it is reasonable to conclude that such effects have already been considered and found to be acceptable.

No other proposed developments in proximity to the site have been identified for the cumulative impact assessment.

5.6 Mitigation

Given the findings of the transport assessment, no further mitigation is considered to be required.

5.7 Statement of Significance

The proposed development will not have a 'severe' impact – which is the relevant test set out in paragraph 109 of the NPPF. It therefore follows that there are no highway or transportation reasons why planning permission should be refused.

6. Air quality

6.1 Introduction

This chapter provides a summary of the potential effects of the proposed development in terms of air quality as detailed in the report included at Appendix D.

6.2 Methodology

A qualitative assessment has been undertaken of the potential for significant effects to occur as a consequence of uncontrolled emissions of coarse dusts and particulate matter (as PM_{10}) from the site. The assessment has been carried out in accordance with local planning policy, NPPF and national air quality standards. The guidance provided in the Institute of Air Quality Management's (IAQM) Guidance on the Assessment of Mineral Dust Impacts for Planning has also been taken into account.

Consideration has also been given to the effects associated with road traffic emissions arising from the proposed development.

The scope of this work concerns qualitative assessment of dust and PM_{10}, in terms of disamenity, health effects on humans and likely effects on ecological receptors as a consequence of the proposed development at the Finmere Quarry site. The resumed operation of the material recovery facility (MRF) and continuation of non-hazardous landfilling within the site means that potentially odorous materials may be accepted into the site for processing and disposal. MRF operations would be carried out within the facility building, and landfilling operations would take place no closer than 350 metres to the nearest properties. Furthermore, there is no recent history of complaints associated with the currently operational site regarding odour. Accordingly, consideration of odour impacts has not been included within the scope of this assessment.

6.3 Baseline Conditions

Wind rose plots obtained from the meteorological station located at Birmingham International Airport show that during the period 2012 to 2016, winds blow most frequently from the south west, which is typical of conditions across much of the country. This means that wind is most frequently blowing towards receptors located in the direction of Finmere village. The average wind speed during the representative period was 4.1 m/s. Wind speeds of 4.1 m/s or less are unlikely to pick up dust from surfaces such as the ground and stockpiles, and will transport fine particulate matter if already airborne. During adverse meteorological conditions when wind speeds are elevated well above average, there is the potential for gusts to disturb and pick up particulates from surfaces.

To gain an understanding of the current PM_{10} particulate concentrations at the Finmere Quarry site, a proxy was selected from the air monitoring stations featured on the Defra website because there is currently no air monitoring site in the immediate vicinity of Finmere Quarry. Chilbolton Observatory air monitoring site was selected as the rural background site to act as a lower bound proxy for Finmere Quarry. Oxford St. Ebbes urban background air monitoring site was selected as the upper bound estimate. Despite the differences in site type at Chilbolton and Oxford, mass concentrations of PM_{10} particulates are markedly similar in terms of mean and median concentrations, both of which fall well below the annual average limit of 40 $\mu g/m^3$ as set out in the national Air Quality Strategy.

6.4 Assessment of Effects

Due to the rural nature of the area, dust and PM_{10} sensitive receptors within the zone of potential impacts considered in this assessment are limited to a very small number of residential properties. The location of these receptors is shown in Table 6.1 below. Each of the receptors chosen represents the maximum level of exposure that could be experienced at other receptors in their vicinity. As the receptors are residential properties they have been classified as being of high sensitivity to dust emissions.

Table 6.1: Receptor Site Distances from Current and Proposed Activities within the Quarry Site

Receptor	Description	Distance to Land Ownership Boundary (m)	Distance to Currently Permitted Activities (m)	Distance to Proposed Extension Activities (m)
R1	Widmore Farm	<1	220	350
R2	Glanwin Meadow	20	165	140
R3	Foxley Fields	<1	90	175
R4	Boundary Farm	<1	<1	180
R5	Barleyfields Barn Farm	440	440	440
R6	Barley Fields	440	440	540
R7	Warren Farm	210	250	250

To determine the residual source dust emissions the proposed methods of operation, duration, location and amount of traffic generation were all taken into consideration in conjunction with a number of operational scenarios. On this basis the overall residual source dust emissions for the site were designated as Medium.

When the frequency of dusty winds is considered, along with the receptor distance from the source, the resultant pathway effectiveness is classified as moderately effective in the case of one receptor, Glanwin Meadow. At the other receptors, the pathway is classified as ineffective.

The impact risk for deposited dust has been assigned as low at one receptor (R2 – Glanwin Meadow), because of the medium residual source emission and the moderately pathway effectiveness. At the other receptors the impact risk has been determined to be negligible. The resulting magnitude for effects of deposited dust is therefore judged to be slight adverse at one receptor (R2 – Glanwin Meadow) and negligible in other areas.

In terms of potential health effects, the two Defra air monitoring sites deemed to be suitably representative of Finmere Quarry report mean background PM_{10} particulate concentrations of less than 17 µg/m^3. This is less than half of the annual mean air quality objective and provides evidence that the background is consistent with that found in rural areas. Therefore, there is little risk that the contribution of particulates (also referred to as the Process Contribution) made by the proposed development would lead to an exceedance of the annual mean PM_{10} objective, in accordance with IAQM guidance.

IAQM guidance[1] has criteria for which a detailed air quality assessment would be required for operational road traffic vehicle movements. As the proposed development site is outside of an AQMA then a detailed air quality assessment would be required should there be a change of Heavy Duty Vehicles[2] of more than 100 Annual Average Daily Traffic. All of the additional vehicle movements are below the IAQM threshold for a detailed assessment of operational road traffic vehicle movements. On this basis it is not considered necessary to proceed with a quantitative assessment of the effect of road traffic on local air quality.

6.5 Mitigation

The low magnitude residual risk predicted for both deposited dust and PM_{10} is dependent on the implementation of mitigation measures consistent with good practice during the normal operation of the site. Such standard measures have been embedded in the proposed scheme design and are described at section 3 of this ES and in section 5.3 of ES Appendix D.

As the embedded mitigation measures are judged to be sufficient to ensure that the effects predicted are not significant, no further mitigation is considered to be necessary. Provided that a significant escalation of complaints does not occur, ongoing visual monitoring of dust emissions from the site by staff, with corrective action taken in the event that an issue is seen to arise is considered to be sufficient and no further operational monitoring is considered to be necessary

[1] Institute of Air Quality Management (IAQM) (2017), Land-Use Planning & Development Control: Planning for Air Quality, version 1.2 January 2017
[2] Heavy Duty Vehicles are defined as freight vehicles of more than 3.5 tonnes (trucks) or passenger transport vehicles of more than 8 seats (buses and coaches).

6.6 Statement of Significance

The implementation of standard good practice embedded mitigation measures would be sufficient to control emissions, to the extent that the magnitude of dust effect is negligible to slight adverse at all receptors considered within the assessment. The overall effect of the proposed development on local air quality is considered to be not significant.

7. Ecology

7.1 Introduction

This chapter provides a summary of the potential effects of the proposed development on ecological receptors as detailed in the report included at Appendix E.

7.2 Methodology

The methods used for assessing the impacts on features of ecological and nature conservation interest are now those set out in the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact in the UK and Ireland, Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018).

The British Standard BS42020:2013, "Biodiversity - Code of practice for planning and development" has also been consulted in producing this document.

7.3 Baseline Conditions

7.3.1 Internationally Designated Sites

The nearest internationally protected site is Oxford Meadows, a SAC 26km southeast of the Site designated for its Annex 1 Habitat: traditionally-managed lowland hay meadow.

7.3.2 Nationally Designated Sites

The nearest nationally important site for nature conservation is Tingewick Meadows SSSI, approximately 1.8km to the southeast. This site is one of the last remnants of old meadow in North Buckinghamshire and is important for its unimproved neutral grassland and fen communities.

There are no additional SSSIs, NNRs or LNRs within 5km of the Site.

7.3.3 Non-Statutorily Protected Sites

Spilsmere Woods LWS is approximately 1.1km to the southwest. This is an ancient woodland site with oak, ash, aspen and coppiced hazel.

West Wood LWS is approximately 1.25km to the east, comprising two areas of broadleaved woodland of oak and ash over hazel. The woodland is used for paintball activities and forestry.

Barton Hartshorn Railway Wood LWS, approximately 1.4km to the southeast, is an osier willow woodland with streams abutting a disused railway embankment.

7.3.4 Other Designations

The Site does not fall within any Oxfordshire Conservation Target Area (CTA), the nearest being Tusmore and Shelswell Park CTA approximately 1.9km to the southwest.

The closest ancient woodland to the Site is referred on the Ordnance Survey map as Diggings Wood, 750m west of the Site at the southern end of the Mixbury Plantation/Park Thorns woodland complex.

7.3.5 Habitats, Plant Communities and Plant Species

All habitats recorded remain common and widespread within a local and national context. However, the northern woodland, Finmere Plantation, hedgerows and ponds are S41 Principal Habitats. None of the hedgerows impacted by the proposed scheme qualifies as important under the Hedgerow Regulations, 1997. None of the arable field margins is specifically managed for wildlife and therefore they do not qualify as an S41 Principal habitat.

7.3.6 Existing Amphibian Receptor Site

As described in Annex E3, a European Protected Species Licence (EPSL EPSM2011-3441C) was granted by Natural England in May 2012. As part of the EPSL mitigation strategy, a receptor site was created in the southern part of the grassland to the west of the disused railway. A total of 11 new ponds were created and planted up with locally native aquatic species. The whole area was surrounded by steel amphibian fencing in order to create a barrier to movement back across the railway onto the Site. This receptor site has been regularly monitored since then, to ensure that it remains suitable to receive the amphibian population remaining on the Site.

7.3.7 Plant Species

No nationally rare, nationally scarce, S41 Principal Species or Local BAP priority plant species was recorded within the Site. However, a single Red List plant species was found (common cudweed), which is classed as 'Near Threatened' (Stroh et al, 2014).

7.3.8 Invasive Species of Note

The highly invasive alien plant Japanese knotweed is present on the disused railway corridor beyond the western Site boundary but is absent within the Site as a result of management to prevent its accidental spread.

7.3.9 Invertebrates

The invertebrate interest on the Site is limited to areas that are not being worked and only two areas are of any note. Finmere Plantation generated a list of species that are all common and local and none has a formal nationally-significant status. The northern fields highlighted two species of conservation value; cinnabar moth (an S41 species listed as ‘research only’) and the yellow-faced bee (a genuinely scarce Red Data Book 3 species). The other species recorded are widespread, common and are found in a range of similar habitats. Both areas are likely of Local (low) importance (Plant, 2009). No further survey work was considered necessary to inform the assessment.

7.3.10 Amphibians

The presence of breeding GCN was established in Pond 1 and Pond 2. The combined peak count of 33 indicates a population size class assessment of 'medium'. No GCN were found in Pond 3. GCN are common and widespread in the local area and the 2018 monitoring surveys of the mitigation ponds in the receptor area revealed that GCN are present and breeding in 15 out of 17. GCN are protected under European and domestic legislation and the population present on the Site is considered an important feature within the zone of influence.

Smooth newts were recorded in Pond 1 and Pond 2. This species is common, widespread and as it has no conservation designation, it is not considered an important feature. No toads (or other amphibians) were recorded on Site during the surveys.

7.3.11 Reptiles

No reptiles were recorded during any site visit. There are records of common lizard and grass snake from the disused railway cutting. Site boundary features that connect to the railway, (such as hedgerows) provide suitable habitat for reptiles but as these features are not directly affected by the proposed scheme, any negative impacts are unlikely. Reptiles are not considered an important feature of the Site and any that may be present are considered resilient to any effects of the proposed scheme; this group is not considered further in the assessment.

7.3.12 Birds

In total, 61 bird species were recorded using the Site during the six breeding-bird survey visits. This included 11 species of Principal importance, 10 Red List species (Eaton et al, 2015) and 13 species which are included on the Amber List. There is suitable breeding habitat for most of these species within the Site.

Two Schedule-1 bird species (those specially protected under the WCA) were recorded during the survey: red kite and fieldfare. Red kites were frequently seen, most often over the active landfill. This species in known to breed in the local area but has never been recorded breeding on the Site. Fieldfare is a rare breeding species in

the UK and there is no suitable breeding habitat on the Site. An active rookery was present within the northern area of Finmere Plantation with approximately 70 nests counted in April 2018. Tawny owl was the only nocturnal or crepuscular species noted during evening fieldwork.

Whilst the list of birds recorded using the Site includes many S41, Red List and Amber List species, all are relatively common, widespread and typical of the habitats in which they were found on Site. Important species that favour open farmland/grassland habitats, such as skylark, were recorded breeding on the capped landfill grassland (seeded within the last five years), so are already making use of restored areas. The breeding bird assemblage is considered an important feature of the Site within the zone of influence but as most of these habitats are not impacted by the proposed scheme, most species are likely resilient to any effects. Wintering birds are not an important feature of the Site.

7.3.13 Bats

The roof void of the bungalow at Foxley Fields Farm supports a brown long-eared bat maternity colony. The maternity roost at Foxley Fields Farm is considered an important feature of the Site at a County level (as defined by Wray, *et al,* 2010). No roosts were identified in any of the suitable trees surveyed.

The bat assemblage using the Site is considered an important feature within the zone of influence. However, given their mobility and the retention of boundary features and woodland, their foraging and commuting activities are likely resilient to any predicted effects of the proposed scheme so are not considered further in this regard.

7.3.14 Badgers

The results of the badger survey are presented in Annex E9, which is to be treated as confidential and must not be released into the public domain. Badgers are fully protected by the Protection of Badgers Act, 1992 and are therefore considered an important feature within the zone of influence.

7.3.15 Other Mammals

Hedgehog

Hedgehogs are an S41 species. None were recorded during the survey and suitable habitats are limited to Site boundary habitats that are not directly affected by the scheme. Hedgehogs are not considered an important feature of this Site and any present are likely resilient to any predicted effects of the proposed scheme; they are not taken forward to the impact assessment.

Brown Hare

Brown hare is an S41 species. One animal was seen in the corner of the north-western arable field during the breeding bird survey on 30 May. There is farmland beyond all the Site boundaries and whilst brown hare may make greater use of the Site than has been recorded, it is a highly mobile species. Brown hares are not considered an important feature of this Site. Any animals that use the Site are likely resilient to any predicted effects of the proposed scheme and are not taken forward to the impact assessment.

7.4 Assessment of Effects

7.4.1 Designated and Locally Important Sites

Oxford Meadows SAC is 26km southeast of the Site, Tingewick Meadows SSSI is approximately 1.8km southeast and Spilsmere Woods LWS is approximately 1.1km to the southwest. All three sites are sufficiently distant from the Site so that they are not linked to it by connecting habitats that could be damaged or by common species whose territories would be severed by the proposed scheme. In addition, the SSSI and LWS are 360m and 440m respectively from the nearest road likely to be used by vehicles transporting materials to or from the Site, thus there are no predicted effects from noise or dust. As it a result, it can be safely concluded that there would be No Significant Effect on statutory or non-statutory sites designated for nature conservation.

7.4.2 Woodland

As a result of the mitigation measures embedded in the scheme and the substantial new tree planting to be undertaken as part of the restoration of the Site, the overall impact on woodlands will be Significant and Positive at the Local level.

7.4.3 Hedgerows

The hedgerow between the two north-eastern arable fields will be removed to maximise the area for sand and gravel extraction (H1 on Figure E1 Annex E3). This hedgerow is currently species-poor and does not meet the criteria for 'important' under the Hedgerow Regulations, 1997, although it does provide habitat for nesting birds (including dunnock). The hedgerow to be lost is approximately 100m long (3% of the total) but it will eventually be restored with locally-native species and will be more species-rich than it is at present. Together with other species-rich hedgerows to be provided as part of the restoration of the Site, the overall impact on hedgerows will be Significant and Positive at the Site level.

7.4.4 Ponds

The loss of two ponds and a dry silt lagoon will result in the loss of breeding and foraging habitat for a range of invertebrates, amphibians and common waterbirds. It will also remove a source of clean drinking water for numerous mammal species, including badgers and bats. The loss of these features has already been successfully mitigated under EPSL by the creation of new ponds in the receptor site. At least six new permanent ponds will be created as part of the restoration of the Site, together with shallow scrapes, and temporary lagoons. In combination with the proposed restoration and the existing measures in place, the overall impact on waterbodies will be Significant and Positive at the Site level.

7.4.5 Great Crested Newts

Two ponds and their associated terrestrial habitat that supports a 'medium' sized population of GCN will be lost. An amended EPSL will be sought from Natural England to enable the residual amphibian population to be safely moved to the existing receptor site. The existing programme of habitat management and monitoring would continue in accordance with the terms of the existing EPSL. The overall impact on amphibians will be Significant and Positive within the zone of influence.

7.4.6 Birds

Many bird species recorded using the Site are fully expected to continue to do so whilst such habitats exist and their specific requirements for breeding and foraging are met. Site clearance work during the active breeding season (typically mid-March to late August for most species) could result in damage to or destruction of active nests (those with eggs or young). Habitats suitable for use by nesting birds will be cleared outside the breeding bird season. If for any reason this is not possible, the affected area will be inspected by an ecologist in advance and any active nests will be identified, cordoned off and monitored until the eggs have hatched and the young have fledged. Nearly 3km of hedgerow will be retained and more than 1km of hedgerow will be planted as part of the restoration scheme - some new and some restoring historical hedgerows once present on the Site. The restoration scheme will also result in nearly 15ha of new broadleaved woodland, together with some 1.3ha of woodland edge scrub comprising locally-native species, at least 14ha of species-rich neutral grassland and some 4.5ha of grassland on the low nutrient soils with scrapes and the creation of six new ponds. This will provide a significant increase in the size, quality and diversity of habitats suitable for nesting and foraging by a wide range of birds, including all of those recorded using the Site. The overall impact on birds will be Significant and Positive within the zone of influence.

7.4.7 Bats

Bats are a highly mobile species and are extremely adept in exploiting suitable roost features, especially in trees, which can develop quickly. The Tree Protection Plan will be in effect for the duration for the scheme so any direct impacts on trees that may be used by bats will be avoided. The retention of woodland and hedgerow trees will continue to provide roost opportunities for bats in the medium to long term. The extensive woodland planting under the restoration scheme will provide replacement trees for those that are lost to old age and disease, thus providing a succession of roost opportunities for bats for decades to come. The habitat creation work will result in a significant increase in the populations of invertebrate assemblages using the site, providing much improved

foraging opportunities for all species of bats that use the Site. The overall impact on bats will be Significant and Positive within the zone of influence.

7.4.8 Badgers

The earthmoving works associated with the scheme have the potential to accidentally kill or injure badgers and destroy active setts, contrary to nature conservation objectives. Badger activity will be monitored throughout the life of the scheme to ensure legal compliance and to meet nature conservation objectives. The approved restoration scheme will result in the creation of nearly 15ha of new broadleaved woodland, together with some 1.3ha of woodland edge scrub comprising locally-native species, at least 14ha of species-rich neutral grassland and some 4.5ha of grassland on the low nutrient soils that will be available for foraging and the excavation of setts. The new ponds will provide a source of clean drinking water and there will also be a reduction in overall disturbance levels. The overall impact on any badgers that may make use of the Site will be Significant and Positive within the zone of influence.

7.5 Mitigation

Given the findings of the ecological assessment, no further mitigation or compensation is considered to be required.

7.6 Statement of Significance

It is considered likely that the proposed scheme will result in a significant positive effect on all the important features identified in the assessment, which is in accordance with national and local nature conservation objectives.

8. Hydrogeology

8.1 Introduction

This chapter provides a summary of the potential effects of the proposed development in terms of hydrogeology as detailed in the report included at Appendix F.

8.2 Methodology

The methodology adopted for the hydrogeology impact assessment is based on the source-pathway-receptor approach. For there to be an identifiable impact, there must be a source i.e. a contaminant or an activity, a receptor and a pathway which allows the source to impact on a receptor. All three elements must be present before a linkage and a potential impact can be realised.

In order to assess the likely significant potential effects of the proposed development on the hydrogeological conditions, a conceptual hydrogeological model of Finmere Quarry and the surrounding area was prepared. This identified the principal sources and receptors and the plausible pathways. The conceptual model, together with the source-pathway-receptor approach, forms the basis of a semi-quantitative risk assessment of the potential impacts of the proposed development on groundwater resources.

8.3 Baseline Conditions

The sand and gravel deposit which predominately overlies the White Limestone Formation in the north-western area of Finmere Quarry is designated by the Environment Agency (EA) as a Secondary A Aquifer. This classification is assigned to strata where permeable layers are capable of supporting water supplies at a local rather than a strategic scale and in some cases form an important source of baseflow discharge to rivers. It is likely that the sand and gravel deposit has a high intergranular permeability which facilitates groundwater flow. It is also likely that the clay-rich band (Oxford Clay), which underlies the sand and gravel, has a low permeability which restricts vertical groundwater flow. Where the Oxford Clay is laterally continuous it may support a perched groundwater level in the overlying sand and gravel and isolate groundwater in the sand and gravel from that in the underlying limestone.

The till in the south-eastern area of the site is designated by the EA as a Secondary (Undifferentiated) aquifer. This designation has been assigned to strata where it has not been possible to attribute either aquifer category Secondary A or B. In most cases, this means that the layer in question has previously been designated as both a minor aquifer and a non-aquifer in different locations. It is likely that the till has a low permeability with limited groundwater significance and that flow predominantly is within minor, higher permeable bands.

It is likely that the direction of groundwater flow in the sand and gravel is influenced by water management at the site for landfill operations and by the leakage of water from the lagoons in the centre of the site. Regionally it is interpreted that groundwater in the sand and gravel surrounding Finmere Quarry flows in a generally easterly direction. Beneath the northern part of the site, including the proposed sand and gravel extraction extension, groundwater flows to the north. In the remainder of the site, groundwater in the sand and gravel flows generally to the east. It is interpreted that regionally groundwater in the sand and gravel is in hydraulic continuity with, and provides base flow discharge to, the surface water system in the area. However, it is noticeable that on the eastern edge of the proposed clay extraction extension area, the groundwater level in the sands and gravels is 7.5m below ground level, significantly lower than the invert of the adjacent field drains, which indicates that there is no hydraulic continuity between the groundwater in the sand and gravel and the surface water in the south eastern part of the site.

The White Limestone Formation underlies the north-western area of Finmere Quarry. It is likely that the limestone has a low intergranular permeability but a high secondary permeability imparted by the presence of fractures and fissures, which facilitates groundwater flow. The bulk of groundwater flow in the limestone is in the fracture system which encourages rapid groundwater flow. It is likely that the Forest Marble Formation overlies the White Limestone across the whole site (contrary to the BGS mapping), as the Forest Marble sequence of alternating clay and limestone is exposed on the walls of the excavation for Cell 10 in the north-west of the site. Due to the variation in the lithology of the Forest Marble, it is likely that groundwater flow is focused within the limestone bands, which may result in the development of a series of discrete aquifers associated with individual limestone bands.

Regionally, it is considered that groundwater in the limestone aquifer below the site flows in a northerly or north-easterly direction towards the Great Ouse River. Locally, the groundwater level in the limestone is influenced by abstraction from the sub-cell drainage system in the landfill cells and by previous recharge to the reinjection lagoon in the centre of the site. This shows that there is a groundwater divide/mound in the centre of the site with a piezometric water level above 116m AOD. The groundwater flows away from the mound to the north and to the south-east.

There is a difference in the groundwater levels between the sand and gravel and the limestone. In 2006, a series of monitoring boreholes were drilled in the approved area for sand and gravel extraction west of the disused railway. The results of groundwater level monitoring in these boreholes between 2006 and 2008 showed that the groundwater level in the sand and gravel consistently was higher than that in the limestone. From the results of this monitoring it is inferred that the Oxford Clay at the site supports perched groundwater in the overlying sand and gravel, restricting hydraulic continuity with the underlying limestone formation.

There are no licensed groundwater abstractions or surface water abstractions within a 2 km radius of the Finmere Quarry. The closest abstraction licences to the quarry relate to three surface water abstractions located approximately 4 km to the north-east, 4 km to the south, south-west, and 4.5km to the south-west of the site respectively. There is no groundwater SPZ within a 2km radius of Finmere Quarry.

Information provided by Cherwell DC has identified an existing private domestic borehole at Northwell Farm (NGR SP 62753400) approximately 1.5km north of Finmere Quarry. It is likely that this source abstracts from the White Limestone aquifer.

Finmere Quarry is located approximately 2.5km north west of one Site of Special Scientific Interest (SSSI) - Tingewick Meadows which is designated as neutral grassland. The SSSI citation includes reference to spring fed marshy areas.

Groundwater quality sampling undertaken in accordance with the conditions attached to the Environmental Permit and is reported in the AECOM 2017 report, entitled '*Finmere Quarry Landfill Hydrogeological Risk Assessment Review*' submitted to the Environment Agency.

8.4 Assessment of Effects

Groundwater in the proposed sand and gravel extraction extension area would be classified as being of medium sensitivity and the potential impact is considered to be of low magnitude. Accordingly, the impact significance of the proposed mineral extraction in the northern extension area on groundwater level and resources is assessed as minor.

The void created by the sand and gravel extraction will be restored back to original ground level (or similar) by the re-deposition of the overburden materials and of reject inert materials arising from other areas on the site. As only natural inert materials derived from the quarry will be used to restore the extracted areas, the restoration proposals for the proposed sand and gravel extraction extension pose no risk to the groundwater quality in the sand and gravel aquifer which surrounds the area. Accordingly, the impact significance of the proposed mineral extraction in the northern area on groundwater quality is assessed as insignificant.

It is likely that the private groundwater supply at Northwell Farm to the north abstracts from the limestone aquifer. The groundwater management measures in the proposal for the sand and gravel extraction and subsequent restoration with site-derived, natural inert materials will have no significant effect on the level and quality of the limestone groundwater. Accordingly the effect on the private water supply is considered to be insignificant.

In terms of the proposed clay extraction extension area, it is considered that there is no direct hydraulic connection between the groundwater in the incidental sand and gravel and the watercourses east of the site and hence extraction will have no significant impact on the adjacent surface water system. Accordingly, the impact significance of the proposed extraction of clay (and the incidental sand and gravel) on groundwater level and resources is assessed as minor.

Tingewick Meadows SSSI to the south-east is approximately 2.5km from the proposed clay extraction extension area. The SSSI is classified as low sensitivity due to its distance from the site. It is considered that the effects of the limited dewatering of the sands and gravels and the clay extraction will not extend to the SSSI. Accordingly the magnitude of the effect on the SSSI would be negligible and the impact significance is assessed as insignificant.

Groundwater level monitoring of boreholes in this area shows that the groundwater in the limestone aquifer is confined by the overlying till and Oxford Clay and that it has a piezometric level above the surface of the limestone within the Oxford Clay. Accordingly, extraction of the overlying sand and gravel and clay presents a potential risk of heave of the base of the excavation in the absence of measures to control the groundwater in the limestone aquifer.

Where the Oxford Clay is extracted above the piezometric level in the underlying limestone aquifer, there is no risk of basal heave of the excavation and the ingress of groundwater from the limestone to the void. Based on limitations that a minimum 1.5m of Oxford Clay is retained in the base of the excavation and that the depth of excavation is limited to 0.5m below the piezometric level in the limestone, it is considered that extraction can take place to a depth of approximately 7.5m in the western part of the clay extraction extension area to 9m in the east, without an unacceptable risk of heave of the base of the excavation.

As only natural inert materials derived from the extended Finmere Quarry will be used to restore the proposed clay extraction extension area, the restoration proposals for the proposed mineral and clay extraction pose no risk to the groundwater quality in the residual sand and gravel which surrounds the area, or to the underlying limestone aquifer. Accordingly, the impact significance of the proposed clay extraction extension in the eastern area on groundwater quality in the incidental sand and gravel and limestone aquifers is assessed as insignificant.

Finally, in terms of the proposed landfill extension area, groundwater in any sand and gravel deposit which remains is classified as being of medium sensitivity and the potential impact on both groundwater level and quality is considered to be of low magnitude. Accordingly, the impact significance of the proposed non-hazardous landfill operations on groundwater level and quality in any remaining sand and gravel is assessed is assessed as minor.

Groundwater in the limestone aquifer is classified as being of high sensitivity and the potential impact on both groundwater level and quality is considered to be of low magnitude. Accordingly, the impact significance of the proposed non-hazardous landfill operations on groundwater level and quality in the limestone is assessed as moderate.

8.5 Mitigation

Based on the risk assessment and the embedded mitigation proposed, the majority of the potential impacts are classified as being insignificant or of minor significance. Such impacts are considered acceptable and no further mitigation measures are considered necessary.

Should the results of the monitoring indicate that the landfill operations are adversely impacting on the groundwater quality in the limestone aquifer, remedial measures will be developed and agreed with the EA. Monitoring of the groundwater quality in the water pumped from the collection drains in the sands and gravels also will be carried out at the same frequency for the same analytical testing suites.

The drilling and monitoring of the additional boreholes will provide information to facilitate an assessment of the impacts of the landfill operations on groundwater quality and to identify the need for any additional mitigation measures to minimise any adverse impacts. Accordingly with the implementation of the additional monitoring and any remedial measures, the significance of the impact on the limestone aquifer will be reduced to minor.

8.6 Statement of Significance

Based on this assessment, the majority of the potential impacts are classified as being insignificant or of minor significance with no significant adverse residual effects. The significance of the impact of the proposed non-hazardous landfill extension on groundwater level and quality in the limestone aquifer is considered moderate. However, it is considered that with the installation of the additional groundwater monitoring boreholes and the implementation of a regular monitoring programme, leading to the identification of the need for additional remedial measures, the significance of any effect on the groundwater level and quality in the limestone aquifer is reduced to minor and that there will be no significant adverse residual effects.

9. Hydrology and Flood Risk

9.1 Introduction

This chapter provides a summary of the potential effects of the proposed development in terms of hydrology and Flood Risk as detailed in the report included at Appendix G.

9.2 Methodology

The NPPF and associated Planning Practice Guidance (PPG) specify that planning applications for development proposals of 1 hectare or greater located in Flood Zone 1 should be accompanied by a Flood Risk Assessment (FRA) that identifies and assesses all forms of flooding to and from the development. The PPG goes on to say that FRAs should demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking into account the vulnerability of the proposed development and the potential impact of climate change on risk.

The methodology followed in this case was designed to fulfil the requirements of the NPPF and the PPG.

9.3 Baseline Conditions

Local water features have been identified through the inspection of OS 1:10,000 mapping. They comprise a number of small unnamed land drains in close proximity to or within the site.

Within the site, a drain which extends for approximately 130m is located approximately 70m west of the proposed clay extraction extension area. The drain is connected to a small, on site, surface lagoon.

Beyond the site boundary there are two land drains located in close proximity to the site. The first is approximately 270m to the south west of Grassy Plantation and the second approximately 87m north east of the proposed clay extraction extension area - directly adjacent to ATC&PH's land ownership boundary. It has been assumed the land drains drain surface water from surrounding arable farmland.

Additionally, there are ponds located immediately to the west and approximately 200m west north-west of Finmere Plantation. Both receive surface water from the site. These ponds appear to be in continuity with the groundwater within the unworked sands and gravels and therefore work as sumps / soak-aways.

An attenuation pond is located approximately 150m north of Foxley Fields Farm. This has been constructed to manage surface water run-off from the northern and eastern flanks of the restored non-hazardous landfill site.

Current ground surface elevations vary around the quarry between 115m Above Ordnance Datum (AOD) in the north-west of the site to 135m AOD near Finmere Plantation and southern edge of the site. The internal haul road, which runs through the middle of the site, has a consistent elevation of 120m AOD. The site straddles a surface water divide with runoff from the northern part of the site draining to the River Great Ouse and runoff from the south and east flowing to the Padbury Brook.

9.4 Assessment of Effects

The FRA finds that:

- the site is located in Flood Zone 1, land considered to have a less than 0.1% (1 in 1000) annual probability of flooding from fluvial and/or tidal sources in any given year. The site is therefore considered to be at low risk of flooding from fluvial sources;
- the proposed development works are spilt into three vulnerabilities: sand and gravel works are classed as 'Water Compatible'; non-hazardous landfill extension as 'More Vulnerable'; and the clay extraction extension, retained MRF, variation of the clay borrow pit scheme and secondary aggregate recycling plant site as 'Less Vulnerable'. The proposed development is considered appropriate in Flood Zone 1;
- the site is not at risk from tidal flooding and the risk of flooding from artificial sources (i.e. reservoirs, canals etc.) is low;

- the existing flood risk from overland flow, groundwater sources, and drainage infrastructure is considered to be low;
- groundwater may be encountered with sand and gravel extraction. Any influx of perched groundwater would be managed by establishing a collection/recharge system (or a suitable alternative) therefore pumping of groundwater may be required to manage short-term, localised requirements;
- based on the updated Flood Maps for Surface Water Flooding the risk of flooding from surface water is indicated to be very low to low therefore the risk of surface water flooding is considered to be low;
- agricultural land surrounding the operational area of the site and within the immediate are of the site drains at a Greenfield runoff rate to the surrounding watercourses via infiltration to the ground;
- there is no formal utility company drainage infrastructure located within the site boundary or in close proximity to the site;
- groundwater and surface water within the site drains to a series of settlement lagoons and clean water lagoons;
- post-restoration, drainage from the site will drain at a green field rate, to a small lake within the quarry void and surrounding restored landscaped areas. No specific surface water mitigation measures are proposed as part of the proposed development;
- the proposed development will not increase surface water runoff and therefore meets with the requirements of the NPPF;
- there are no off-site impacts as a result of the proposed development in relation to flood risk; and
- there is a residual risk of blockage of the surface water drainage system or exceedance of the system's design capacity. However, regular maintenance and inspection of the drainage system should be undertaken to ensure that the system continues to perform as designed.

9.5 Mitigation

As a consequence of the above assessment of the likely flood risk effects arising from proposed development (including the embedded mitigation - primarily in this case the new surface water management scheme described at section of the FRA included in ES Appendix G), no further mitigation measures are considered to be necessary to manage the risk of flooding either within the site or in the surrounding area.

9.6 Statement of Significance

This FRA serves to demonstrate that the proposed development will remain safe during its lifetime and will not increase flood risk elsewhere. Subject to the proposed surface water drainage system being implemented the proposed development at the site is considered to be acceptable in flood risk terms.

10. Heritage

10.1 Introduction

This chapter provides a summary of the potential effects of the proposed development in terms of heritage as detailed in the report included at Appendix H.

10.2 Methodology

The following sources of information were reviewed and form the basis of the assessment of likely significant effects:

- Oxfordshire Historic Environment Record (HER);
- Buckinghamshire Historic Environment Record (HER);
- Historic England National Heritage List (NHLE); and
- Oxfordshire History Centre, Oxford

In addition, an archaeological walkover survey was undertaken to assess known sites and to assess the area for the potential for additional unrecorded sites.

A study area of 1km around the site was considered in order to understand the nature of the heritage landscape surrounding the proposed development.

10.3 Baseline Conditions

The assessment of existing baseline conditions identified 12 designated heritage assets, all comprising Grade II listed buildings, within the 1km study area. A total of 21 non-designated assets and 15 previous archaeological investigations (events) are also recorded within the study area. Of these, nine are located within the boundary of Finmere Quarry. These largely relate to Neolithic flint working, and Bronze Age and Iron Age settlement activity recorded in the centre and west of the site, although a 19th century brickyard is also recorded towards the eastern boundary.

10.4 Assessment of Effects

The main parts of the proposed development which have the potential to impact on heritage assets are the extensions to the areas approved for sand and gravel extraction and for clay extraction.

The proposed extraction has the potential to damage or destroy any archaeological remains preserved below the ground surface. In the west of the site, to the east of Widmore Farm, previous mitigation works identified a complex of features that are considered of regional importance in the study of Bronze Age and Iron Age settlement. In addition, a likely Bronze Age circular enclosure (13468) has been identified *c.* 400m south of Warren Farm in the north-west of the site, within the proposed sand and gravel extension area.

Although these are recorded as non-designated assets, remains associated with these known sites are considered to be of a regional resource value and therefore of medium significance (heritage value). Considering the concentration of prehistoric assets both within the quarry boundary and in the immediate environs, any previously unrecorded assets potentially encountered within the site can be considered to be of equal significance (heritage value). These remains are considered to be of archaeological significance, due to the information they contain regarding prehistoric settlement activity. They also retain some historic significance as they provide information on previous land use and settlement patterns.

The proposed extensions to the sand and gravel and clay extraction areas have the potential to impact upon recorded archaeological remains and both have the potential for additional remains to be located. The recorded remains comprise the likely Bronze Age circular enclosure identified within the proposed sand and gravel extension. This impact may bring about change such that the significance of the asset is affected, resulting in erosion in our ability to understand and appreciate the asset. Therefore the magnitude of impact upon archaeological remains within these two areas can be considered to be high negative.

Based on a high magnitude of impact upon heritage assets of medium significance (heritage value), it is therefore considered that effect of the proposed extraction upon recorded and previously unrecorded archaeological remains will be major adverse.

Other parts of the proposed development have the potential to impact on the setting of Widmore Farm – a single built heritage asset, comprising the comprising the grade II listed early 19th century farmhouse. The listed status of the building means that it can be considered of medium significance (heritage value).

The significance of this asset relates to its architectural significance for its exterior architectural detailing. It is set within a post-enclosure rural landscape of arable fields, hedgerows and small areas of woodland. Its setting only contributes to its significance in relation to its agricultural setting. The proposed development will be located some distance to the east of the asset, on the opposing side of the former railway line, which offers screening due to its topography and vegetation. The existing woodland of Grassy Plantation also entirely screens the farmhouse from the proposed development. It is therefore considered the proposed development will only bring about minimal change to the setting of the asset that will have little effect on its significance and does not constitute substantial harm as defined in the NPPF. Therefore the proposed development is not considered to give rise to any impact upon this asset.

10.5 Mitigation

The embedded mitigation in the scheme design includes appropriate archaeological investigation prior to the commencement of groundworks associated in the proposed extraction areas. It is proposed to undertake a geophysical (magnetometer) survey of these areas in order to identify any further potential archaeological features and subsequent archaeological recording that may include targeted evaluation trenching or an archaeological strip, map and record, as required.

11. Landscape and Visual

11.1 Introduction

This chapter provides a summary of the potential landscape and visual effects arising from the proposed development as detailed in the report included at Appendix I.

11.2 Methodology

The methodology for this assessment is based upon guidance within “Guidelines for Landscape and Visual Impact Assessment”, Third Edition (2013). In addition, photography accompanying this assessment has been undertaken in accordance with guidance given in Landscape Institute Advice Note 01/11 Photography and Photomontage in Landscape and Visual Impact Assessment.

The assessment establishes the baseline landscape and visual conditions within a Study Area defined by a combination of the anticipated Zone of Theoretical Visibility (ZTV), professional judgement and field survey verification. The combination of these factors has resulted in a Study Area which extends up to 3 km from the site. Beyond this distance it is anticipated that the proposed development would be unlikely to give rise to significant landscape or visual effects.

Following consideration assessment of the baseline landscape and visual context of the proposed development, assessment is made of the i) nature of the receptor based on sensitivity of both landscape and visual receptors derived from susceptibility and value, ii) nature of effect based on magnitude derived from scale/extent, duration and reversibility, whether adverse or beneficial and iii) significance of the effects based on a comparison of nature of the receptor and nature of the effect.

Natural England produces mapping and written descriptions of the landscape character of England within National Character Areas (NCAs). The site lies within NCA 88: Bedfordshire and Cambridgeshire Claylands. The boundaries to NCA 107 Cotswolds and NCA 108 Upper Thames Valley Clay Vales lie around 3km west and 2.5km southeast of the boundary to the site respectively. Analysis of the NCA within the Study Area identifies some characteristics which are applicable or partly applicable to the site and Study Area. However, as the development proposals are unlikely to result in direct or indirect significant change in the character of these NCA, they are not assessed further in the LVIA.

The site lies within Landscape Type (LT) 19 Wooded Estates in the Oxfordshire Wildlife and Landscape Study (OWLS) The Study Area also encompasses LT 6 Farmland Plateau and LT7 Farmland Slopes and Valley Sides and areas covered by the Aylesbury Vale Landscape Character Assessment (AVLCA) published in 2008 and the Northamptonshire Landscape Character Assessment (NLCA) published in 2003.

As the ZTV indicates that there is no, or very limited, inter-visibility between the site and one of the Landscape Types identified OWLS and some of the Landscape Character Areas (LCA) identified in the AVLA and the NLCA, the proposed development is unlikely to result in direct or indirect significant change to the character of all the LT / LCA within the Study Area – meaning that some have not been assessed further in the LVIA.

11.3 Baseline Conditions

Landscape

The A421 and A443 run to the north and east of the site respectively, linking Brackley, Buckingham and Bicester. The disused Great Central railway line (now the route of the proposed HS_2) runs along the western boundary of the proposed development. Woodland, plantation blocks, hedgerows and isolated hedgerow trees characterise the wider rural landscape.

The site does not lie within any area designated in terms of specific national statutory landscape designation such as National Park, Area of Outstanding Natural Beauty (AONB) or any local designation.

The site is generally representative of the surrounding rural land use. Overall, based on the factors contributing to landscape value, the site is assessed as being of low landscape value by virtue of land use, scenic quality, rarity, conservation interest and perceptual aspects. The Study Area itself is assessed as being of overall Medium landscape value. The conservation interest, local landscape designations and cultural associations within the

wider Study Area contribute to the value derived. However, it should be noted that the site itself is an anomalous feature, with some perceptual influence on the immediate landscape, although diminishing rapidly with distance.

The landform of the wider Study Area is broadly one of a northwest-southeast oriented ridge at c.100 to 140 metres AOD, which slopes gently to the north towards the River Great Ouse and to the south along a number of small tributaries of the Padbury Brook. The site itself lies at around 120 metres AOD, although landfill restoration and capping has resulted in a locally modified high point of around 140 metres. As such, existing landform within the site displays a degree of incongruity with respect to the wider context.

The site includes transient water bodies related to extraction, including redundant silt lagoons. The wider Study Area includes scattered small ponds, often associated with farmsteads; larger ornamental lakes are located at Shelswell Park and Cottisford. Other than the River Great Ouse, watercourses are limited to streams.

The villages of Finmere, Tingewick, Mixbury and Westbury represent the larger settlements in the Study Area. Outside of the built settlements, land use in the Study Area is dominated by intensive agriculture, predominantly arable with some grazing, mainly on smaller-scale fields and often around village fringes. These are interspersed with farmsteads (less frequently on the higher plateau areas) and isolated residential properties, sometimes grouped together to form scattered hamlets such as Barton Hartshorn and Chetwode.

The A421 is the principal road route, running broadly west-east between Brackley and Buckingham, with the A4221 linking to Bicester in the south. Other roads are C-class, linking villages and often with low traffic usage.

The rural character is dominated by 18th century enclosure through hedgerows, resulting in medium to small scale fields, the former more prevalent on the higher plateau. Blocks of Ancient Woodland include West Wood, Tingewood Wood and Round Wood to the south of Tingewick; Diggings Wood to the west of the site and Spilsmere Wood to the southwest. These, along with areas of plantation, provide enclosure, interest and locally restrict longer-range views in what is often an open landscape, particularly immediately to the west of the site.

Ornamental parklands, as part of designed landscapes, are present at Shelswell Park, along with smaller ornamental and historic gardens such as those at Chetwode Manor and Chetwode Priory. Aside from the existing Finmere Quarry, other more recent interventions include a 132kV overhead power line with steel lattice towers that runs northwest-southeast; a solar farm at Shelswell Park and the dual carriageway A421 Tingewick bypass. East of the site is the former Second World War RAF Finmere airfield: the runways have partly been returned to farmland and woodland, although remnants are used as a private airstrip and a Sunday market. Overall, the character is dominantly rural.

Public Rights of Way are numerous in the Study Area, providing amenity access between villages and the wider rural landscape, including footpaths and bridleways.

Visual

The ZTV indicates that beyond the extent of the 3 km Study Area the proposed development would be unlikely to give rise to significant landscape or visual effects. Although the ZTV output indicates views are theoretically possible from long range vantage points, the proposed development is likely to form only a minor element of the open panoramas due to viewing distance. Similarly, the extent of visibility of the proposed development will decrease with viewing distance as a result of reduced scale.

11.4 Assessment of Effects

Landscape

The assessment of likely landscape effects is based on effects during extraction, landfill and recycling and recovery activities and then at year 15 after extraction - with appropriate consideration of the phased nature of the extraction which will involve a degree of progressive restoration concurrent with ongoing extraction.

The residual effects on landscape character of the site during operation are assessed as Negligible (with the exception of the proposed mineral extraction areas which are assessed as Moderate (Non-significant). At year 15 (post restoration) the effects are assessed as Negligible and Minor respectively.

The direct / indirect effects on LT19 Wooded Estatelands are assessed as Minor during operations and as Negligible at year 15.

The indirect effects (through visual influence) on other LT/ LCAs meanwhile are assessed as Negligible during operations and as Neutral at year 15.

Visual

The nature of the landform and the extent of vegetation limit the availability of views of the site from within the wider Study Area. Long viewing distances also further obstruct opportunities to view the site in isolation, whereby it becomes difficult to distinguish within a broad panorama. With the exception of locations in relatively close proximity, land falling within the proposed development boundaries is generally not well defined when viewed from the wider landscape. The proposed development will introduce activities into a limited number of existing rural views and change the nature of the view, particularly in close proximity from footpaths (some of which will be diverted) but from many locations the extent and influence of the proposed activities will not increase given it is currently present. Furthermore, both existing and additional activities will be accompanied by progressive restoration of workings.

Changes in views may give rise to adverse or beneficial visual effects through obstruction in views, alteration of the components of the view and through the opening up of new views by the removal of landscape elements. The proposed development would not entail any significant removal of landscape elements other than grassland and a short section of gappy hedgerow. Changes in visual amenity / views would relate entirely to effects arising from temporary visibility of mineral extraction, landfill, recycling and recovery activities (much of is proposed be within areas of existing activity) and permanent views of restored land. Consequently, the proposed development, when compared to the baseline situation, constitutes the temporary addition of mineral extraction to parts, the continuation of activities elsewhere and permanent views of restored land within existing for all areas, within otherwise rural views.

The extent to which the proposed development would give rise to a change in visual amenity to that identified in the baseline visual assessment is considered in relation to the representative viewpoints. A summary of the residual effects on visual amenity during the proposed development and year 15 post restoration is provided in Table 11.1 of the landscape and visual effects report included at Appendix I.

Table 11. 1: Summary of Visual Effects

Visual Receptor	Location	Significance	
		During Mineral Extraction	Year 15 Post Restoration
Photo-viewpoint 3	Fulwell Road, Finmere	Negligible	Neutral
Photo-viewpoint 4	Bridleway 4, Widmore Farm	Minor	Negligible
Photo-viewpoint 5	Bridleway 7, Grassy Plantation	Negligible	Neutral/Minor Beneficial
Photo-viewpoint 6	A4221, Newton Purcell	Minor	Neutral/Minor Beneficial
Photo-viewpoint 7	Footpath 8 east of Boundary Farm (A4221)	Minor	Neutral/Minor Beneficial
Photo-viewpoint 8	Public footpath 8, Gravel Farm	Minor	Neutral
Photo-viewpoint 9	Banbury Road, Finmere	Neutral	Neutral
Photo-viewpoint 10	Bernwood Jubilee Way, near Finmere Airfield	Negligible	Negligible
Photo-viewpoint 11	Sandpit Hill, Tingewick	Neutral	Neutral
Photo-viewpoint 12	Bridleway 4, off A421	Moderate (not significant)	Neutral/Minor Beneficial
Photo-viewpoint 13	Mixbury Plantation, A421	Neutral	Neutral

11.5 Mitigation

The restoration masterplan indicates retention of existing vegetation, hedgerow boundaries and individual trees within the new excavation areas, alongside proposed restoration elements which would form integral components of the development. Overall, these aim to integrate the restored workings into the landscape, although clearly within the context of locally modified landform.

Trees/hedges to be provided as mitigation planting or landscape infrastructure would be partially mature by year 15 and contribute to reduction in effects on character and visual amenity. Due to the phased approach to

restoration, planting within parts of the site (such as the recent woodland on the capped landfill) will show greater levels of maturity at this time.

11.6 Statement of Significance

Non-significant effects on landscape character would arise from the change in land use from the existing uses, along with the continuation of baseline existing extraction, landfill, processing and recovery activities. Adverse effects would be temporary and largely reversible, varying from short to long term, up to a maximum of around 10 years. Trees/hedges planted as mitigation, or landscape infrastructure within the site, would be partially mature by year 15 post restoration and contribute to reduction in effects on character and landscape integration of the site into the wider landscape. This mitigation would be in line with the landscape strategy guidelines for LT 19, as set out in the OWLS study.

Direct/Indirect effects on LT19 Wooded Estatelands (as described in the Oxfordshire Wildlife and Landscape Study) would be of minor significance during extraction and negligible significance by year 15 post restoration of the site. Effects on the wider character of LCAs in the study area would be of negligible significance during extraction, reflecting the localised extent of indirect change and neutral by year 15 post restoration. The significance of change in landscape character is therefore predominantly at the site scale, rather than on the wider landscape and are heavily influenced by immediately adjacent, ongoing landfill and related activities.

One viewpoint, on Bridleway 4 (south of the A421 and immediately adjacent to one of the proposed extraction areas), (VP12) would experience moderate but non-significant adverse effects on visual amenity. From many locations the extent and influence of the proposed activities will not increase relative to the current situation particularly having regard to the progressive restoration which will be continued. Overall, the proposed development would have limited non-significant effects from other viewpoints in the wider landscape.

In conclusion, the proposed development is unlikely to give rise to significant landscape or visual effects or to unacceptable changes in landscape character or visual amenity.

12. Noise

12.1 Introduction

This chapter provides a summary of the potential effects of the proposed development in terms of noise as detailed in the report included at Appendix J.

12.2 Methodology

Cadna-A noise modelling software (V 4.6.153), implementing the calculation procedures of ISO 9613-2:1996, was employed to predict the propagation of noise away from the site activities in all directions and quantify resultant noise levels at the identified noise sensitive receptor locations.

The predicted noise levels at the receptor locations have been compared with defined noise limits. The daytime and evening noise limits have been derived from the baseline survey, utilising the methodology prescribed in the PPG guidance relating to noise emissions from mineral extraction.

The potential noise impact upon horses and riders on the surrounding rights of way network has also been assessed by considering the predicted noise in terms of its level and character, relative to the pre-existing noise climate.

Operational road traffic noise has been assessed by considering the short-term increase in traffic flows on the A421, following the principles of the DoT Calculation of Road Traffic Noise (1988) and the Highways Agency, Design Manual for Road and Bridges Volume 11 Section 3 Part 7 HD 213/11 – Revision 1 Noise and Vibration (2011).

The assessment of vibration has been scoped out of this study, due to the lack of significant sources and relatively large distances between site activities and vibration sensitive receptors.

12.3 Baseline Conditions

Baseline noise surveys were undertaken at four locations, considered representative of the residential receptors closest to the planning application boundaries. Long term unattended monitoring was undertaken from 20th February 2018 to 27th February 2018 in the following locations:

- Location M1 – Boundary Farm, to the south east of the site.
- Location M2 – Foxley Fields Farm, on the eastern boundary of the site.
- Location M3 – Hill Leys, to the north east of the site.
- Location M4 – Western boundary of the site, at the closest accessible location to Widmore Farm.

Short term attended noise monitoring was undertaken on 27th February 2018 between 12:25 and 15:59 at the following locations:

- Location M5 – Foxley, to the north east of the site.
- Location M6 – Warren Farm, to the north west of the site.

Road traffic noise from the A421 was noted as the dominant noise source at all monitoring locations, with a contribution from site activities at Boundary and Widmore Farms. At Boundary Farm (M1), the contribution of road traffic from the A4421 was also noted. Occasional aircraft movements were also audible at all receptor locations.

12.4 Assessment of Effects

Table 9 in the noise report included at Appendix J combines the predicted noise levels of simultaneous activities for day, evening and night-time periods, to provide the worse-case total predicted noise levels at each receptor (Table 9 is reproduced as Table 12.1 below).

Table 12.1. Predicted Total Noise Levels

Receptor	Predicted Total Noise Level, dB LAeq,1h		
	Day* A1+A2+A3+A4+A5	Evening A5 (MRF) only	Night A5 (MRF) only
Boundary Farm	41.3	28.0	28.2
Foxley Fields Farm	48.2	29.8	30.0
Hill Leys	38.1	20.9	22.0
Widmore Farm	39.9	23.2	24.8
Foxley	38.7	22.9	23.4
Warren Farm	41.2	18.7	21.0
Barleyfields Farm	35.2	21.6	21.8

*the maximum predicted activity noise level for both A1 and A2 have been utilised within the calculations, resulting in worse-case total predictions.

None of the predicted noise levels resulting from combined activities exceed the derived noise limits in any time period. Predicted night-time noise levels are marginally greater than evening noise levels due to consideration of an HGV movement between 06:00 and 07:00.

With regard to the potential impact upon riders and horses on surrounding rights of way, it is noted that predicted noise levels do not exceed those currently experienced in the area, and remain well below the recommended 70 dB $L_{Aeq,16h}$ criteria. Some bridleways do exist on the perimeter of the site itself, so noise from development activities may be more prominent during particular isolated time periods. However, while it is acknowledged that horses can become unnerved by the sudden introduction of a loud noise, current and proposed site operations are relatively steady, with surface plant operating on a continual basis. The fact that the quarry does not adopt any blasting techniques is notable in this regard.

Potential noise effects due to the traffic likely to be generated by the proposed development are considered to be of negligible significance.

Noise predictions as a result of consented and proposed activities at Finmere Quarry are below the derived limits, and also below existing ambient noise levels, dominated for the most part by sources not associated with operation of the quarry (e.g. road traffic). Although noise levels as a result of HS_2 construction activities have not been quantified, it is also noted that the section in question will be within a cutting, which will mitigate noise propagation. Consequently, it is considered that the cumulative noise impact of both developments will be minor, and result in no significant adverse effects.

12.5 Mitigation

The assessment assumes that best practice measures will continue to be employed to help minimise noise levels and potential disturbance from the site and considers that no further mitigation is required.

12.6 Statement of Significance

Predicted noise levels at the receptor locations are all below the established noise limits during all time periods.

A road traffic noise assessment and a cumulative noise assessment, recognising the overlap with HS_2 construction works, have determined negligible impacts in terms of environmental noise.

Overall effects of operational noise associated with the proposed development (having regard to the embedded mitigation included in the scheme design) are considered to be negligible.

13. Soils

13.1 Introduction

This section provides a summary of the assessment of effects on soils within the proposed sand and gravel and clay extraction extension areas, as detailed in the report included at Appendix K.

13.2 Methodology

Surveys of the proposed sand and gravel and clay extraction extension areas were undertaken on 25th October 2017. Soil profiles were examined using a hand auger and/or spade to a depth of 120 cm where possible. The fieldwork was conducted at a detailed density of one auger boring per hectare on a 100 metre grid. Soil pits were dug in representative soil types to assess subsoil structure and allow the preparation of a statement of soil physical characteristics. Details of the results of the survey are provided in Appendix K Annex K1.

A qualitative assessment was then undertaken of the predicted impact on soils and agriculture as a result of the proposed development The likelihood of significant effects, taking into account the mitigation proposed are considered and the effects are categorised in accordance with standard methodology and using professional judgement.

13.3 Baseline Conditions

Sand and Gravel Extraction Extension Area

The 1:250 000 scale reconnaissance soil map of the area (Soil Survey, 1983) shows the sand and gravel extension area to be mapped as soils of the Essendon Association. Essendon Association soils are briefly described by the Soil Survey (1983) as ‘Slowly permeable seasonally waterlogged coarse loamy over clayey soils. Associated with similar fine loamy over clayey and fine silty over clayey soils.'

The sand and gravel extraction extension area is also mapped as Grade 3 quality land on the Provisional Agricultural Land Classification maps issued by the Ministry of Agriculture, Fisheries and Food (MAFF, 1968). However, these provisional maps were produced prior to the issuing of revised guidelines for the grading of agricultural land in 1988 and before the subdivision of Grade 3 land. These maps were not intended for site specific grading and should only be treated as indicative of the agricultural land quality of large areas.

Additionally the Magic map application (Magic.gov.uk) shows that a larger site, incorporating a small strip of the sand and gravel extraction extension area adjacent to the access road and the southern part of the eastern field, was the subject of a survey on behalf of the Ministry of Agriculture, Fisheries and Food (MAFF). This shows the strip as predominantly Grade 2 with a very small area of Subgrade 3a and the land in the south of the eastern field as Subgrade 3a.

The field survey undertaken in October 2017 meanwhile assessed the agricultural quality (ALC Grade) using current Defra guidance and found that 5 ha of the proposed extension area is Grade 2 (very good quality agricultural land), 4.6 ha is Subgrade 3a (good quality agricultural land) and 0.94 ha is Subgrade 3b (moderate quality agricultural land).

Clay Extraction Extension Area

The clay extraction extension area is mapped as soils of the Ashley Association which are described as 'Fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging, associated with similar but wetter soils. Some calcareous and non-calcareous slowly permeable clayey soils.' (Soil Survey, 1983).

The clay extraction extension area is also mapped as Grade 4 quality on the Provisional Agricultural Land Classification maps issued by the Ministry of Agriculture, Fisheries and Food (MAFF, 1968).

The field survey undertaken in October 2017 meanwhile assessed the agricultural quality (ALC Grade) using current Defra guidance and found that all of the area is Subgrade 3b (moderate quality agricultural land).

13.4 Assessment of Effects

The potential for many effects of mineral extraction are mitigated during the design stage and others through adoption of best working practice. These are embedded into the design and therefore, as with the restoration proposals, form part of the overall scheme to be assessed and as such are considered to be effects in their own right when assessing impacts upon identified sensitive receptors.

The embedded mitigation in this case includes soil handling in accordance with Defra's 'Good Practice Guidance for Handling Soils' and the restoration proposals – which are to return the sand and gravel extraction extension area to productive agriculture and to return the clay extraction extension area to a mix of woodland and nature conservation habitats around ponds and scrapes with areas of marshy grassland. The soil profiles within the areas restored to agriculture will have the physical characteristics of best and most versatile land.

The majority of the land within the sand and gravel extraction extension area is classified as best and most versatile land (BMV), whereas the land within the clay extraction extension area is of Subgrade 3b quality and therefore not of BMV quality. The National Planning Policy Framework (NPPF, updated 2019) and accompanying PPG directs that agricultural land quality should be taken into account alongside other sustainability issues such as biodiversity. The PPG on Minerals (PPG Minerals ID 27, updated 2014) states that, with regard to restoration of minerals sites, where working is proposed on the best and most versatile agricultural land, the proposed after-use need not always be for agriculture.

The proposal is to restore the sand and gravel extension area to productive agricultural land. By judicious use of the subsoil resources available the area of Subgrade 3b land associated with Soil Type 1 Variant C may have a re-instated soil profile of best and most versatile quality. Hence all of the restored land within the sand and gravel extraction extension area will be of BMV quality.

The non-BMV land within the proposed clay extraction area will be restored to a mix of mix of woodland and nature conservation habitats around ponds and scrapes with areas of marshy grassland.

All of the soil resources will be used within the restoration and hence there will be no loss of soil resources from the current proposals.

The restored land within the proposed site would be subject to a 5 year aftercare programme to ensure the full rehabilitation of the restored soil profiles.

13.5 Mitigation

No further mitigation is considered to be necessary.

13.6 Statement of Significance

Land assessed Grades 1, 2 and 3a are considered to be BMV in terms of their agricultural quality and there are policies both national and local that require consideration of the loss of such quality land. Where there is loss, either restoration has to endeavour to restore land back to BMV or provide overriding reasons for the loss; such a reason for consideration is biodiversity gain.

The soil resource would be stripped, stored and relaid according to best practice and would be used within areas restored to agriculture to re-instate profiles sufficient to achieve BMV quality land. Additionally soils stripped from non-BMV land will be used to create areas of nature conservation interest.

Accordingly, the residual effects are not considered to be significant.

14. Arboriculture

14.1 Introduction

This section provides a summary of the assessment of effects on existing trees within the proposed development areas, as detailed in the report included at Appendix L.

14.2 Methodology

The tree survey work was undertaken between 16th April 2018 - 18th April 2018, during which dimensional data and observational information was collected. A diameter tape measure was used to measure stem diameters where feasible. The majority of stem positions were not included within the topographical survey plan provided; therefore these were plotted indicatively with reference to GPS positions, site features and publically available aerial photography. The survey was otherwise conducted in accordance with the requirements of BS5837:2012 Trees in relation to design, demolition and construction – Recommendations (BS5837).

The fieldwork informing this report has comprised a preliminary, non-intrusive, visual survey undertaken from ground level with the specific intention of evaluating the quality and benefits of trees on Site.

14.3 Baseline

There were 85 arboricultural features identified during the survey which include 35 groups of trees, 49 individual trees and 1 hedge. The groups are made up of young to mature trees with the majority of them being considered to be in fair to good condition with a small number groups being of poor to fair condition.

The majority of the treestock recorded within the survey was confined to the boundary edges of the land parcels, as former field boundary hedgerows with scattered mature trees.

The majority of the groups adjacent to the A421 are in good condition and provide a good screen and boundary line. These trees were classified as high quality (category A).

The remaining groups that were considered to have less landscape value or be of a lower quality were put into categories B and C (denoting moderate and low quality respectively). The trees were predominantly early-mature to mature with one young tree (T12). The majority were in good to fair condition however, T4, T23, T45, T59, T78 and T79 were considered to be in poor condition and were categorised as U category trees due to having significant structural defects or being dead.

Along the eastern hedgerow in the eastern-most field an old concrete culvert was noted, which suggests that the trench is historic and has recently been re-instated. This also ties in with the limited amount of exposed roots observed in this area. If this is correct then the significance of the recent trench works is lessened. However, as a precaution the trees should be re-inspected in one year to assess if there has been any impact on stability.

Recent high sided vehicle damage was recorded to T30 and G31; this is the main access into the Site and the location where vehicles wait to go into the Site and a number of the mature trees across the Site displayed symptoms of neglect and stress such as crown retrenchment and reduced vitality.

A number of trees on Site are subject to a Tree Preservation Order, full details and locations can be found in Annex F to Appendix L or appended to the relevant Planning Statements. No work or damage should take place to protected trees without the prior consent of the Local Planning Authority (LPA).

14.4 Mitigation Measures

Recommendations for measures to be undertaken on-site in general and in relation to specific trees are set out in the Tre Survey Schedule included at Annex B to Appendix L of this ES.

14.4.1 Trees to be removed

Based on the current proposals two individual and one group of moderate quality trees (Category B) and one low quality (Category C) trees are required for removal, to facilitate the proposed works

14.4.2 Tree Works

No additional works to retained trees are likely to be required in relation to the Proposed Development, however some tree works based on the current use of the Site are recommended in the Survey Schedule included as Annex B to Appendix L.

All recommended tree work is made on the basis that this will be carried out in accordance with the principles of *BS3998: 2010 Treework – Recommendations* and that it will be carried out by suitably qualified contractors. The consent of the LPA will be required for any works to trees which are not specifically required to facilitate the implementation of full planning consent, are dead or dangerous or otherwise qualify as an exception.

No incursions are to be carried out within the RPA of a retained tree.

14.4.3 Tree Protection

As the Site is a large mineral / waste management facility the standard default specification for tree protection measures set out in the BS5837 are not deemed feasible. We have consulted with the wider design team on the typically accepted tree protection methods for quarry sites and they have suggested more practical measures by means of using a visual barrier to create an effective Construction Exclusion Zone in the form of driven timber marker posts (every 10-15m). The staff on Site will be briefed on the purpose of these timber posts and the associated constraints; this will be done through a tool box talk and posters to raise awareness about tree protection and appropriate working methodologies to ensure trees are not adversely affected.

Tree protective measures should stay in place until all construction operations are completed. Tree Constraints Plans are included at Annex A to Appendix L and Tree Protection Plans are included at Annex F to Appendix L.

14.4.4 Site Organisation, Materials, Plant and Machinery.

All construction site facilities will be located outside of the RPA or crown spread of retained trees, including those not specifically covered in this report. The Construction Exclusion Zones identified on the Tree Protection Plan should be fully respected and their location and significance is to be highlighted to all site staff and contractors during the formal site briefing.

The use, mixing and washing of materials can lead to run off or inadvertent spillage into tree root zones. Many substances often used on construction sites can be toxic to tree roots (such as concrete, fuels, salts, builders sand and herbicides) and can result in the death of tree roots and beneficial soil organisms and can have a significant impact on the future health and appearance of the tree.

Particular care is required where high sided vehicles, long reach machinery and plant with jobs, booms and counterweights are to operate with in proximity to retained trees.

14.5 Arboricultural Method Statement

The measures set out in Appendix L effectively form the Arboricultural Method Statement for the site.

15. Socio-Economics

15.1 Introduction

This section of the ES identifies the main socio-economic impacts associated with the development proposals. It considers the existing situation and the likely impact of the proposed development.

The consideration of the potential and predicted impacts on humans is a requirement of the EIA process when it raises issues of significance. Although this has in part been considered in the other ES sections, it is thus necessary to consider the impact of the development on social and economic structures.

The main socio-economic impacts that would be associated with the proposed development would be changes in:

- employment;
- supply of sand and gravel;
- non-hazardous landfill capacity; and
- local economic contribution.

The impacts on public rights of way are considered in more detail in section 16.4.

As there is no generally recognised methodology in Government guidance for rating and assessing the significance of potential socio-economic effects and therefore the following assessment is largely qualitative.

Finmere Quarry currently provides jobs for 19 people including site and plant operators, maintenance and site management staff. Around 4 more are employed in other roles e.g. hauliers within Oxfordshire.

The total annual salary bill for these employees is over £1,400,000 per annum. Of these employees, 10 of these live locally within Oxfordshire and the rest live within neighbouring districts.

ATC&P's current spend on 3rd party supplier services in relation to its operations in Oxfordshire is over £7,900,000 per annum and the business rates it pays to CDC / OCC is currently £200,000 per annum.

15.2 Assessment of Effects

The proposed development is expected to give rise to the following effects in terms of the local economy and employment. It will:

- create up to 47 new jobs – around 50% of whom are likely to live in Oxfordshire;
- generate and maintain jobs in roles such as hauliers, machine operatives, site operatives and office staff;
- generate and maintain jobs at the operations of ATC&P's customers who rely on sand and gravel and other materials to be supplied;
- enable the company to continue supporting the local economy by paying salaries of around £1,800,000 per annum and business rates to CDC and OCC of around £200,000 per annum;
- enable the company to continue supporting the local economy by purchasing local goods and services to the value of around £4,800,000 per annum; and
- investing around £1,040,000 in new plant and equipment and site infrastructure and set up works;

To maximise the benefits to the local economy, ATC&P intends to take the following measures whenever possible and practicable:

- to establish a local supply chain – to ensure that local companies have the opportunity to benefit from the project as suppliers and sub-contractors; and
- to work with local agencies – to ensure that opportunities are made available through established local business networks and recruitment channels.

15.3 Mitigation

The predicted socio-economic effects in terms of the local economy and employment arising from the proposed development are considered to be beneficial and therefore do not require mitigation.

15.4 Statement of Significance and Summary

The economic and employment effects of the proposed development are considered to be entirely beneficial and include direct and indirect creation of 47 jobs and an initial and ongoing further benefit to the local economy through the associated capital investment (c. £1,040,000) and spending on salaries, suppliers and business rates (over £6,800,000 per annum).

In particular, the proposed development will help to improve the current socio economic climate in the CDC and OCC areas by:

- enabling ATC&P to maintain its role as an employer in Oxfordshire;
- maintaining the relatively well paid and skilled / professional jobs provided by the company; and
- allow the company to ensure that the benefits result in new jobs for local people and suppliers wherever practicable.

16. Other Potential Effects

16.1 Introduction

This chapter considers selected potential effects which have not been assessed in detail in the preceding sections 5 to 13 (and ES Appendices C to K).

16.2 Cumulative and Interactions

Cumulative Effects

Cumulative effects are those which could arise from both the proposed development and other existing and / or approved projects (where they have not already been accounted for in the baseline conditions).

The EIA scoping opinion adopted by OCC on 26th January 2018 by OCC confirmed that the assessment of such potential effects should be scoped as proposed by ATC&PH namely by limiting the assessment to potential combined noise and visual effects arising from the proposed development and the development of HS_2.

Assessments of these two potential cumulative effects have been made in the transport and landscape/visual assessment reports included as ES Appendices C and I. Both find that such effects will not be significant.

Interactions

Potential interaction effects are those which may arise from various effects likely to be generated by the proposed development in combination.

Interactions between more than one type of effect experienced at a particular receptor could be experienced simultaneously or intermittently. Mitigation of interaction effects is best achieved through management of construction or operation to minimise each potential effect to a level where significant adverse effects will not result, even if interaction occurs.

In this case, as the residual effects are considered to be low in all main respects, no significant interaction effects have been identified.

16.3 Human Health

Potential effects in relation to matters which could have a bearing on human health have been assessed elsewhere in this ES:

- transport section 5 and Appendix C;
- air quality section 6 and Appendix D;
- hydrogeology section 8 and Appendix F;
- hydrology section 9 and Appendix G; and
- noise section 12 and Appendix J.

Each of these assessments find that the proposed development will not give rise to significant adverse effects.

Paragraph 5(d) in Schedule 4 of the 2017 EIA Regulations indicates that it may be appropriate to also consider the risks posed to human health due to accidents or disasters.

In terms of hazardous development it is confirmed that no substances will be used or stored at the site which will require consent under the Planning (Hazardous Substances)(Amendment)(England) Regulations 2009 as amended by the Planning (Hazardous Substances)(Amendment)(England) Regulations 2010.

In terms of the proposed waste related developments, all will continue to be regulated under the terms of an Environmental Permit issued, monitored and enforced by the Environment Agency. Before granting the Permit the Environment Agency will assess the management and quality procedures and resources proposed by ATC&PH for the minimisation and response to accidents and the like.

It follows that the risk of accidents which could give rise to significant adverse environmental effects is low.

16.4 Community and Social

While the EIA scoping opinion adopted by OCC on 26th January 2018 confirms that a separate ES chapter is not necessary (since the relevant potential effects are assessed elsewhere), it does go on to highlight the need for assessment of potential effects on the public right of way network in terms of:

- connectivity; and
- the convenience and pleasantness of the sections which are to be diverted.

The proposed scheme design provides details of the temporary PRoW diversions which will be needed and the arrangements for safeguarding the enjoyment and safety of users.

This information has been provided to enable OCC and others to properly consider the suitability of the proposed development in terms of potential environmental effects (or 'pleasantness') and not necessarily to enable OCC to consider its suitability in terms of public rights of way 'connectivity' and 'convenience'.

This distinction is drawn because such matters are more properly considered by OCC when it determines the separate applications which will need to be made under Sections 257 and 261 of the Town and Country Planning Act 1990.

16.5 Statement of Significance

The above assessment of potential cumulative, interaction, human health and community and social effects finds that none are likely to prove to be significant.

Figures

FQ/Location – Location Plan

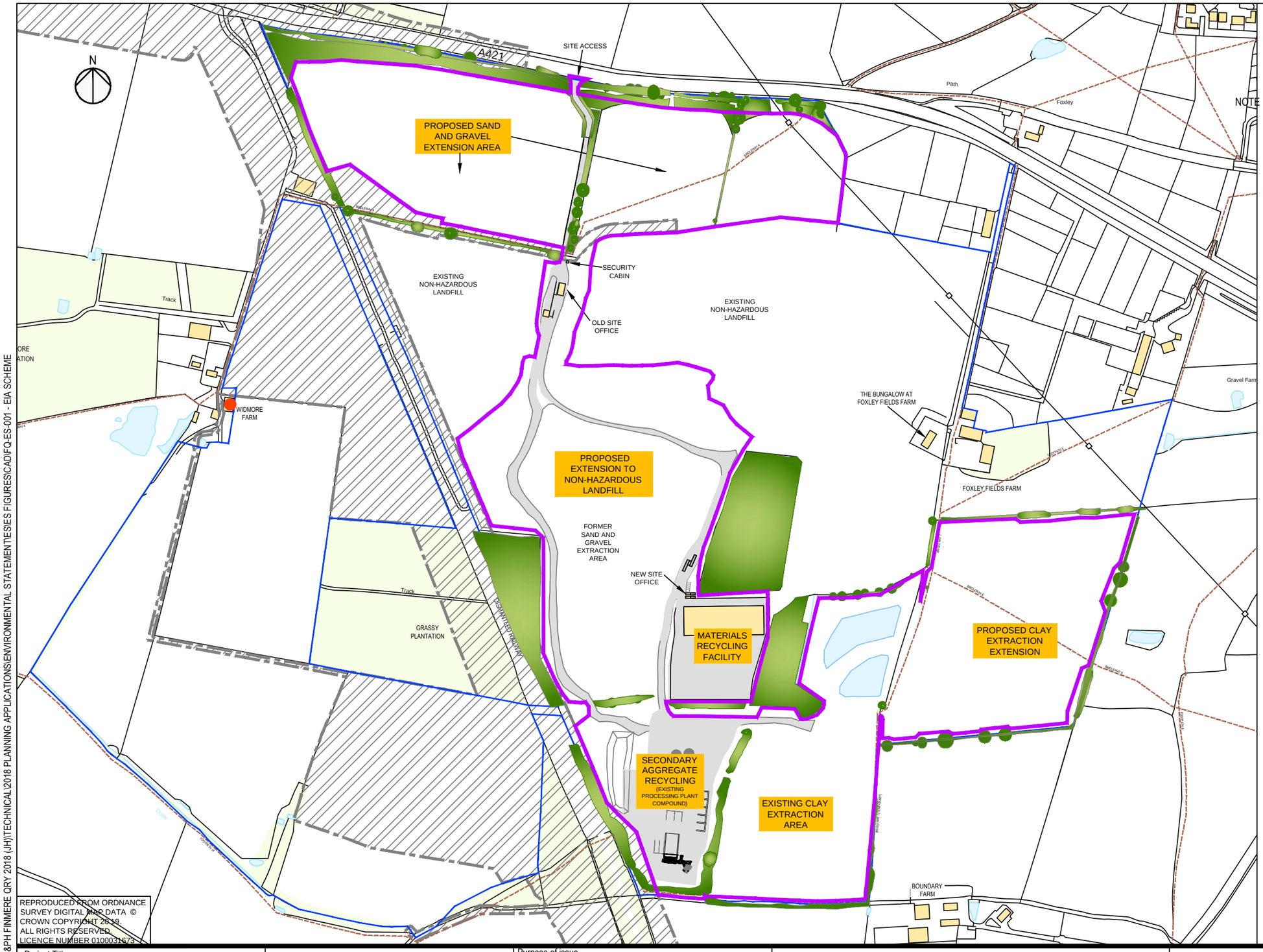
FQ/ES/001 – EIA Scheme

FQ/Masterplan – Overall Final Restoration Masterplan

KEY

FINMERE QUARRY LOCATION

Figure Title	Purpose of issue			
SITE LOCATION PLAN	Drawn AAO	Checked JH	Approved JH	AECOM
	Date 02/19	Scale @ A4 1:50,000	Rev -	
	Figure Number FQ/LOCATION			



KEY

- EIA SCHEME (COMBINED EXTENT OF PLANNING APPLICATION BOUNDARIES)
- FREEHOLD AND LEASEHOLD OWNERSHIPS
- WATER BODY
- LAND SAFEGUARDED FOR HS2
- EXISTING TREE, GROUP OR HEDGE
- PUBLIC RIGHT OF WAY
- LISTED BUILDING

Plot Date : 27 February 2019 18:37:24
File Name : L:\60556545 ATC&PH FINMERE QRY 2018 (JH)\TECHNICAL\2018 PLANNING APPLICATIONS\ENVIRONMENTAL STATEMENT\ES\FIGURES\CAD\FQ-ES-001 - EIA SCHEME

Project Title: FINMERE QUARRY	Drawing Title: EIA SCHEME	Purpose of issue				
		Designed: -	Drawn: RP	Checked: JH	Approved: JH	Date: 02/19
Client: ATC & PH		AECOM Internal Project No.: 60556545		Suitability: -		
		Scale @ A3: 1:5,000		Zone / Mileage: -		

AECOM
Royal Court, Basil Close
Chesterfield
Derbyshire. S41 7SL
Telephone. (01246) 209221
Fax. (01246) 209229
www.aecom.com

AECOM

Drawing Number	Rev
FQ/ES/001	-

N

A421

BRIDLEWAY 4

BRIDLEWAY 4

BRIDLEWAY 7

BRIDLEWAY 6

FOOTPATH 5

FOOTPATH

DISMANTLED RAILWAY

Track

Track

Track

Track

Path

Plantation

FULWELL

Foxley

SURROUNDING AGRICULTURAL LAND

WIDMORE PLANTATION

WIDMORE FARM

DIGGINGS WOOD

SURROUNDING AGRICULTURAL LAND

Boundary Farm

AREA PREVIOUSLY APPROVED FOR SAND & GRAVEL EXTRACTION AND INERT LANDFILL - NOW SUBJECT OF APPLICATION NUMBER MW.0142/16. SHOWN FOR CONTEXT ONLY

123m

127m

123m

116m

123m

233000

232900

232800

232700

232600

232500

232400

232300

232200

232100

232000

231900

231800

461800 461900 462000 462100 462200 462300 462400 462500 462600 462700 462800 462900 463000 463100 463200 463300 463400

0 18m

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX

IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROPRIATE METHOD STATEMENT.

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT.

KEY

- RESTORATION CONTOURS (mAOD)
- EXISTING WOODLAND
- PROPOSED WOODLAND
- PROPOSED WOODLAND EDGE SHRUB MIX
- PROPOSED ISOLATED TREE
- EXISTING TREES
- PROPOSED AGRICULTURAL LAND
- PROPOSED SPECIES-RICH NEUTRAL GRASSLAND
- PROPOSED NUTRIENT POOR SPECIES RICH GRASSLAND WITH SCRAPES
- PROPOSED MARSH / MARSHY GRASSLAND
- EPHEMERAL POOLS
- RETAINED HEDGEROW
- RE-ESTABLISHED HEDGEROW
- PROPOSED SURFACE WATER DRAIN
- EXISTING SURFACE WATER DRAIN
- PROPOSED WATERBODY
- EXISTING WATERBODY
- PUBLIC RIGHT OF WAY
- HS2 POSSIBLE ROUTE VARIATION
- PROPOSED PERMISSIVE PATH

Revision Details	By / Check	Date	Suffix

Purpose of issue

Client

ATC & PH

Project Title

FINMERE QUARRY
NON-HAZARDOUS WASTE
LANDFILL EXTENSION

Drawing Title

OVERALL FINAL
RESTORATION MASTERPLAN

Designed	Drawn	Checked	Approved	Date
-	AAO	JH	JH	02/19

AECOM Internal Project No.	Suitability
60556545	-
Scale @ A1	Zone
1:2,500	-

AECOM
Royal Court, Basil Close
Chesterfield
Derbyshire, S41 7SL
Telephone. (01246) 209221
Fax. (01246) 209229
www.aecom.com

AECOM

Drawing Number	Rev
FQ/MASTERPLAN	-

Appendix A – OCC Adopted EIA Scoping Opinion

Appendix B – Competency Statement

Competency Statement

AECOM

AECOM is a global provider of professional technical and management support services. In the UK, EIA co-ordination and preparation is undertaken by AECOM's in-house resource of over 300 environmental specialists. AECOM's specialists cover the whole spectrum of environmental skills including air quality, ecology, geo-environmental sciences, hydrology, landscape architecture, socio-economics, land use planning and acoustics.

AECOM is registered to the EIA Quality Mark. The EIA Quality Mark is a scheme operated by the Institute of Environmental Management and Assessment (IEMA) that allows organisations (both developers and consultancies) that lead the co-ordination of statutory EIAs in the UK to make a commitment to excellence in their EIA activities and have this commitment independently reviewed.

The EIA Quality Mark registrants adhere to seven key commitments. These commitments underpin and keep the high standard of the scheme.

- EIA Management – We commit to using effective project control and management processes to deliver quality in the EIA we co-ordinate and the Environmental Statements we produce.
- EIA Team Capabilities – We commit to ensuring that all our EIA staff have the opportunity to undertake regular and relevant continuing professional development.
- EIA Regulatory Compliance – We commit to delivering Environmental Statements that meet the requirements established within the appropriate UK EIA Regulations.
- EIA Context & Influence – We commit to ensuring that all EIAs we coordinate are effectively scoped and that we will transparently indicate how the EIA process, and any consultation undertaken, influenced the development proposed and any alternatives considered.
- EIA Content – We commit to undertaking assessments that include: a robust analysis of the relevant baseline; assessment and transparent evaluation of impact significance; and an effective description of measures designed to monitor and manage significant effects.
- EIA Presentation – We commit to deliver Environmental Statements that set out environmental information in a transparent and understandable manner.
- Improving EIA practice – We commit to enhance the profile of good quality EIA by working with IEMA to deliver a mutually agreed set of activities, on an annual basis, and by making appropriate examples of our work available to the wider EIA community.

This ES has been co-ordinated and reviewed by AECOM's Minerals and Waste team. The authors have considerable experience in all aspects of EIA. The team's EIA co-ordinators are highly competent managers of multi-disciplinary project teams working on large scale complex waste and minerals projects. Specialist topics addressed in this ES have been reviewed by appropriately qualified discipline leads across the various subjects.

ESL

ESL was formed in 1995 and is one of the UK's longest established ecological consultancies. The firm provides ecological services in relation to planning matters (including applications, discharge planning conditions, fulfilment of Section 106 requirements and public inquiries), pre-purchase site appraisals, design and creation of new habitats, translocations of animals or plant communities and post-works monitoring. The firm also act as Ecological Clerk of Works.

ESL's team are members of professional bodies including the Institute of Biology (IBiol) and the Chartered Institute of Ecology and Environmental Management (CIEEM). ESL is also an accredited contractor under the Contractors Health and Safety (CHAS) Assessment Scheme and is a member of the FSB Experts in Business (National Federation of Self Employed & Small Businesses).

Appendix C - Transport Assessment

Appendix D – Air Quality Assessment

Appendix E – Ecology Assessment

Appendix F – Hydrogeological Assessment

Appendix G – Hydrological Assessment

Appendix H – Heritage Assessment

Appendix I – Landscape and Visual Assessment

Appendix J – Noise Assessment

Appendix K – Soils Assessment

Appendix L – Arboriculture