Proposed Whitecross Quarry Development: on land at White Cross Farm, Nr Wallingford, Oxfordshire




Environmental Statement

Re-submission of a Planning Application to allow the extraction and processing of sand & gravel including the construction of new site access roads, landscaping and screening bunds, minerals washing plant and other associated infrastructure with restoration to agriculture and nature conservation areas using Imported Inert Fill.

Revised & Updated June 2025

LONDON ROCK SUPPLIES LTD

Greenfield enviro

Quality Assurance Review

Project Name: ENVIRONMENTAL STATEMENT v2
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on land at White Cross Farm, Nr Wallingford, Oxfordshire

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Reports available on following web pages:

https://londonrock.co.uk/wallingford

or

https://myeplanning.oxfordshire.gov.uk/Planning/Display/MW.0115/21

1. INTRODUCTION

1.1 Background

1.1.1 On behalf of London Rock Supplies Limited (LRS), a planning application is being re-submitted for the operation and restoration (to agriculture and nature conservation) of a short-term minerals development on land at White Cross Farm, Wallingford, Oxfordshire, with sand and gravel extraction and processing, the construction of a new site entrance and access road, landscaping proposals, and the importation of inert backfill materials to enable restoration back to original site levels. The planning reference is MW.0033/18 with the site location shown on Plan ES--25-1.

1.1.2 The area of the re-submitted planning application is identical to the original application and comprises some 19 hectares of land (see Plan ES--25-2) comprising mainly arable and grazing land and a derelict barn. The proposed timescales for the mineral extraction operations are anticipated to take place over a period of about 4-5 years with a further year or so required to complete the site restoration and final landscaping.

1.1.3 The land at White Cross Farm has been family owned for many decades, but the land now forms part of a development company – "The White Cross Project Partnership (WCPP)" is a joint venture between the landowners and LRS.

1.1.4 This Environmental Statement has been prepared to update all of the original submission and various "requests for additional information" (Reg 25 submissions) as part of a planning appeal against refusal of the submission for mineral extraction, as requested by the Planning Inspectorate.

2. THE ENVIRONMENTAL ASSESSMENT

2.1 Environmental Impact Assessment

2.1.1 The legislation concerning environmental impact assessment is set out in the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. The Environmental Statement (ES) sets out in detail the results of the environmental impact assessment carried out on the re-submitted proposals and (for the purposes of the regulations) constitutes the environmental statement (ES).

2.1.2 In terms of general background, initial discussions for a proposed mineral extraction and marina end-use development were held with South Oxfordshire District Council in early 2015 but this pre-application liaison confirmed that the proposed site

development was a County matter. Therefore, in October 2015 a Scoping Opinion was sought from Oxfordshire County Council (OCC) for the White Cross Farm site.

2.1.3 The response from OCC was received on the 18th November 2015 and this is included in Appendix 1 of the environmental statement. Following the refusal of the application for mineral working and creation of a new marina development with a construction phase comprising the extraction of 0.55 million tonnes of sand and gravel, a further pre-application advice letter was provided by OCC as part of the on-going liaison with the planning authority (6th May 2021).

2.1.4 The proposed re-submitted development at White Cross Farm covers an area of 19 hectares, is therefore not considered to be a "Schedule 1" development (where the surface exceeds the threshold of 25 hectares), as set out in Schedule 1, of the Regulations. The proposed development does however fall within "Schedule 2" of Regulations (Part 2a: quarries – Extractive Industry) an Environmental Impact Assessment is therefore required as part of the planning submission for the proposed development.

2.1.5 This environmental impact assessment (EIA) has been prepared pursuant to the requirements of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2017 ("The Regulations"). There is no prescribed format for an ES provided that the requirements of Schedule 4 of The Regulations are met. Schedule 4 of the 2017 Regulations provides guidance on the level of information the statement should contain.

2.1.6 Schedule 4 of the Regulations sets out the information that should be included within an ES. This includes the following:

1. Description of the development.
2. Outline of the main alternatives.
3. Description of the aspects of the environment likely to be significantly affected by the development, including population, fauna, flora, soil, water, air, climate, material assets (architectural & archaeological), landscape and the inter-relationship of these factors.
4. Description of the likely significant effects (direct/ indirect, secondary, short/medium/ long-term, permanent/ temporary, positive/ negative).
5. Description of the measures envisaged to prevent, reduce and, where possible, offset any significant adverse effects.

2.2 Preparation of the Environmental Statement

2.2.1 The principal aim of environmental impact assessment is to protect the environment by ensuring that a local planning authority when deciding whether to grant planning permission for a project, which is likely to have significant effects on the environment, does so in the full knowledge of the likely significant effects, and takes this into account in the decision making process.

2.2.2 The purpose of the ES is to ensure that:

- relevant environmental issues are assessed appropriately;
- potential environmental impacts associated with the various phases of the proposed scheme (e.g. construction, operation, restoration and aftercare) are identified, together with appropriate mitigation measures; and
- interested parties are given the opportunity to address any relevant issues.

2.2.3 The environmental statement (ES) is accompanied by a separate planning application statement that addresses details of the development and a Non-Technical Summary (NTS). The ES takes on board the formal Scoping Opinion issued by the Oxfordshire County Council in November 2015 and the SODC in January 2016.

2.2.4 To complete the EIA Independent specialist consultants were commissioned to carry out relevant studies, to provide key information and advice on the impact of the development proposals. Within the ES topic areas identified in the scoping opinion, separate sections have been prepared whilst a full copy of each consultant's report is included as an appendix to the ES. The specialist consultants and their subject area are listed below:

Appendix 1	Scoping Opinion	
Appendix 2	Surface Water & Flood Risk	Edenvale Young Associates
Appendix 3	Hydrogeology	Hafren water Ltd
Appendix 4	Transport & Travel Plan	David Tucker Associates
Appendix 5	Noise	Vibrock Ltd
Appendix 6	Air Quality	Vibrock Ltd
Appendix 7	Landscape & Visual Impact	Kedd Ltd
Appendix 8	Soils & Agricultural Land Classification	R.G.O Burton
Appendix 9	Bird Management Plan	Greenfield Enviro
Appendix 10	Geology & Geotechnical	Greenfield Enviro
Appendix 11	Ecological Assessments	Windrush Ecology Ltd
	Arboricultural Survey	Nicholsons
Appendix 12	Archaeology	CgMS Ltd
Appendix 13	Climate Change	Greenfield Enviro

2.2.5 To meet the requirements of the EIA Regulations, the applicant is required to indicate what alternatives if any, have been considered in terms of the proposed development site. Although this is a new greenfield site, consideration of the possible alternatives to the development has been made.

2.3 Prediction of Impacts

2.3.1 Prior to predicting the environmental impacts of any proposed development, the existing environmental baseline should be established. Analysis of each impact can then be examined in the context of its predicted deviation from the baseline.

2.3.2 The methods used to predict the key impacts must be defined and the significance of those impacts should be assessed using appropriate standards and protocols. Where no such standards exist, the assumptions made to assess significance must be justified and any opposing, or contrary opinions explained.

2.3.3 The criteria to measure the significance of a potential impact following the proposals for mitigating measures are assessed qualitatively, with a significance criteria applied to each impact. The significance criteria are defined as:-

(i) No Significant Impact - Impacts not detectable
(ii) Minor Significant Impact - Impacts within accepted standards/ limits
(iii) Major Significant Impact - Impacts exceed accepted standards/ limits

2.4 Environmental Protection Measures

2.4.1 Once the analysis of potential impacts is complete, the next stage is to determine what mitigating measures would avoid, reduce or remedy any adverse effects. Mitigation methods may include modification of the development proposals and/or the introduction of certain safeguards to limit the effects.

2.4.2 As an integral part of the development process, it may be necessary to carry out ongoing environmental monitoring to confirm the effectiveness (or otherwise) of the mitigation measures and understand how the actual impacts relate to their predicted values.

2.4.3 The potential impacts of the proposed development – both direct and indirect – and mitigation measures considered are shown below, together with the related Appendices, as required by the Regulations.

2.4.4 ***Human Beings*** – Mineral operations can affect human beings in a number of ways – by noise (Appendix 5), air quality (Appendix 6), amenity and landscape (Appendix 7) or traffic (Appendix 4).

2.4.5 ***Flora and Fauna*** – Mineral operations may disturb flora and fauna by habitat removal and changes in the landscape characteristics (Appendix 11). Adverse impacts from birds on aircraft safeguarding may also occur as part of the operation and restoration of the proposed mineral site thus a bird management plan has been prepared (see Appendix 9).

2.4.6 ***Soil*** – The movement and storage of soils through the extraction and restoration processes may give rise to concern, thus a soil and agricultural land assessment is given in Appendix 8.

2.4.7 ***Water*** – The extraction process can lead to changes in the surface and groundwater regime. These matters are considered in Appendix 2 and Appendix 3.

2.4.8 ***Air*** – The extraction of mineral can affect air quality and create airborne dust thus this impact is assessed in Appendix 6.

2.4.9 ***Climate*** – The extraction of this type of mineral does not give rise to variations in climate. However, transport impacts are assessed to ensure compliance with sustainable transport policies (see Appendix 4).

2.4.10 ***The Landscape*** – The mineral extraction will inevitably give rise to changes in the landscape. The impacts are assessed in Appendix 7.

3. THE EXISTING SITE & ITS ENVIRONMENT

3.1 Site Description

3.1.1 The application area is located to the south of the A4130 Wallingford By-pass (Nosworthy Way) on the western bank of the River Thames. The application area covers some 19 hectares of land within the Parish of Cholsey and the County of Oxfordshire. The site is centred at Grid Reference [SU 605 877] (as shown in Plan ES--25-1) and is located approximately 1km south of the town centre of Wallingford, 1.8km north east of the village of Cholsey and about 8km to the east of Didcot. The site also lies about 3km south west of RAF Benson.

3.1.2 White Cross Farm is accessed via an agricultural entrance off Reading Road (A329), which connects the site to the A4130 (Nosworthy Way) at a roundabout on the north-western edge of the site (see Plan ES--25-2). The A4130 is situated on an embankment that forms the northern boundary of the site, which crosses the River Thames on a Winterbrook Bridge and joins the A4074 (Oxford to Reading Road) about 1km to the east of the site. The A4130 also gives direct access to the town of Didcot and the A34, some 12km to the west.

3.1.3 The application area comprises mainly agricultural land that has been used for arable and livestock grazing purposes. The application area is bound to the south by narrow strip of woodland and a residential property (Winward House), with the River Thames forming the eastern boundary of the site, as shown in Plan ES--25-3.

3.2 Adjacent Land Uses

3.2.1 The nearest residential properties are located just to the south of the site on Reading Road (A329) named Winward House, and two located to the west named Coachmans Cottage and The Lodge, both of which lie to the west of a large property named Elizabeth House (Plan ES--25-3). The Bright Horizons day nursery school is also situated at Elizabeth House. On the eastern bank of the River Thames, a complex termed Carmel College, Mongewell Park and a number of properties are present (Barrington Court).

3.2.2 To the west of the Reading Road (to the north of Elizabeth House), a solar farm has recently been constructed, together with the early stage development of New Barn Farm Quarry slightly further to the west.

3.2.3 The area surrounding White Cross Farm is generally agricultural land, with occasional pockets of woodland and a few minor watercourses. The topography is dominated by the southerly flowing River Thames, with grassland present on the banks of the river which forms the floodplain.

3.2.4 The land rises steeply away from the River Thames towards the east to an elevation of about 90m AOD, just to the east of Mongewell Park, and rises more gently to the west towards Cholsey Hill at about 70m AOD.

3.3 Surface & Groundwater

3.3.1 The River Thames lies at level of about 42.4m AOD, with land adjacent to the river lying at about 43.5m AOD. The site rises in elevation towards the north-west to about 46.4m AOD, while the mapped limit of the Thames floodplain lies at about 45m AOD. The central and eastern parts of the application area is located within Flood Zone 2 and 3 of the River Thames, but the north-western area of the site is not situated on the floodplain, as shown in Plan ES--25-2.

3.3.2 Published OS maps show two minor drainage ditches crossing the site. One drain flows north to south through the centre of the site that is partially vegetated with trees and scrub that has been truncated by the embankment of the A4130 Wallingford By-pass. A second drainage ditch is also present within the north eastern part of the site which flows from a culvert beneath the A4130 and issues into the River Thames.

3.4 Public Rights of Way

3.4.1 There is one public right of way present within the site boundary, which comprises the Thames Path National Trail, as shown in Plan ES25-2. This footpath is located on the western bank of the River Thames and extends from north to south along length of the river bank on the White Cross Farm site.

3.4.2 The Thames Trail footpath enters the site beneath the Winterbrook Bridge and crosses the ditch in the north-eastern part of the site over a concrete footbridge. There is extensive erosion of the footpath either side of the concrete footbridge where the distance between the path and river bank is less than 3m. In the central part of the site, vegetation growth has varied the location of the path, it is considered that the current location of the footpath is approximately between 5m and 10m in from the river bank in some locations.

3.5 Cultural heritage & Archaeology

3.5.1 There are no designated, non-designated built heritage assets, Registered or Non-Registered Parks and Gardens within the site, but a number of designated and non-designated heritage assets are located in the vicinity of the site. This includes the Grade II listed ruins of St John the Baptist Church, the Grade II listed Jewish Synagogue and the Grad II* listed Julius Gottlieb Boathouse and Galley to the east of the site.

3.5.2 There are no designated archaeological heritage assets within or immediately adjacent to the propose site. There is no known archaeology within the site.

3.6 Statutory and Non-Statutory Sites with Protective Designations

3.6.1 There are no internationally designated statutory nature conservation sites such as Special Conservation Areas (SAC) or Special Protection Areas (SPA) present within a 2km radius of the centre of the application area.

3.6.2 The Application Site is not subject to any statutory nature conservation designation such as Site of Special Scientific Interest (SSSI) or Local Nature Reserve (LNR).

3.6.3 There are two statutory sites within 2km of the application area, both of which are National Landscapes, previously termed Areas of Outstanding Natural Beauty (AONB), as shown in Plan ES25-4:

- The Chilterns National Landscape (CNL)
- North Wessex Downs National Landscape (NWDNL)

3.6.4 The North Wessex Downs lies about 2km to the west of the site, but the River Thames forms the boundary of the CNL. Due to the historical nature of the Crowmarsh Parish boundary that crosses the River Thames and falls within the site boundary for a distance of about 15m from the river with a length of about 35m. A very minor part of the site adjacent to the River Thames therefore lies just within the CNL.

3.6.5 There are three non-statutory sites within 2km of the application site:

(i) The Thames Wallingford to Goring Conservation Target Area (CTA);
(ii) Riverside Meadows; and,
(iii) Wallingford Castle Meadows.

3.6.6 The Thames Wallingford to Goring CTA covers an area of floodplain between Wallingford and Goring, as shown in Plan ES25-4. There is a section of CTA which falls within the eastern part of the application area, but the remaining part of the site does not fall within the CTA. The proposed 30m margin between the river bank and the edge of the proposed extraction area also ensure that most of the CTA within the site will remain undisturbed.

3.6.7 Riverside meadows and Wallingford Castle Meadows are Designated Wildlife Sites and are located over 1km to the north of the site.

4. SUMMARY OF THE PROPOSED MINERALS DEVELOPMENT

4.1 The Proposals

4.1.1 The proposed Whitecross Quarry development on the land at White Cross Farm includes the excavation and processing of about 550,000 tonnes (340,000m^3) of River Terrace Sand and Gravel reserves and about the 180,000m^3 of soils and overburden alluvial clay within a proposed extraction area of 15.5 hectares. There is a requirement for the importation of about 280,000m^3 of imported inert backfill materials to raise levels to allow the soils to be re-spread for final site restoration.

4.1.2 Mineral processing will be carried out in a series of phases over a period of about five years, as shown Plan ES25-5. The level of output from the site is expected to average some 140,000 tonnes per annum which would comprise direct aggregate sales. However, an additional year or so will be required to complete final landscaping and restoration works, thus it is anticipated that the development will take a total of about 6 years to complete the development.

4.1.3 The restoration scheme now proposes the creation of several UK BAP priority habitats such as floodplain grazing marsh and wet woodland as part of the development and to maintain the Thames Trail National Footpath in it's existing location adjacent to the river. The conceptual restoration scheme for the proposed development following mineral extraction and backfilling is shown in Plan ES25-6.

4.2 The Working Scheme

4.2.1 The sand and gravel deposit is generally between 2m to 4m thick thus it is proposed that this will be excavated in a single face using a tracked excavator that will load a series of dump trucks. These dump trucks will then haul the mineral to the processing plant and stocking area. The as-raised material will then be processed to produce a series of single sized gravel and washed sand products.

4.2.2 The presence of a water table within sand and gravel indicates that the deposit will require dewatering to be worked in a 'dry state'. The water will be pumped into a series of settlement lagoons before being discharged into the River Thames.

4.2.3 The initial development will comprise the establishment of the

4.2.4 The mineral extraction within Phases 1 and 2 will progress southwards in the eastern part of the site, maintaining a 30m margin of undisturbed land to the River Thames (Plan ES25-5). The undisturbed margin, together with other site boundaries, will be

fenced to prevent access into the site. This fencing will comprise standard open lattice deer fencing that is commonly used across open farmland, as shown in Plan ES25-8.

4.2.5 The excavation of sand and gravel with backfilling operations using overburden and imported materials will progress behind the developing face. The mineral workings will be undertaken in a series of designated sub-phases, as shown in Plan ES25-7. These "sub-phases" have been agreed with the Environment Agency as part of the detailed flood modelling assessment.

4.2.6 It is proposed that as the operations progress into the western part of the site (Phase 3), progressing southwards. The "best and most versatile" soils within Phase 3 will be stripped and stored in bunds off the floodplain as these will be required to restore the western area back to agricultural land. As the workings progress southwards across Phase 3, a clay filled trench will be installed adjacent to the southern site boundary to reduce any potential groundwater impacts as part of the de-watering operations. However, it should be noted that the mineral in this area of the site becomes generally thinner (around 2m), thus de-water impacts are considered to be negligible.

4.2.7 The soils and overburden from the north-western part of Phase 3 are will have been partly removed as part of the initial plant construction and stockpiling works. The as-raised stockpiled material on Phase 3 will be processed prior to the extraction of the mineral in the ground then backfilling will progress behind the sand and gravel face.

4.2.8 The site will be progressively restored using imported inert backfill materials, with the final conceptual restoration shown in Plan ES25-6.

5. ALTERNATIVES TO THE PROPOSED DEVELOPMENT

5.1 Consideration of Alternative

5.1.1 Consideration of alternatives within EIA commonly focus on 4 principle forms of alternatives:

- Do nothing
- Alternative methods
- Alternative sites
- Alternative forms of development

5.1.2 The proposal seeks to create a small-scale minerals facility located on the western bank of the River Thames that will primarily serve the surrounding South Oxfordshire area. The extraction of a relatively modest amount of River Thames Terrace sand and gravel (550,000 tonnes) within the County of Oxfordshire is considered a "windfall" site rather than a strategic quarry development due to the relatively short -term nature of the scheme and modest output from the site.

5.1.3 The sands and gravels are a valuable natural resource that will be processed on the site and sold as aggregates into the local construction markets. The local market demand for these construction aggregates is currently very strong due to the substantial amount of house building and major infrastructure in the area, including the increased housing allocations across the county and also the major new reservoir construction project located just to the west of Abingdon (about 18km from the site).

5.2 Do Nothing

5.2.1 If this proposal was not to go forward, the land would remain as agricultural land and occasional grazing for cattle. The valuable mineral resources present on the site would not be worked and these available resources would not contribute to the short-term need for additional supply of construction aggregates into the Oxfordshire market.

5.2.2 In this regard the site would not make a contribution to re-balancing the supply of sand and gravel from the north of the county towards the south, which is an important element of the Oxfordshire Mineral Plan Core Strategy.

5.3 Alternative Methods

5.3.1 The quarry could be developed over a very short period of time (potentially about 1 year) rather than the 5 years proposed. However, this would reduce the time allowed for processing and sale of the high quality aggregate and thus the material excavated

may have to be worked in a less sustainable way with a large, high volume processing plant that consumes greater amounts of energy and resources.

5.3.2 In addition, the total number of traffic movements would remain the same for either the 1 year or 5 year construction scheme, but the daily vehicle numbers for the shorter 1 year scheme would be about 4 times higher. This would result in greater HGV traffic numbers on the local highway network over a short period of time.

5.3.3 By planning the development over a period of 4 to 5 years, this ensures a reduction in daily vehicle movement numbers and time for suitable inert fill materials to be sourced and delivered as part of the restoration scheme. This significantly reduces the impact on the local environment from HGV movements.

5.4 Alternative Sites

5.4.1 To the south of the White Cross Farm site, the land lies within a National Landscape Area (previously termed AONB). To the north of the proposed site where there is good road access the mineral resources lie too close to the residential areas of Wallingford. Further to the north, the towns of Abingdon and Oxford are located on the River Thames that mapped mineral resources, but road access is deemed difficult for HGV access and the area all lies within the Oxford Green Belt.

5.4.2 Within the emerging Oxfordshire Minerals Local Plan, a consultation document has identified potential sites for future sand and gravel development within the South Oxfordshire area. These sites include a major new resource near Sutton Courtenay that may come forward at some time in the future. However, a recently permitted site at New Barn Farm, Cholsey, is currently the only operating site in South Oxfordshire, which does not satisfy the Policy aims of Oxfordshire CC to shift a higher proportion of sand and gravel extraction into the southern part of the County. The proposed small-scale Whitecross Quarry will assist with the policy objectives over the near future, whilst the objectives of establishing a number of larger strategic quarry sites in the southern part of the county can be achieved in the longer term.

5.5 Alternative forms of development

5.5.1 As the majority of the White Cross farm site is located on the River Thames floodplain, there are very limited opportunities for any built development. The construction of a marina has been refused planning permission thus no other obvious forms of flood risk acceptable development could be considered on this site.

6. SURFACE WATER & FLOOD RISK

6.1 Introduction and Methodology

6.1.1 Edenvale Young Associates Ltd were instructed to undertake a surface water and flood risk impact report which presents the findings of a Flood Risk Assessment (FRA) that relates to this proposed quarry and restoration development. This section provides an overview of the potential impacts as a summary of Appendix 2.

6.1.2 The FRA models and assesses the flood-related risks within the quarry and to third parties outside of the proposed development during the operational period and post restoration period.

6.1.3 Sand and gravel workings are classified as Water Compatible Development in the NPPF. It also states that Flood Zone 3 is suitable for Water Compatible Development. The FRA seeks to ensure that the proposed development is designed to:

- Remain operational and safe for users in times of flood;
- Result in no net loss of floodplain storage;
- Not impede water flows and not increase flood risk elsewhere

6.2 Baseline Conditions

6.2.1 The proposals comprise an extraction area on the floodplain with the proposed plant area in the north west of the site on higher land in Flood zone 1 and 2. The EA flood mapping identifies that the extraction area of the site is located within Flood Zone 3 and 2 on the western floodplain of the River Thames. Flood Zone 3 is classified as the "functional floodplain" and has a high probability of flooding.

6.2.2 The River Thames lies at an approximate elevation of 42.4m Above Ordnance Datum (AOD). The floodplain occupies the valley floor, which is varies between 2km to 4km in width, and is bounded to the east by the Chilterns and to the west by the North Wessex Downs. There is a long history of quarry working on the floodplain of the River Thames.

6.2.3 As part of the mineral processing operations, it is proposed that a silt settlement lagoon will be located adjacent to the processing plant. This lagoon will be excavated within the sand and gravel. All surface water intercepted within the processing area will be directed into this lagoon, thus there will be no direct run-off from the plant area during rainfall event.

6.2.4 This water will then be used within the mineral washing process and recycled back to the silt lagoon. This will also reduce the potential water losses from the site during the mineral processing operations, minimising the environmental impact of the operations.

6.2.5 Within the site there are no proposals to construct any permanent soil storage bunds or fixed plant on the functional floodplain (Flood Zone 3). Soil bunds and an as-raised mineral stockpile will be located around the plant area, not within the Flood Zone 3 area.

6.2.6 There will be no working on the floodplain during EA flood warnings to ensure that there are no flood risk impacts from the plant operators working in the extraction area. During these periods, all plant and equipment that could give rise to a potentially polluting impact would be removed to land off the Flood Zone 3. This would include any generators, fuel tanks, mobile plant and pumps.

6.2.7 The site will therefore develop Flood Management Plan/ Emergency Response Plan and register the site with the EA flood warning service.

6.2.8 The extraction areas will ensure that all surface water run-off and drainage will be collected and channelled into a series of ditches and settlement ponds prior to discharge (via soakaways or ditches) to the River Thames. Some of the discharged water may be required to be pumped up to the processing plant to maintain water levels within the clean water lagoon that is used for the mineral washing operations. There will be no discharge pumping of water during flood events.

6.2.9 All discharges will be controlled by an EA permit to ensure that there no suspended solids or other pollutants in the discharge water. This is standard practice in all mineral operations.

6.2.10 To ensure the integrity of the river bank a standoff of 30m will be maintained between the crest of the river bank to the edge of the excavation.

6.3 Assessment of Impacts

6.3.1 Sand and gravel extraction is deemed a "Water Compatible Development" as part of the NPPF and the restoration to agricultural land and a range of nature conservation is also deemed compatible with the floodplain requirements as there is no proposed increase an any site levels or contours.

6.3.2 The FRA modelling shows a small reduction in water level during the operational period of the proposed sand and gravel development. The removal of material from the

floodplain during the operational period will create additional flood storage and this is expected to reduce water levels marginally.

6.3.3 During the restoration operations the assessment shows a reduction in water levels upstream of the site and minor increase in water levels in the south-western corner of the site of the development. However, although these increased levels were considered very small and thus could be considered insignificant (if assessed against accuracy of the modelling), a revised phased mineral extraction scheme has been agreed in consultation with the EA to ensure no flood impacts form the proposed development. The working scheme is shown in Plan ES25-7.

6.3.4 The final flood risk assessment confirms that there will be no significant impact on the local environment due to any increased flood risk.

6.3.5 During the restoration of the site, a series of drainage ditches will be formed that will utilise retained features and also creating new ditches to ensure surface water can flow into the "wet woodland area", with ultimate discharge to the River Thames, as is currently the situation. The proposed drainage scheme is included in Appendix 2.

6.4 Proposed Mitigation

6.4.1 There is no requirement for flood storage compensation as restoration land levels will be completed to existing, or just below existing ground levels.

6.4.2 A working scheme progressing from north to south adjacent to the Thames (Phase 1 and Phase 2) is proposed, together with a southerly direction of working from the plant area towards the southern site boundary as part of Phase 3.

6.4.3 No further mitigation measures are recommended over and above the mitigation included within the design of the scheme.

7. HYDROGEOLOGY

7.1 Introduction & Methodology

7.1.1 An assessment of the baseline hydrogeological impacts of the scheme has been carried out by Hafren Water Ltd, are shown in Appendix 3.

7.1.2 The assessment of the impacts has been carried out in accordance with the Environment Agency guidance on hydrogeological impact assessment for dewatering abstractions and in relation to the marina development. The baseline conditions have been defined by the collation and analysis of existing data and field observations.

7.2 Baseline Conditions

7.2.1 The proposed mineral extraction area is situated on the western floodplain of the River Thames. The southerly flowing River Thames is the main watercourse in the vicinity of the site and is approximately 40m wide at this point. The water level in the River Thames generally lies at a level of 42.4 m AOD.

7.2.2 The site and surrounding floodplain contain several drainage ditches and small water bodies, as described in detail in the assessment in Appendix 3.

7.2.3 There are no SSSI's or SAC sites within 5km of the site, however, the Thames Wallingford to Goring CTA covers an area of floodplain between Wallingford and Goring. There is a section of CTA which falls within the application site, as shown in Plan ES--25-4.

7.2.4 The geology of the site comprises River Terrace deposits overlying Glauconitic Marl bedrock, Lower Chalk of Cretaceous age. The sand and gravel deposits are classified as a "Secondary A aquifer" which is connected to the River Thames. The underlying Lower Chalk of the West Melbury Marly Chalk Formation is classified as a "Principal Aquifer", although the chalk has a low permeability.

7.2.5 The River Terrace deposits contain groundwater which ranges in level seasonally and also ranges from west to east across the site, on average the groundwater is at a level of about 42.8m AOD. Data shows that groundwater flow is towards the River and also indicates that the water levels in the eastern part of the site are in hydraulic continuity with the River Thames.

7.2.6 There is one licensed water abstraction and three private abstractions in the vicinity of the site, including Windward House to the south (Formally known as Mead Furlough).

7.2.7 The proposed extraction area has incorporated appropriate standoffs and margins to boundaries of the River Thames (30m), fence at the toe of the A4130 embankment (15m), drainage ditch in the north east (10m) and other boundaries of the site (5m).

7.2.8 Safe storage of fuel, diesel generators and pumps together with spillage containment kits will be held onsite, as is current best practice in the industry.

7.2.9 The borehole drilling investigations and the monitoring of a number of boreholes located around the proposed extraction area has confirmed level of the groundwater table within the River Terrace Sand and Gravel. To allow the mineral to be extracted in a "dry" state, the mineral will require de-watering where pumping from a "sump" at the base of the mineral deposits will draw-down the water table locally. The water will then be discharged into series of settlement lagoons prior to final discharge to the River Thames. No direct pumping into the River Thames will take place during periods of flood or high river levels. These de-watering operations will move with the progression of the mineral extraction.

7.2.10 De-watering operations are very common in these types of River Terrace mineral deposits and the details of the discharge are permitted by the EA. An application to the EA for a discharge consent/ permit will need to be made, with conditions attached to a permit regulating the volume of discharge and the amount of suspended solids within the water. This will ensure that there are no surface water pollution impacts from the de-watering operations.

7.2.11 The bedrock of the site may require an artificially enhanced geological barrier to be emplaced above it and also at the sides of the fill areas as part of the backfilling requirements. This barrier will be 1m in thickness and highly impermeable.

7.3 Assessment of Impacts

7.3.1 The impacts of the proposed de-watering have been modelled and assessed in detail, which confirms that the proposed drawdown of the shallow groundwater levels in River Terrace deposits is estimated to have a radius of influence of about 120m from the seepage face.

7.3.2 The impact of dewatering and/or seepage from the face will be reduced by minimising the worked area, and by backfilling the faces and the base of the excavation with low permeability clay material to create a geological barrier, which will be comprised of site overburden materials to enable a progressive quarry restoration programme throughout the operations of the site (about 5-6 years).

7.3.3 The site is adjacent to the River Thames and, whilst clay content increases towards the river, the groundwater monitoring data and levels from the Thames indicate that the groundwater is in hydraulic continuity with the Thames. The calculated radius of influence includes the river, indicating water will be drawn into the site from the river during dewatering. However, this volume would be minimal relative to flow in the river. Additionally, it is intended to discharge abstracted water back to the River Thames on the northern edge of Phase 1, upstream of the dewatering. Therefore, any water removed from the Thames would be returned, reducing the effects of drawdown.

7.3.4 The Thames and Wallingford to Goring Conservation Target Area is partially located within the site. It is considered that any water level changes will be short term and following mineral extraction operations the dewatering pumps will be removed and the water levels and flows will be fully restored to pre-development levels as the restoration is completed.

7.3.5 The potential impacts of the proposed short-term mineral extraction operations and the proposed long-term restoration on the local groundwater environment have been modelled and assessed. This assessment confirms that there will be no significant impacts on the local hydrogeological regime from the quarrying or proposed restoration.

7.4 Proposed Mitigation

7.4.1 It is proposed that groundwater levels will be monitored within boreholes around the site boundary during the construction phase of the works and during the de-watering operations. It is proposed that a Water Management Scheme will be prepared for the site prior to the commencement of the de-watering operations. The water levels will be recorded, and trigger levels will be determined prior to the works against which the monitoring can be assessed.

7.4.2 The private water supply at Windward House is within the radius of influence for Phases 2 and 3. Any water table lowering at the abstraction would only occur over a relatively short period (less than two years) and would be reversible.

7.4.3 Due to it being a potentially highly sensitivity receptor mitigation measures are proposed including regular monitoring of the existing perimeter boreholes and monitoring the well itself. The proposed working scheme proposed the early placement of clay overburden against the southern face of the quarry void to create a low permeability barrier between the extraction area and the known private water supply. Laboratory testing of the overburden indicated that permeabilities of between $8x10^{-11}$ and $1x10^{-10}$m/s can be achieved.

7.4.4 The piezometers along the southern site boundary will be monitored weekly as the workings progress southwards during Phase 3 to allow the early identification of any adverse impact, in the unlikely event of its occurrence.

7.4.5 Although the groundwater flows are known to be from west to east (towards the River Thames), the installation of a clay filled trench on the southern boundary of the Phase 3 area will significantly reduce any inflows from the south into the works, thus reducing any potential impacts on the well. The proposed location of the clay filled trench is shown in Plan ES25-5.

7.4.6 On completion of the quarry and restoration works, the boreholes and well can still be monitored during the aftercare period.

7.4.7 The Following restoration, raising of the upstream groundwater level due to the placement of low permeability materials will be minimal due to the presence of the adjacent New Barn Farm quarry, which will deflect groundwater flow around the upstream boundary of the site. The risk of the imported material degrading water quality surrounding the site is considered minor due to the utilisation of Waste Acceptance Criteria to regulate the waste placed at the site. Any further mitigation measures will be determined during the permitting process.

7.4.8 No additional mitigation measures are recommended over and above the mitigation included within the design of the scheme.

8. HIGHWAYS & TRAFFIC

8.1 Introduction & Methodology

8.1.1 David Tucker Associates have carried out a Transport Assessment (TA) on the re-submission proposals which can be found at Appendix 4 of this ES.

8.1.2 The TA reviews the existing local road network, local traffic patterns and road safety in the vicinity of the site. The TA sets of the proposed access design for the mineral extraction and infilling operations, with the proposed access arrangements shown in Plan ES25-9.

8.1.3 The TA then considers traffic generation from the operations, and the potential impact of the traffic, including the environmental impact.

8.2 Baseline Conditions

8.2.1 The existing access into the agricultural land at White Cross Farm is off the A329 (Reading Road). This road is a single carriageway road approximately 5.7 m wide which is subject to a 50mph speed limit. On the opposite of the A329 two separate entrances serve the Mongewell Park Day Nursery and a recent solar farm development. There is also a footway on the western side of the road.

8.2.2 Reading Road links with the A4130 Nosworthy Way at a roundabout to the north of the site. Both the A329 and A4130 are part of the tertiary and secondary Freight Priority Network respectively. A review of the DfT traffic count website confirms automatic traffic count on the A4329 Reading Road in 2019.

8.2.3 The average annual daily flow on the A329 (Reading Road) were 4,319 northbound and 4,148 southbound. Accident records do not indicate cluster locations or causal factors related to road geometry which would suggest existing road safety concerns within the immediate vicinity of the site.

8.2.4 It is proposed that there will be a left-in and a left-out access arrangement for the extraction and infilling operations. Access will be provided by a left in from Reading Road and left out onto Nosworthy Way. The accesses would be constructed to full highway standards including horizontal and vertical alignment and forward visibility.

8.2.5 The egress from the A4329 – inbound into the site – is circa 100m south of the A4130 roundabout. All vehicles exiting the roundabout will be travelling slowly. Forward visibility is considered ample. The design arrangement for the access conforms to all relevant current design standards.

8.2.6 The site access onto the A4130 is circa 60m east of the roundabout. It is proposed that all traffic will turn left towards the roundabout (i.e. no right turn out of the access). The TA confirms that the necessary visibility is achievable.

8.2.7 The immediate internal site approach to the access will be levelled to avoid HGV's hill starting. The geometry of the access conforms to all relevant design standards. The HGVs will be joining the network at a location where vehicle speeds will be low.

8.3 Assessment of Impacts

8.3.1 The proposed extraction site contains a valuable resource of River Terrace Sand and Gravel, which would be extracted at around 140,000 tonnes per year over a 5 year period. All materials would leave the site by HGVs in standard 20 tonne loads and the proposed extraction rate equates to an average of about 27 HGV's leaving the site each day. This will create, on average 54 HGV movements per day (27 in and 27 out of the site). However, these estimates are averages thus during busy working periods (such as major local building projects) vehicle movements may rise to around 100 movements per day.

8.3.2 Infilling and restoration of the site will involve the importation of around 290,000 cubic metres of clean inert waste. This will also take place over a period of around 6 years, to allow time to complete the restoration of the site after mineral extraction.

8.3.3 The impact of the projected HGV movements per day would equate to an increase of less than 0.6% of the overall traffic flow on Reading Road. The impact is not considered to be significant, and the operations are temporary in nature. The nature of the local road network is considered suitable to accommodate the proposed HGVs. The access arrangements will ensure minimal conflict between the proposed HGV movements and vehicles on the local highway network.

8.3.4 The TA considers that the environmental impact of the traffic is well within accepted thresholds given the relatively small resultant increase in overall traffic movements as well as the temporary nature of the operations. The TA is clear that the proposed access arrangements are safe and suitable for the location and considers that the proposals will not result in any material impact on the adjacent highway network.

8.4 Proposed Mitigation

8.5 No specific mitigation is proposed over and above the proposed design and access arrangements

9. NOISE

9.1 Introduction and Methodology

9.1.1 Assessments of the baseline noise levels and the potential noise impact of the proposed development at the site have been carried out by Vibrock Ltd (Appendix 5).

9.1.2 This included a site inspection and sound level monitoring undertaken in July and September 2016. An assessment of the potential noise impacts arising from the works has then been carried out based on the most appropriate guidance contained in NPPF and NPPG.

9.2 Baseline Conditions

9.2.1 The main sources of existing noise within the vicinity of the site are traffic activity along the A4130 carriageway and bridge over the River Thames and the A329.

9.2.2 Ten potentially noise sensitive locations were identified where noise monitoring was carried out between 10:00 to 16:00 on two separate dates. These potentially sensitive locations included are given below in Table 1.

Table 1 Summary of Baseline Monitoring Results:

Location	Average $L_{Aeq,1h}$ dB(A)	Average $L_{A90,1hr}$ dB(A)
Elizabeth House Mongewell Park Nursery Coachmans Cottage The Lodge, Wallingford Road	59	46
The Lodge, Winterbrook Lane	63	56
Winward House/ Mead Furlong	60	48
Carmell College Barrington Court St John the Baptist Church Spence Pavilion	50	44

9.2.3 The noise levels recorded for these locations monitored indicated that the background noise is generally high at the present time, due mainly to the traffic on the adjacent roads.

9.2.4 The proposed location of the processing plant has been selected at White Cross farm as it is over 1km from the village of Wallingford and is screened by vegetation and the A4130.

9.2.5 The construction of noise attenuation bunds, some with planting around the perimeter of the site will reduce the level of noise travelling off site. The use of modern well maintained machinery with silencers and white noise reversing warblers rather than beeping alarms will also reduce noise during the construction phase

9.2.6 During the mineral extraction operations in the proposed quarry followed by the restoration via backfilling with imported inert materials, noise will be managed with best practice and a code of conduct for modern mineral sites.

9.3 Assessment of Impacts

9.3.1 At the identified noise sensitive locations, predictions were made of the worst case noise levels from the proposed development during normal operations, as shown in Table 2 below.

9.3.2 The results of the noise assessment carried out at the sensitive properties surrounding the site has identified that (at worst-case scenarios), the noise levels from the proposed operations would not exceed the exceed the background by more than 10dB(A) and would also not exceed the maximum 55dB limit outlined in Government guidance.

9.3.3 It is considered that the noise levels from the proposed operations will have no significant impact, and that noise levels created will not rise above "noticeable" levels at the residential properties and other areas of concern within the vicinity of the site due to the very high background noise levels recorded and the proposed mitigation measures.

9.3.4 The assessment has considered all the properties as residential; however Elizabeth House is used as a day nursery. As there is no noise guidance specifically for nursery schools and the highest level of assessment relates to residential properties the assessment undertaken is deemed to be appropriate as the quarry would be operational during nursery working hours.

Table 2 Noise Level Predictions for normal quarry operations:

Location	Background Noise Levels (dB) $L_{A90,1hr}$	Predicted Worst Case (dB $L_{Aeq,1h}$)	Difference Background Noise	Difference NPPG Max 55 dB
Elizabeth House	46	49	+3	-6
Meadow Farm	46	49	+3	-6
Waterside Court	56	53	-3	-2
Whitecross House	56	51	-5	-4
Winward House/ Mead Furlong	48	53	+5	-2
Founders House Carmel College	44	50	+6	-5
Mansion House Carmel College	44	49	+5	-6

9.3.5 As part of the noise assessment for the proposed Whitecross Quarry site, a cumulative noise assessment has also been carried out. The predicted cumulative noise levels from the proposed operations at New Barn Farm and White Cross Farm have been assessed at relevant noise-sensitive premises in line with the noise standards outlined within PPG-Minerals and the noise limits stipulated within Condition 22 of planning permission ref. MW.0094/16 dated 8 November 2018 for mineral extraction and restoration using imported inert materials at New Barn Farm.

9.3.6 The cumulative noise levels predicted from potential operations at New Barn Farm and White Cross Farm are shown in Table 3 below:

Table 3 Predicted Cumulative Noise Levels for Worst-case quarry operations:

Location	White Cross Farm(dB) $L_{A90,1hr}$	New Barn Farm (dB $L_{Aeq,1h}$)	Cumulative Noise Level (dB $L_{Aeq,1h}$)
Elizabeth House	49	48	51
Coachman's Cottage	46	46	52
The Lodge	43	52	53

9.3.7 The predicted levels indicate that worst-case cumulative noise levels associated with operations at both mineral sites are not expected to exceed the limit of 55 dB stipulated within PPG and Condition 22 of the planning permission for New Barn Farm Quarry. As a result, the potential cumulative impacts of noise are not considered to be significant.

9.3.8 It is therefore considered unlikely that potential future extraction would result in significant or unacceptable adverse impacts at noise-sensitive premises in the vicinity of the site. A range of recommendations have been made to minimise potential noise emissions associated with the potential future operation of the site.

9.4 Proposed Mitigation

9.4.1 A series of mitigation and control measures have been recommended in the noise assessment to further reduce the impact on potential receptor locations.

9.4.2 For the quarry operations no specific noise mitigation measures are proposed, other than good practice and high-quality site management. However, following completion of the restoration noise levels will return to pre-development conditions.

10. AIR QUALITY

10.1 Introduction and Methodology

10.1.1 An air quality assessment of the proposed development has been carried out by Vibrock Ltd and the findings set out in a report included in Appendix 6.

10.1.2 The air quality assessment has been undertaken having regard to relevant legislation and guidance including the Air Standards Regulations, 2010 and the Environment Act 1995. Regard has been had to guidance for dust emissions provided in the NPPF 2021 and NPPG 2019 as well as relevant planning policies.

10.2 Baseline Conditions

10.2.1 The site setting is considered to be residential and town outskirts with existing dust levels influenced mainly by road traffic and farming activities. It is predicted that levels of deposited dust will typically be of the order of 56 $mgm^{-2}day^{-1}$ (milligrams per square metre per day) annual median within residential and town outskirts.

10.2.2 The existing deposited dust (approximation) at the two monitoring locations is recorded as 50 $mgm^{-2}day^{-1}$ on the north-west site boundary and 43 $mgm^{-2}day^{-1}$ at the southeast site boundary.

10.2.3 Particulate matter is generally categorised on the basis of the size of the particles. PM_{10} roughly equates to the mass of particles less than 10 micrometres in diameter. Particulate matter is made up of a wide range of materials and arises from a variety of sources. Concentrations of particulate matter comprise primary particles emitted directly into the atmosphere from combustion sources and secondary particles formed by chemical reactions in the air. Particulate matter derives from both human made and natural sources (such as sea spray and Saharan dust). In the UK the biggest human made sources are stationary fuel combustion and transport.

10.2.4 The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, 2007 suggests that quarrying and construction work are thought to account for less than 1 μgm^{-3} of PM_{10} levels. The loading of 1 μgm^{-3} is therefore a worst-case calculation.

10.2.5 The dust assessment considers potential receptors at Meadow Farm, Elizabeth House, Waterside Court, Whitecross House, Founders House and Mansion House at Carmel College, and Windward House.

10.2.6 The principal potential sources of airborne dust associated with the proposed development include site haulage, soils handling and wind blow across bare ground and loose materials.

10.2.7 To minimise the potential impacts the proposed quarry will be operated in accordance with best practice and the relevant process guidance notes. The essence of the guidance is that dust emissions can be controlled by effective site management, which includes damping down haul roads during periods of dry weather and either hard surfaced roads with constructing roads with suitable hardcore materials.

10.2.8 As the main mineral extraction and mineral processing operations are undertaken in a "damp state" (during the construction phase of the works), the potential for wind-blown dust is reduced compared with similar operations.

10.3 **Assessment of Impacts**

10.3.1 The Vibrock report gives consideration to the weather and climatic circumstances surrounding the application site and has specific regard to windspeed/direction data as well as rainfall data.

10.3.2 In relation to the identified potential receptors the Vibrock assessment considers a combination of proximity to the development, wind speeds/directions, rainfall and also the presence of physical features.

10.3.3 The assessment considers the potential dust impact on each of the receptors having regard to IAQM guidance and taking account of potential receptor pathway effectiveness.

10.3.4 The air quality assessment confirms that dust impact risk is calculated as low for Meadow Farm, Elizabeth House, Waterside Court and Whitecross Farm. For Founders House and Mansion House at Carmel College and Windward House the dust impact risk is considered negligible.

10.3.5 The air quality assessment has considered all the main receptors as "residential" including Elizabeth House that is a day nursery. As there is no guidance specifically for nursery schools and the highest level of assessment relates to residential properties the air quality assessment undertaken is deemed to be appropriate during nursery working hours.

10.3.6 The potential dust effects at each of the identified receptors indicates that there may be a short term "slight adverse" impact assessed for Meadow Farm, Elizabeth House,

Waterside Court and Whitecross Farm. For Founders House and Mansion House at Carmel College and Windward House the dust effect is classified as "negligible effect".

10.3.7 A PM_{10} and $PM_{2.5}$ assessment has also been carried out that concluded that any effects from the proposals are not likely to exceed identified Air Quality Objectives.

10.3.8 The air quality assessment for the proposed quarry development confirms that it is unlikely that the re-submitted proposals will lead to a significant decrease in local air quality and that the potential for dust impacts are considered limited and likely to be of short duration.

10.3.9 Any predicted PM_{10} and $PM_{2.5}$ emissions from the site will not result in exceedances of Air Quality Objectives and that the employment of mitigation and monitoring measures will help ensure that any dust/air quality impact is limited in scale and duration such that national and local policies on dust and air quality are met by the proposals

10.4 **Proposed Mitigation**

10.4.1 A series of mitigation and dust control measures have been recommended in the air quality assessment to further reduce any impact on potential receptor locations. The use of such best practice measures, which have been implemented at mineral extraction sites throughout the United Kingdom, suggest that such measures will be effective during the mineral extraction, processing and restoration operations.

10.4.2 It is recommended that the production and implementation of a Dust Monitoring Strategy should be formulated with an agreed the strategy that should include the establishment of baseline conditions and a regime of agreed monitoring, including the use of dust gauges combined with physical inspections. These are standard best-practice measure employed across the UK quarrying sector.

11. LANDSCAPE & VISUAL AMENITY

11.1 Introduction & Methodology

11.1.1 Kedd Ltd have carried out a Landscape and Visual Impact Assessment (LVIA) on the re-submission proposals that also incorporates an assessment of Historic Visual Setting. The LVIA covers the potential impacts during the temporary operational phases and also the restoration end-uses proposed as part of the development. This section provides an overview of the potential impacts as a summary of Appendix 7, which includes a range of landscape documents that addresses the potential impacts of the scheme on the local landscape.

11.1.2 The LVIA has been carried out in accordance with the Landscape Institute and the Institute of Environmental Management and Assessment Guidelines for Landscape and Visual Impact Assessment (GLVIA 3)

11.1.3 Data, collation and assessment has been carried out utilising both desk-top and site survey works to identify the baseline landscape character and visual nature and condition of the site and its local area. The desk top appraisal helped form the basis for site visits, which were carried out in summer and winter 2016, summer 2017 and summer 2021.

11.2 Baseline Conditions

11.2.1 The site is located within the South Oxfordshire District Council defined Flat Flood Plain Pasture landscape type, which we assess as of Medium Sensitivity to the type of quarry and restoration development proposals.

11.2.2 The Site is not located within a National Park. The eastern boundary of the site runs adjacent to the Chilterns National Landscape (formerly AONB) and the River Thames. The North Wessex Downs National Landscape (AONB) is located approximately 1.5 km to the west, south west and north of the site. The Chilterns National Landscape is part of a chalk ridge which crosses England from Dorset to Yorkshire.

11.2.3 The site lies within the South Oxfordshire Character Area 4 of the Landscape Character Assessment (LCA) areas. The proposed application area is typical of the Flat Flood Plain and Pasture Character Type. Character Area 4 – The River Thames Corridor, embraces the flat, low-lying floodplain of the River Thames between Long Wittenham and Goring and includes the lower reaches of its main tributary, The River Thame. However, as part of the planning appeal evidence, a review has confirmed that the LCA have recently been updated but this has been addressed within the landscape submission to the appeal.

11.2.4 The current land uses within the planning application site comprise agricultural land (arable and grassland), hedged / wooded boundaries to the north, south and west, and scrub vegetation to the eastern boundary alongside the Thames Pathway (a National Trail) and the River Thames.

11.2.5 The western area of the Site comprising the better-quality agricultural land on slightly higher ground, compared to the eastern area of the Site where agricultural land is more prone to waterlogging. A ditch with varying boundary vegetation runs north to south between the two areas.

11.2.6 The scenic quality of the site landscape within the Flat Floodplain Pasture Landscape Type is assessed as Medium, the landscape appearing agriculturally functional in the spring, summer and autumn months and slightly degraded in winter. The scenic quality is degraded by the Wallingford Road Bypass with its semi urbanisation of this part of the Thames Corridor. Scenic quality rises to the east with the peripheral built and vegetative elements and structures of Carmel College adding to the quality including the Boat House and mature native and specimen trees. In respect of the site area, the LVIA assess the tranquillity as Low to Medium as a result of noise generated by vehicle traffic using the Reading Road and A4130 Wallingford Bypass.

11.3 Assessment of Impacts

11.3.1 The LVIA considers both landscape and visual effects of the extraction and infilling operations and also considers the long-term effects of the post restoration land uses.

11.3.2 The LVIA considers the magnitude of landscape character effect during the operational 6 year period of the quarry as being “Moderate Adverse”. This principally relates to the introduction of engineering earthworks and built forms into the landscape, together with movements associated with mineral extraction and restoration, and an amount of disturbed / operational land.

11.3.3 The LVIA considers the landscape character effect of the post restoration end-uses to be “Moderate to Moderate Beneficial”.

11.3.4 In terms of visual effects the LVIA considers that, during the operational quarrying, infilling and restoration period, there would be no “Significant Adverse Visual Effect” to any receptor. It is assessed that there is the potential for four receptors to have the potential to receive a “Moderate Adverse” effect during this period.

11.3.5 Post restoration the LVIA considers there would be no adverse / significant visual effects to any visual receptors and that positive effects would be experienced by a number of receptors, including the users of the Thames Path.

11.3.6 A Historic Visual and Setting Assessment has been prepared by Kedd Ltd. The assessment identifies 4 sensitive features: Grade II Listed Ruins of St John the Baptist Church; Grade II Listed Julius Gottlieb Gallery and Boathouse; Elizabeth House (Non-Designated); and the Wet Boathouse within Mongewell Park (Non-Designated). It is assessed that the proposed development would be a short-term temporary operation which would not physically alter the cultural value of historic assets or indirectly significantly adversely affect the visual setting of the identified historic assets. In respect of all four heritage assets at post-restoration, when land has been returned to the similar ground levels and landscape structure planting and enhanced habitat/biodiversity species have established, it is considered that the change/significance of visual setting would be either neutral or beneficial.

11.4 LVIA Conclusions

11.4.1 The LVIA confirms that the extraction and infill scheme design minimises potential disturbance and contains temporary visual change through the use of the existing contained site and through temporary screening using straw bales, planting and seeded and maintained soil bunds.

11.4.2 The LVIA also confirms that the restoration scheme creates sustainable and manageable land units for agriculture (conserving and concentrating the soil resource to ensure all land of Best and Most Versatile Land Characteristics are replaced) and creates new habitats to promote landscape structure and enhance biodiversity.

11.4.3 It is therefore considered that the proposed development is in accordance with guidance and relevant landscape and environmental planning policy, and that no significant adverse levels of landscape or visual effects would result. It is also concluded that the proposed development would not result in any likely cumulative adverse effects in combination with either existing or proposed development.

12. SOILS & AGRICULTURE

12.1 Introduction and Methodology

12.1.1 An assessment of the existing soils and agricultural land quality has been carried out that covers the application area on the western bank of the River Thames, as shown in Appendix 8.

12.1.2 The assessment has been made in accordance with the revised guidelines and criteria (MAFF 1988, Natural England 2012) for Agricultural Land Classification. The assessment describes the baseline of the agricultural and soil quality and evaluates the importance of the soil resource as well as the method for handling and use.

12.1.3 It should be noted that the site is generally considered as poor quality agricultural land with only one viable field for agricultural crops in the south-western part of the site. It is considered that it is not a viable tenancy for agricultural use, therefore the alternative development is beneficial. Therefore, the proposed soil stripping and minerals proposals will have a minor significant impact on agriculture operations in the area of Wallingford.

12.2 Baseline Conditions

12.2.1 The site is divided into two soil resource areas; 'the terrace' and 'the floodplain'. The terrace comprises a superficial loamy drift ploughed topsoil and medium to heavy clay loan textured upper subsoil. The lower subsoil of the terrace area was formed of calcareous limestone gravels in a loamy or sandy soil matrix. The floodplain comprised stoneless, clayey riverine alluvium with a slowly permeable subsoil layer and waterlogging.

12.2.2 The Agricultural Land Classification (ALC) of the site has shown that flooding and wetness were the most limiting factors. The site (19ha) comprises 9.13 hectares (48.1%) of land that has been classified as Grade 2 or 3a - 'Best and Most Versatile land' (BMV). The majority of the site 50.6% (9.87 hectares) is limited to Grade 3b and 4 due to the regular frequency of flooding that covers this low lying area adjacent to the River Thames.

12.2.3 There is a minor area of 0.25ha (1.3%) that has been identified as 'unsurveyed land'. The land has not been assessed because of the presence of the barn and concrete/ hardstanding base.

12.2.4 Within the extraction area it is proposed that the soils would be stripped to their full depth and each soil type would be stored separate according to the sequences

identified in the soil survey. These soils will be stored in bunds around the perimeter of the plant area and off the flood zones 2 and 3.

12.2.5 The top soils will be stripped to nominal thicknesses of 250mm and the upper sub soils to a thickness of 400mm. Top soil bunds will be no higher than 3m and subsoil bunds will be no higher than 5m, bund side slopes will be no greater than 26° to enable grass cutting and maintenance.

12.3 Assessment of Impacts

12.3.1 A large portion of the site has been (48.1%) classified as Grade 2 or 3a. The proposals for this site involve restoration to agricultural land, it is therefore considered that the Best and Most Versatile soils will be used for restoration of the agricultural land.

12.3.2 All of the B&MV soils will be stored off the floodplain with the lower quality soils in the eastern floodplain area of the site used for the restoration of the floodplain grazing marsh grassland areas.

12.4 Soils Mitigation & Conclusions

12.4.1 A soil handling plan is proposed that would follow the national guidance 'Good Practice Guide to Handling Soils' (MAFF 2000), as included in Appendix 8.

12.4.2 The overall benefits of the proposed minerals scheme, with restoration back to a mix of agricultural land in the western part of the site, together with the creation of a series of priority habitats in the eastern poor quality soils area, will ensure that there is no loss of the BMV agricultural land recorded on the site as part of the proposed development.

13. RAF BENSON SAFEGUARDING

13.1 Introduction and Methodology

13.1.1 The site is situated within the 13km safeguarding radius of RAF Benson and therefore aerodrome safety is a key consideration of the planning determination. A Bird Management Plan is shown in Appendix 9.

13.1.2 The proposed quarry operations and conceptual restoration must consider the impacts on aircraft directly and indirectly, but it is considered that the only potential impact may arise from bird strike. This occurs when flocks of birds (such as starlings or geese) are encouraged to the site by the presence of large water bodies or potential feeding areas.

13.1.3 The restoration concept, habitat management and mitigation measures for the site have been developed with the aim of mitigating any potential bird strike hazard while enhancing the opportunities for agriculture and nature conservation. The conceptual restoration scheme is shown in Plan ES25-6

13.1.4 There are proposals for a small open water areas adjacent to the plant for use as a silt lagoon for the wash water from the processing plant. However, it is proposed that the lagoons will be designed and constructed in an engineered manner to ensure that they are both deep (>4m) and also steep sided to prevent marginal growth, such as reed beds developing.

13.1.5 There will be no fish stocked in the lagoons, and they will be operated solely as an out flow for the processing plant operations or as part of the de-watering system. On completion of the quarrying operations, the relatively small silt lagoon area at the plant will be restored with wet woodland and reed beds with no large areas of open water created.

13.1.6 The extraction phases of the excavation will be dewatered, and water levels will be reduced until the backfilling operations are completed in each phase area.

13.2 Assessment of Impacts

13.2.1 A bird management plan has been prepared (Appendix 9) to address the mitigation and management of the habitats on the site to prevent the risk of any bird strike incidents.

13.2.2 It is considered that there will be no significant impact from the minerals and restoration proposals on aerodrome safety from the development at White Cross farm.

14. GEOLOGY & GEOTECHNICAL

14.1 Introduction and Methodology

14.1.1 An assessment of the geology and geotechnical impacts (Appendix 10) of the proposed operations has been carried out by Greenfield Environmental that included several borehole drilling investigations. The excavation faces in the sand and gravel will be retained at a safe angle in compliance with the Quarries Regulations 1999.

14.2 Baseline Conditions

14.2.1 The borehole drilling has proved a deposit of River Terrace Sand and Gravel present across the site, with mineral thicknesses of up to 5.2m proved.

14.2.2 Within the extraction areas identified, it is estimated that some 550,000 tonnes of River Terrace sand and gravel may be present that can be extracted to provide a range of coarse sand and single sized gravel products for use as concreting aggregates.

14.2.3 All of the boreholes drilled in the site proved overburden materials comprise topsoil, subsoil and recent alluvium, ranging in thickness from 0.6m to up to 3.2m, generally thickening to the east. All of the boreholes drilled were terminated in the stiff grey/cream clays and soft marls of the Lower Chalk formation, of Cretaceous age, which forms the bedrock of the area.

14.2.4 As the overburden is considered to be a medium to low strength clay the friction angle of the clay has been estimated using the plasticity index/friction angle relationship. The plasticity index of the clay samples indicates a conservative friction angle range of 23° to 25°, therefore an average angle of 24° has been adopted. The guidance also indicates that a unit weight of 16kN/m3 is likely to be appropriate for the material.

14.2.5 As the sand and gravel deposit is located on an active flood plain the weight density of the sand and gravel has been estimated assuming the material is below the water table. The friction angle of the material may be approximately 37° as the sand and gravel is has a uniformity coefficient in excess of 2 and is generally sub angular, with an estimated unit weight of sand and gravel 20kN/m3.

14.2.6 Testing of the available clay on site indicates that it would be suitable for use as a geological barrier prior to backfilling if required as part of any permitting on the site. The geological barrier will be built up the sides of the compacted imported fill at a gradient of approximately 1v:3h to ensure it remains stable in the long term and protected with geogrid and planting if necessary.

14.3 **Assessment of the Impacts**

14.3.1 A geotechnical assessment of the proposed sand and gravel excavation and the proposed restoration scheme back to original ground levels using imported backfill and soils retained as part of the stripping operations. This is included in Appendix 10.

14.3.2 Analysis of these faces indicates that the Factor of Safety (FoS) is generally in excess of 1.3. It is considered that this is more than adequate to ensure the temporary extraction slopes are stable for the short period of time between excavation and backfilling operations. The results indicate that the design slopes are appropriate for the proposed development.

14.3.3 The faces at the limits of extraction are required to be stable over a short period of time only but are not required to be stable in the long term as these will be backfilled progressively as each phase is developed. As the slopes are backfilled within weeks of excavation, there is a significant reduction in potential for any face failure to occur during the restoration operations.

14.3.4 The Factor of safety (FoS) for the designed slopes in the sand and gravel and the overburden clay confirms that the proposed workings will have no significant impact on the geological environment.

14.4 **Proposed Mitigation**

14.4.1 No further mitigation measures are recommended over and above the mitigation included within the design of the scheme.

15. ECOLOGY & NATURE CONSERVATION

15.1 Introduction and Methodology

15.1.1 Ecological assessment of the site was carried out originally by Pleydell Smithyman in 2016 along with a Tree Survey and Impact assessment for the application site. Further ecological survey work was carried out by Windrush Ecology in 2019 during the determination of the original planning application (that proposed a marina end-use).

15.1.2 As part of the preparation and re-submission of this application, that now excludes the marina and proposes restoration to a mix of agriculture and new habitats, Windrush Ecology has re-visited the site and carried out further survey work during 2021. Windrush Ecology have presented their findings in an Ecological Appraisal Report, August 2021, which is included at Appendix 11 to this ES, together with the various updated and revised submissions as part of Reg 25 requests.

15.1.3 For the avoidance of doubt the results of the original Pleydell Smithyman assessment in 2016 are summarised in the latest Windrush Ecology Report of August 2021 (Appendix 11)

15.1.4 Both desk-based studies and site surveys have informed the assessment work. The content of the Windrush Ecology Report August 2021 accords with the CIEEM Code of Conduct and has had reference to a Biodiversity Report for the site prepared by the Thames Valley Environmental Records Centre (TVERC) dated 28th July 2021, which can also be found at Appendix 11.

15.1.5 A final Biodiversity Metric Calculation undertaken by Windrush Ecology in 2022 is also contained at Appendix 11.

15.2 Baseline Conditions

15.2.1 The latest assessment by Windrush Ecology confirms that the ecological context of the site appears largely unchanged since 2019, and there has been no change in the boundary or status of statutory or non-statutory sites of nature conservation importance since the original ecology surveys and assessments were undertaken.

15.2.2 There are no statutory sites of nature conservation importance, such as Sites of Special Scientific Interest (SSSI) within a 2km radius of the site. There are no sites of international nature conservation importance, such as Special Protection Areas, within a 5km radius of the site.

15.2.3 Non-Statutory sites identified include Riverside Meadows, Wallingford, which is located approximately 1.1km to the north of the site boundary. This is an area of restored meadow grassland. Wallingford Castle Meadows is located approximately 1.7km from the site boundary and also contains floodplain meadow grassland.

15.2.4 The Windrush Ecology Reports notes that the planning application site comprises areas of arable land, improved grassland, semi-improved grassland and marshy grassland, with boundary hedgerows, a dry ditch (with defunct hedgerow), a wet ditch and an eastern boundary formed by the River Thames. There is a Dutch barn within the site, as well as scrub and some scattered trees. Associated with the barn is an area of ruderal vegetation, and elder scrub, with old straw bales.

15.2.5 The following habitat types/uses have also been recorded on the site by Windrush Ecology in 2021 and updated in 2022 and 2023:

- Arable Land;
- Building;
- Hard-standing ground;
- Dry ditch;
- Marshy grassland;
- Hedgerow;
- Parkland/Scattered Trees;
- Standing water – wet ditch;
- Running Water (adjacent to River Thames)
- Scrub;
- Tall herb / Ruderal
- Fence.

15.2.6 The site is subject to frequent disturbance from the farmer, to harvest crop that is being grown and to cut and mow the grasslands to take a hay crop.

15.2.7 A detailed Arboricultural Survey and Impact Assessment was carried out by Nicholsons Ltd in 2022 which is included in Appendix 11. A proposed root protection zone (a working margin) to the boundary trees, the major trees to be undisturbed and also the central undisturbed central hedgerow is included in Plan ES25-8. The majority of the tree cover present on site is located at the site boundaries and associated with the drain through the centre of the site. The eastern boundary of the site along the banks of the River Thames includes predominantly unmanaged scrub thickets spreading across the Thames Path and the occasional mature tree. The trees present on the site have been found to be of variable age, condition and quality.

15.2.8 The site surveys have not indicated any significant ecological/nature conservation constraint to the carrying out of the mineral and infilling operations. However, there

is a need for site management and mitigation measures to minimise the impacts during the operational phases on the development.

15.3 **Assessment of Impacts**

15.3.1 In the absence of mitigation, the proposed development would have a moderate negative effect on habitats as much of the arable land, grazing land, scrub and some floodplain grassland will be removed.

15.3.2 The proposed development may have a minor negative impact in the short term for bat and bird species due to the disturbance and habitat loss. The majority of the bat and bird activity was recorded around the margins of the site, again which will remain largely undisturbed. The proposals are likely to have a minor positive impact regarding non-native species in the long term.

15.3.3 It was also noted during the surveys that small numbers of grass snakes were present on the site. Removal of habitat will result in loss of foraging, resting and commuting places for reptiles. The proposed development will require the removal of a number of hedges and a limited number of trees within the extraction area and the impact is considered to be low due to the assessed condition and age of the trees.

15.3.4 As part of the final proposed extraction design for the mineral scheme, the central hedgerow that divides the site in the southern area will be retained as will majority of trees located within the site boundary that are located mainly on the site margins. All of the major trees and boundary hedgerows will remain undisturbed with an agreed stand-off for the root protection zone (RPZ) for specific areas of the site. The major trees and RPZ, with the unworked central hedgerow, are shown on Plan ES25- 8.

15.3.5 It is thus considered that the impact of the proposed development will have a minor significant impact on the local ecology during the operational extraction and infilling phases. The mitigation measures proposed will ensure that there will be no impact on any identified protected species and it is considered that the operations will not have an impact on any designated ecological site in the vicinity of the operations.

15.3.6 The arable land will be restored within the western parcel of the site, the majority of which is currently arable farmland, and the wildlife habitats (meadow, scrapes, standing water) will be created within the eastern parcel of the site, alongside the retained buffer zone to the River Thames. In this way, the wildlife habitats will be connected to, and will be strengthened by, the adjacent River Thames, which is an important wildlife corridor.

15.3.7 The result of the biodiversity net gain calculation carried out by Windrush Ecology in 2021 showed an overall net gain in biodiversity on the site post-restoration, both for habitats and hedgerows with total net change: +23.11% habitat units and +161.56% hedgerow units. Following various iterations for the conceptual restation scheme, the final submitted designs that satisfy both the MOD (for bird management), the EA (for flood risk) and the restoration objects and timescales, an updated BNG calculated was carried out, as included in Appendix 11.

15.3.8 The results of the updated BNG metric for the final submitted restoration scheme (see Plan ES25-6) indicate a total net gain of 21.68% for habitat units and 71.21% for hedgerows, as shown below:

On-site baseline	*Habitat units*	76.29
	Hedgerow units	9.51
	River units	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	92.83
	Hedgerow units	16.28
	River units	0.00
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	21.68%
	Hedgerow units	71.21%
	River units	0.00%
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	16.54
	Hedgerow units	6.77
	River units	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	21.68%
	Hedgerow units	71.21%
	River units	0.00%

15.3.9 Given the above net gain calculated for the proposed restoration it is considered that the development proposals will deliver significant biodiversity net gain upon completion of the development.

15.4 Proposed Mitigation

15.4.1 To reduce the potential impacts to flora and fauna throughout the proposed development a series of mitigation measures will be put in place. These will include ensuring that best working practices reduce the risk of noise and dust pollution, groundwater quality and to control the quality and quantities of surface water discharged from the site.

15.4.2 Proposed measures also include maintaining 30m margins to the River Thames and stand-offs to other site boundaries which will avoid additional disturbance. The

retention of the boundary features, and a large part of the ditch in the north-eastern part of the site provides commuting and dispersal routes across the site for a number of species. The phased restoration will allow species and habitats to recover quickly and re-colonise areas that were lost during the extraction phase.

15.4.3 It is proposed that any clearance of scrub, trees and hedges will not take place between the months of March and August, during the bird nesting season. A number of bird boxes and a barn owl nest box will also be installed at suitable locations around the site that will not be affected by the mineral operations.

15.4.4 To protect retained trees and hedgerows during the operational phase fencing and appropriate exclusion zones are recommended in the Tree Survey and Impact Assessment, as shown in Appendix 11.

15.4.5 A series of mitigation and protection measures for reptiles and grass snakes will also be undertaken prior to the advancement of each phase of soil stripping. To reduce the impact to bats, no lighting is proposed, however, where required for health and safety reasons, the lighting will be low emission, and downward directed lighting will be used during the works. However, it should be noted that the site is currently well illuminated by the street lighting located on both Nosworthy Way (Wallingford by-pass) and also Reading Road.

15.4.6 The restoration of the site will provide larger areas of water for bats to forage and the additional habitats will provide further foraging.

15.4.7 Habitat loss will be compensated for, and biodiversity enhancement provided within the restoration phases of the proposed development. Within the restoration, the following habitats will be created:

- Arable land
- Lowland/wet meadow (mosaic habitat of grassland and flood plain grazing)
- Native tree/hedge planting – to deliver landscape structure and habitat corridor
- Small wetland/ wet woodland & ditches to control surface water
- New agricultural barn

15.4.8 The proposed habitats, after restoration, are considered by Windrush Ecology to be suitable for reptiles, such as the grass snake, amphibians - such as the common toad, and for foraging bats. The proposed new wetland features may also offer habitat to water voles, and potential foraging opportunities for otters.

15.4.9 Breeding birds will be able to use the proposed new native planting and hedgerows for nesting, and the proposed wetland and wet grassland mosaic will offer potential nesting, foraging and overwintering habitat to wetland bird species.

15.4.10 The proposed wet grassland and floodplain wetland habitat mosaic is likely to provide suitable habitat for a number of invertebrates, including grassland species, as well as aquatic species, and species of bare ground habitats. The creation of this wet grassland habitat mosaic within the eastern parcel of the site is considered to be of significant ecological value, and the scheme is considered to deliver biodiversity net gain, whilst complying with the necessary requirements related to flood risk and bird management

16. CULTURAL HERITAGE & ARCHAEOLOGY

16.1 Introduction and Methodology

16.1.1 An assessment of the built heritage, site archaeology, and the potential impact of the proposed operation was carried out by CgMS Consulting (Appendix 12). These were carried out in accordance with government policy (NPPF – paragraph 128 and NPPG).

16.1.2 The built heritage statement is included within the LVIA as shown in Appendix 7 (prepared by Kedd Ltd). This considers the potential impacts of the proposed development on the historic built environment within the vicinity of the site.

16.1.3 The archaeological assessments draw together the available archaeological, topographic and land-use information in order to clarify the archaeological significance and potential of the Site.

16.1.4 The archaeological assessments is based on findings from a desk study and site investigations. Consultations have been held with Hugh Coddington, the Principle Archaeologist at Oxfordshire County Council.

16.2 Baseline Conditions

16.2.1 **Cultural Heritage** – There are no designated or non-designated built heritage assets or Parks and Gardens within the site. However, there are a number of built heritage assets within 1km of the proposed site, ranging from Grade II* listed buildings to buildings.

16.2.2 Most of the identified built heritage assets lie within Wallingford and Winterbrooks. Clusters of heritage assets also lie to the east and west of the site. Several of this built heritage assets are not considered further in the report, the reasoning for this is given in Appendix 12.

16.2.3 The heritage assets assessed as part of this report included:

- Julius Gottleib Gallery and Boathouse
- Former Church of St John the Baptist
- The Jewish Synagogue
- White Cross Farmhouse
- Mongewell Park House
- Elizabeth House

16.2.4 **Archaeology** – The Oxfordshire Historic Environment Record (HER), the Historic England Archive (HEA) and the National Heritage List for England contain information

relating to all known archaeological and historical assets in the area. Archaeological data from within a 1km radius around the site was reviewed to assess the sites potential for the presence of archaeological features below ground.

16.2.5 There are no scheduled ancient monuments within the site with the closest, 'Grim's Ditch' being over 970m to the east of the site.

16.2.6 A large number of previous investigations have been conducted to the north and east of the proposed site, although no intrusive investigations had been conducted on the site itself. A review of a historical aerial photographic assessment and online aerial imagery together with a geophysical survey (detailed gradiometry) of the site found no features of potential archaeological interest within the study site.

16.2.7 Following the desk study and geophysical survey, the survey results were then "ground truthed" with a programme of evaluation trenching that was carried out in consultation with the County Archaeologist.

16.3 **Assessment of Impacts**

16.3.1 **Cultural Heritage** – the assessment has concluded that the proposed development and restoration scheme are likely to result in no significant impact upon the heritage assets within the Wallingford area.

16.3.2 **Archaeology** – The desk study and geophysical survey found no evidence of any unrecorded archaeological activity to be present on the site.

16.3.3 However, a programme of trenching was undertaken following consultation with Oxfordshire County Councils Principle Archaeologist. The results confirm that the archaeological finds present on the site is likely to have been deposited by flooding and alluviation from nearby settlements and due to the marginal nature of the eastern part of the site it was not suited to permanent settlements.

16.3.4 It is therefore considered that there will no significant impact from the proposals on any features of archaeological interest.

16.4 **Proposed Mitigation**

16.4.1 Although it is not considered that there is any unrecorded archaeology within the site the soil stripping would be completed in phases and in consultation with OCC.

17. CLIMATE CHANGE, CUMULATIVE & COMBINED IMPACTS

17.1 Introduction and Methodology

17.1.1 This section provides a review of the potential cumulative and combined effects that may arise as a result of the proposed development, together with a review of the potential climate change impacts anticipated from the minerals development. The climate change impacts are assessed within the statement included in Appendix 13.

17.1.2 Cumulative effects are those that may arise as a result of different effects originating from the proposed development (e.g. air quality effects plus noise effects) acting in combination upon a receptor.

17.1.3 Combined effects are those that may arise as a result of the effects of the proposed development in conjunction with other developments in the vicinity of the proposed quarry.

17.1.4 The technical appendices within the ES have been prepared to address the baseline conditions and potential impacts for each environmental issue identified within the Scoping Opinion. The assessments (air quality, landscape, traffic, noise, hydrology/hydrogeology and ecology) have each identified the outcome of the proposed development and (where relevant) any cumulative effects.

17.1.5 Also considered here are the cumulative effects resulting from major developments within the vicinity of the site. In order to identify the relevant developments to be assessed information has been gathered from on line planning portals and local/district development plans.

17.1.6 The major developments within the vicinity of the site include the recently permitted proposals by Berkeley Homes on Land at Winterbrook that comprises some 550 residential dwellings, with a new primary school and care home. This site is located about 250m to the north west of the proposed quarry site. This application has recently been approved by SODC.

17.1.7 To the east of the River Thames, the Mongewell development has also been approved by SODC, that includes a redevelopment of the existing buildings to create a significant number of residential dwellings. This large site is currently for sale by the developers who gained planning permission.

17.1.8 In late 2017, Grundon Sand and Gravel Ltd received planning permission for a strategic new quarry development at New Barn Farm, Cholsey. These proposals include a new

access on to the A4130 and the extraction of over 2.5million tonnes of sand and gravel over a period of about 18 years.

17.1.9 This site is located south of the A4130 opposite the proposed Berkeley Homes (Winterbook) development and commenced site operations in 2020.

17.2 **Assessment of the Impacts**

17.2.1 Due to the location of the proposed housing application and the quarry application within 1km of the proposed Whitecross Quarry site, a number of potential impacts from the quarry have been addressed. The potential impacts are listed as:

- Water Environment
- Highways Impacts
- Noise & Dust Impacts
- Landscape and Visual Impacts

17.2.2 Water environment – The development will not increase flood risk on other sites in the vicinity. The processing plant is located off the flood plain, with a closed wash water system through a series of lagoons. All surface water run-off will be directed into the silt lagoon system so there will be no run-off water from the site. The Environment Agency will permit and regulate a discharge consent for the de-watering scheme within the extraction area.

17.2.3 No direct or indirect cumulative impacts in respect of the water environment have been identified.

17.2.4 Highways – The transport assessment found that the HGV vehicle movements created by the extraction and backfilling is temporary (less than 6 years) and is likely to be completed during the Berkeley Homes development. The increase in vehicle numbers from the New Barn Farm quarry site in addition to the proposed Whitecross Quarry development will not result in any perceptible impacts on the local road network, which was confirmed within the Grundon planning application as this scheme also included an assessment of the proposed marina development.

17.2.5 No direct or indirect significant cumulative impacts in respect of the transport or highways have been identified.

17.2.6 Noise and dust –Sensitive receptors within the vicinity of the proposed new quarry operations have been assessed and appropriate mitigation measures recommended. The predicted levels of noise and dust at the boundaries of the site are below the recommended Government Guidance.

17.2.7 The predicted worst case cumulative impact from the operation of the New Barn Farm (using the planning conditions and restrictions on the development), together with the worst-case noise and dust impacts from the proposed Whitecross Quarry confirm that no direct or indirect cumulative impacts dust have been identified or have been predicted.

17.2.8 Landscape and visual – The assessment concluded that the proposed short-term operations as part of the Whitecross Quarry development can be integrated into the local landscape without causing detriment to the landscape character, quality and visual amenity of the immediate locality.

17.2.9 It has been assessed that no cumulative visual effects resulting from any combined visibility impacts will occur, as there are no points where the observer is able to see more than one development from one viewpoint in the area of the White Cross Farm site.

17.3 Climate Change

17.3.1 It is considered that there will be no significant release of carbon during soil striping operations due to the chemical composition of the soils (predominately alkaline), the historical agricultural activities that have taken place on the site including extensive ploughing of all areas of the site, together with the previous development operations undertaken on the site as part of the Wallingford bypass construction.

17.4 Summary

17.4.1 The Individual assessments demonstrate there will be very few significant cumulative impacts on the local environment associated with the proposed Whitecross Quarry development. The assessments do not identify any likely significant adverse cumulative impacts from the proposed quarry development during the mineral extraction works or from the proposed restoration scheme following backfilling and landscaping after minerals have ceased.

17.4.2 No significant adverse climate change impacts are assessed as part of the potential mineral operations within the proposed site.

18. CONCLUSIONS

18.1.1 This planning application is being re-submitted for the of a short-term minerals development on land at White Cross Farm, Wallingford, Oxfordshire, with sand and gravel extraction and processing, the construction of a new site entrance and access road, landscaping proposals, and the importation of inert backfill materials to enable restoration back to original site levels.

18.1.2 The scope of the Environmental Impact Assessment was set out by Oxfordshire County Council through the submission of a formal request for a scoping opinion, together with detailed pre-application responses from the Mineral Planning Authority.

18.1.3 An assessment of the potential alternatives has been made and the results confirm that the minerals development of the land at White Cross Farm is the most sustainable option for the site, other than a "do nothing scenario".

18.1.4 An examination of each area of potential impact has been undertaken in a thorough and systematic manner and are presented as the technical appendices of the EIA. The design of the proposals has evolved and changed to ensure that there will be no significant adverse effects on designated landscapes, designated areas of ecological or archaeological interest or other aspects of the local environment.

18.1.5 A series of environmental protection measures have been proposed and incorporated into the scheme to remove or minimise any intrusion and or disturbance on the local environment during the quarry operations and long-term restoration, including aircraft safeguarding to RAF Benson. The implementation of the environmental protection measures proposed are described within the EIA technical appendices.

18.1.6 It is considered that the proposed mineral development will provide benefits the local community by providing high quality mineral resources into the local construction and housing sectors, in addition to potential mineral resources into major schemes such as HS2 and the construction of a reservoir at Abingdon located only 18km from the site.

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APPENDICES

see web pages at:

https://londonrock.co.uk/wallingford

or

https://myeplanning.oxfordshire.gov.uk/Planning/Display/MW.0115/21

PLANS