South East Strategic Reservoir Option

Preliminary Environmental Information Report

Chapter 10 - Geology and soils

Date: October 2025

Contents

List of tables

10 Geology and soils

10.1 Introduction

10.1.1 This chapter of the Preliminary Environmental Information (PEI) Report provides the preliminary assessment of likely significant effects on geology and soils from the construction and operation of the proposed SESRO Project (the Project, as detailed in Chapter 2: Project description).

10.1.2 Within this chapter, aspect-specific sections are included on:

- Legislation, policy and guidance (Section 10.2)
- Consultation, engagement and scoping (Section 10.3)
- Assessment methodology (Section 10.4)
- Study area (Section 10.5)
- Baseline conditions (Section 10.6)
- Project parameters, assumptions and limitations (Section 10.7)
- Embedded design mitigation and standard good practice (Section 10.8)
- Preliminary assessment of likely significant effects (Section 10.9)
- Next steps (Section 10.10)

10.1.3 This chapter considers the potential effects on human health, controlled waters and ecological receptors from ground contamination during and after construction. It assesses the effects on soil resources and designated geological features in relation to the construction and operational phases of the Project.

10.1.4 This chapter should be read in conjunction with Chapter 2: Project description and other chapters of key relevance, namely:

- Chapter 5: Water environment – shared baseline and surface water and groundwater receptors, considers changes to hydrogeology and new sources of pollution to the water environment from construction and operation of the Project.
- Chapter 7: Terrestrial ecology – considers ecological designations that may be supported by soils, which are relevant to this chapter.
- Chapter 8: Historic environment – shared baseline information relating to ground conditions.
- Chapter 11: Materials and waste – considers mineral resources, both aspects have shared mitigation relating to the reuse of soils.
- Chapter 17: Greenhouse gas emissions – considers soil carbon releases.
- Chapter 18: Climate resilience – considers the impact of climate change on the assessment.

10.1.5 This chapter is supported by the following figures and appendices:

- Figure 10.1: Study area
- Figure 10.2: Superficial geology
- Figure 10.3: Bedrock geology
- Figure 10.4: Controlled waters
- Figure 10.5: Ground investigation

- Figure 10.6: Natural England provisional agricultural land classification
- Figure 10.7: Potentially contaminated land
- Figure 10.8: Ecological receptors
- Figure 10.9: Surface water receptors
- Appendix 10.1: Desk study and preliminary contamination assessment
- Appendix 10.2: Environmental database search report
- Appendix 10.3: Desk study for unexploded ordnance and military uses
- Appendix 10.4: Preliminary assessment of effects for Geology and soils

10.1.6 This PEI Report does not constitute a draft Environmental Statement (ES). Assessments reported within this PEI Report chapter are considered a reasonable 'worst case' as a precautionary approach has been taken where design, construction or baseline information is being developed. Nevertheless, the preliminary assessment is considered sufficiently robust to enable consultees to understand the likely significant environmental effects of the Project, based on current design information and understanding of the baseline environment. Gaps in information identified within the PEI Report will be considered and addressed as part of the assessment during the production of the ES, as noted in Section 10.10: Next steps.

10.1.7 Where initial likely significant effects are identified at this stage, these may ultimately be determined as not significant in the ES once data gaps are addressed and the design and mitigation are further developed. The ES will be submitted with the Development Consent Order (DCO) application and will provide the final assessment of likely significant effects; this will be informed by the ongoing Environmental Impact Assessment (EIA) process and ongoing consultation and engagement.

10.2 Legislation, policy and guidance

10.2.1 National Policy Statements (NPS) form the principal policy for developments progressing through the Planning Act 2008 process. The NPS for Water Resources Infrastructure (NPSWRI) (Defra, 2025b) is the primary NPS for the Project. In addition, the Secretary of State must also have regard to any other matters which they think are both important and relevant to the decision and this could include regional and local planning policies. In addition, but the Secretary of State must also have regard to any other matters which they think are both important and relevant to the decision and this could include regional and local planning policies.

10.2.2 The Project is located mainly within the Vale of White Horse District, except for the far eastern extent on the eastern bank of the River Thames, which falls within the South Oxfordshire District. The Project is wholly within the county of Oxfordshire. The regional and local planning policies most relevant to the assessment within this chapter are included in Table 10.1.

10.2.3 Table 10.1 lists the legislation, policy and guidance relevant to geology and soils for the Project and specifies where in the PEI Report information is provided in relation to these. A full policy compliance assessment will be presented within the Planning Statement as part of the DCO application.

Table 10.1 Relevant legislation, policy and guidance for geology and soils

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
Legislation		
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 Outlines the framework for assessing environmental impacts in infrastructure projects in the UK.	The regulations require that developments consider land, the risk of harm to human health and controlled waters and the quality of soils as a resource. The assessment will consider the impact of the Project on land including designated and non-designated geological sites. It will address the risk to human health and controlled waters from the disturbance of historical contamination and the potential to introduce new sources of contamination. The regulations require a description of the current state of the environment and likely significant effects on soil quality and land use.	Details are provided in Section 10.6: Baseline conditions. The assessment of effects is considered in Section 10.9: Preliminary assessment of likely significant effects.
The Environmental Protection Act 1990 (Part 2A): Contaminated Land Statutory Guidance 2012 Provides the statutory basis for the identification, designation and remediation of contaminated land as it relates to the responsibilities of local authorities and appropriate Stakeholders.	There are potentially contaminated sites within the Project. As a minimum, developed sites should not be capable of being defined as 'contaminated land' under Part 2A. The guidance provides a framework for the definition of categories of harm that might be relevant under both Part 2A and the planning system.	The embedded mitigation is provided in Section 10.8: Embedded design mitigation and standard good practice. The assessment in given in Section 10.9: Preliminary assessment of likely significant effects.
The Contaminated Land (England) Regulations 2006 Provides a framework for the designation and remediation of 'special' contaminated land only. These regulations relate to the designation of 'special' contaminated land sites which are typically more complex or pose greater risks, to human health and the environment. These more complex sites require	There are potentially contaminated sites present within the Project. This assessment has reviewed the baseline information to consider the presence and risk associated with the potentially contaminated sites.	Potentially contaminative uses have been identified in Appendix 10.1: Desk study and preliminary contamination assessment and discussed in Section 10.6: Baseline conditions. Potentially contaminative land uses are shown on Figure 10.7: Potentially contaminated land and considered in Section 10.9: Preliminary assessment of likely significant effects.

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
the Environment Agency to take over enforcement responsibilities from local authority.		
The Water Resources Act 1991 Establishes the Environment Agency's powers and duties for the protection of water quality and pollution. It is an offence to cause or knowingly permit the entry of polluting substances into controlled waters, including rivers, lakes, and groundwater.	The assessment has considered a wide range of potential water receptors. A conceptual site model (CSM) informs the assessment of the impact on water receptors.	Water receptors and potentially contaminative uses are identified in Appendix 10.1: Desk study and preliminary contamination assessment and are discussed in Section 10.6: Baseline conditions. Water receptors are shown on Figure 10.4: Controlled waters and land uses on Figure 10.7: Potentially contaminated land.
The Water Act 2003 Amends the definition of contaminated land under Part 2A so that it must cause significant pollution or the significant possibility of pollution of controlled waters.	The assessment has considered a wide range of potential water receptors. A conceptual site model (CSM) informs the assessment of the impact on water receptors.	Water receptors and potentially contaminative uses are identified in Appendix 10.1: Desk study and preliminary contamination assessment and are discussed in Section 10.6: Baseline conditions. Water receptors are shown on Figure 10.4: Controlled waters and land uses on Figure 10.7: Potentially contaminated land.
Water Environment (Water Framework Directive) Regulations 2017 Provides protection of various water bodies and includes environmental objectives and compliance parameters to be assessed.	Controlled waters have been assessed in relation to quality standards considered in the CSM. These requirements underpin the impact assessment for the water environment. Chapter 5: Water environment provides further details.	Water receptors and potentially contaminative uses are identified in Appendix 10.1: Desk study and preliminary contamination assessment and are discussed in Section 10.6: Baseline conditions. Water receptors are shown on Figure 10.4: Controlled waters and land uses on Figure 10.7: Potentially contaminated land. Chapter 5: Water environment provides more details and assessment.
National Policy Statement for Water Resources Infrastructure (NPSWRI)		
Paragraph 4.10.4 Requires the applicant to consider the impacts on soil, including damage, physical	The Project has scoped in likely significant effects to soil resources. There are large areas of agricultural land including	BMV land is discussed in Section 10.6: Baseline conditions. Mitigation measures are addressed in Section 10.8:

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
loss and through land contamination. Indirect impacts include changes to soil biodiversity, organic content and soil process.	some best and BMV land. Surveys are being undertaken.	Embedded design mitigation and standard good practice. Impacts of construction are addressed in Section 10.9: Preliminary assessment of likely significant effects.
Paragraph 4.10.5 Requires the applicant to consider the risk posed by land contamination associated with previously developed land. Risks would require consideration in accordance with contaminated land statutory guidance as a minimum.	The project has scoped in likely significant effects on land contamination. The historical and current land use has been assessed to establish the potential for contamination.	Potentially contaminative uses have been qualitatively assessed in Appendix 10.1: Desk study and preliminary contamination assessment and are shown on Figure 10.7: Potentially contaminated land. The potentially contaminative uses are discussed in Section 10.6: Baseline conditions.
Paragraph 4.10.14 Requires applicants to consider the economic and other benefits of BMV land to minimise impact. Agricultural land assessments should be backed by relevant surveys to confirm land grade.	The Project is situated on large areas of agricultural land comprising some BMV land. Agricultural soil surveys are being undertaken throughout 2025. The survey will be in accordance with Natural England guidance to identify the soil grades within the draft Order limits. In the absence of survey data the PEI Report assessment is based on existing published data on soil types to assess impacts to soils	The ongoing soil survey results will not be available for PEI Report; therefore this chapter is based on the Natural England provisional mapping and will be updated with site specific soil survey data at ES stage. Engagement with Natural England regarding soil survey methodology is given in section 10.3: Consultation, engagement and scoping. Site surveys are listed in Section 10.4: Assessment methodology. Impacts on soil are addressed in Section 10.9: Preliminary assessment of likely significant effects. Consideration of mitigation measures is addressed in Section 10.8: Embedded design mitigation and standard good practice.
Paragraph 4.10.17 Requires the applicant to reduce the direct effects on the use of the site, or proposed and existing uses near the site, by the application of good design principles, including the	The construction of the Project will require the relocation of large quantities of soil. This will include topsoil and subsoil reused onsite, including for new habitat creation, and potentially the relocation of soil offsite.	Consideration of good design principles to protect soils during construction has been addressed in Section 10.8: Embedded design mitigation and standard good practice. The effects are considered in Section 10.9: Preliminary

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
layout and the protection of soils during construction.		assessment of likely significant effects.
Other national policy		
National Planning Policy Framework (NPPF) Sets out government's planning policies for England and how these are expected to be applied. Chapter 15. Paragraphs 187 to 201. Ground conditions and pollution. This section outlines policies and decisions aimed at protecting and improving the environment including safeguarding landscapes, geological value, biodiversity sites and soils. Planning policies and decisions should ensure a site is suitable for its use considering conditions and contamination risks. Development should enhance local environmental conditions, including water quality, and address issues related to damaged, degraded, derelict, contaminated and unstable land where possible.	There are potentially contaminated sites present. These sites have been qualitatively assessed. The Project is situated on areas of agricultural land comprising BMV soils. Geoenvironmental ground investigations will be completed to provide baseline contamination information. Agricultural land classification surveys are ongoing until early 2026. Survey data will be analysed and used for assessment at ES stage.	Existing and historic land uses have been identified in Appendix 10.1: Desk study and preliminary contamination assessment and are shown on Figure 10.7: Potentially contaminated land as part of the baseline. Impacts of construction on soil and the environment are addressed in Section 10.9: Preliminary assessment of likely significant effects. Consideration of mitigation measures to reduce effects is addressed in Section 10.8: Embedded design mitigation and standard good practice.
Environmental Improvement Plan (Defra, 2023) Defra's delivery plan for the environment setting out environmental goals, targets and commitments. Goal 6: Using resources from nature sustainably. Improving and protecting soil health by preventing valuable soil resources from being sent to landfill.	Soil surveys are being undertaken. Assessment qualitatively considers soil function and health based on the existing published data. Measures are applied to mitigate soils being sent to landfill. Chapter 11: Materials and waste include measures to ensure that waste will be managed in line with standard good practice and the waste hierarchy.	Impacts of construction on soil are addressed in Section 10.9: Preliminary assessment of likely significant effects. Consideration of mitigation measures to reduce effects on soil is addressed in Section 10.8: Embedded design mitigation and standard good practice.

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
Safeguarding our Soils: A Strategy for England (Defra, 2009). Aims to improve the quality of England's soils	Similar to entries above	Impacts of construction on soil are addressed in Section 10.9: Preliminary assessment of likely significant effects. Consideration of mitigation measures to reduce effects on soil is addressed in Section 10.8: Embedded design mitigation and standard good practice.
Regional and local policy		
Oxfordshire's Strategic Vision for Long-Term Sustainable Development (2021) Facilitates collaborative efforts to manage economic, housing and infrastructure development. **Guiding Principle 4: We will enhance our natural environment**. Oxfordshire aim to protect valued countryside and environmental assets.	Where feasible, the assessment will accommodate the policy aspirations to enhance the natural environment including soils.	Impacts on soil are addressed in Section 10.9: Preliminary assessment of likely significant effects. Consideration of mitigation measures to reduce effects on soil is addressed in Section 10.8: Embedded design mitigation and standard good practice.
Local Plan 2031 (Vale of White Horse District Council, 2016) Sets out the spatial strategy and strategic policies for the district to deliver sustainable development. **Core Policy 43: Natural Resources.** The council aims to ensure land is of adequate quality for development and remediation of contaminated land. To avoid development of BMV agricultural land and where possible use poorer quality land first.	Where feasible, the assessment will accommodate the Policy 43	Impacts of construction on BMV soils is addressed in Section 10.9: Preliminary assessment of likely significant effects. Consideration of mitigation measures to reduce effects on BMV soils is addressed in Section 10.8: Embedded design mitigation and standard good practice.
Guidance		
Land Contamination: Risk Management (LCRM)	This is the main technical guidance in the UK for assessing	Section 10.4: Assessment methodology sets out the

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
(Environment Agency, 2023) The LCRM provides a structured approach to assessing and managing risks from land contamination, it follows a three-stage process, risk assessment, options appraisal and remediation.	and managing risks from land contamination. LCRM can be used for voluntary remediation, in support of planning applications, assessing liabilities or under the Part 2A regime. A tiered assessment process is set out in LCRM. A geoenvironmental ground investigation will commence late in 2025 or early 2026 to provide baseline contamination information. This will inform the ES and earthworks logistics.	qualitative assessment methodology. For the ES, qualitative assessments will be included in updates to Appendix 10.1: Desk study and preliminary contamination assessment and Section 10.6: Baseline conditions. Embedded mitigation is in Section 10.8: Embedded design mitigation and standard good practice in accordance with these recommendations in LCRM which reflects current standard good practice.
Design Manual for Roads and Bridges (DMRB) LA 109 Geology and soils (National Highways, 2019) This outlines the assessment and management of geological and soil-related risks, ensuring compliance with relevant standards.	The assessment methodology is based on the guidance set out in DMRB and has been used in the assessment.	Section 10.4: Assessment methodology. The assessment is set out in Section 10.9: Preliminary assessment of likely significant effects.
DMRB LA 104 Environmental Assessment and Monitoring (National Highways, 2020) This establishes the framework for evaluating environmental impacts.	The assessment methodology is based on the guidance set out in DMRB and has been used in the assessment. DMRB 104 sets out the significance matrix which is applied in this chapter.	Section 10.4: Assessment methodology and Section 10.9: Preliminary assessment of likely significant effects.
A New Perspective on Land and Soil in EIA (Institute of Environmental Management and Assessment (IEMA, 2022) This guidance introduces an approach that emphasizes soil functions, ecosystem services, and natural capital, to improve sustainable land management	The assessment methodology for soils takes account of specific recommendations set out in the guidance where relevant.	Section 10.4: Assessment methodology. Considered in Section 10.9: Preliminary assessment of likely significant effects.

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
Contaminated Land: Applications in Real Environments (CL:AIRE). Definition of Waste: Development Industry Code of Practice (DoWCoP) (2011) The DoWCoP provides a structured framework for the reuse of excavated materials, reducing reliance on landfill and ensuring compliance with regulations.	Suitable soils required for development will be reused on the Project in accordance with the DoWCoP where appropriate.	Section 10.8: Embedded design mitigation and standard good practice.
Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition materials CL:AIRE, 2016 Control of Asbestos Regulations - Soil (CARSOIL) Provides industry-specific interpretation of the Control of Asbestos Regulations 2012, ensuring safe management and handling of asbestos-contaminated soil and construction materials in compliance with legal and health standards.	The CSM has informed the assessment on the potential for asbestos in soils and recycled construction materials. This establishes the level of protection required for workers during the ground investigation and construction of the Project.	Considered in Appendix 10.1: Desk study and preliminary contamination assessment and Section 10.8: Embedded design mitigation and standard good practice.
Control of Asbestos Regulations 2012. The Regulations set out legal duties and minimum standards of protecting employees from risk associated with exposure to asbestos. It provides guidance on how to manage and control work which disturbs, or is likely to disturb, asbestos, asbestos sampling and laboratory analysis.	Similar to CARSOIL above.	Considered in Appendix 10.1: Desk study and preliminary contamination assessment and Section 10.8: Embedded design mitigation and standard good practice.
Construction Code of Practice for the Sustainable	Measures have been applied to mitigate the impacts on soil resources. The guidelines have	Section 10.8: Embedded design mitigation and standard good practice.

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
Use of Soils on Construction Sites (Defra, 2018b) This provides guidance on managing soil resources during construction, ensuring sustainable practices that minimise impact.	been considered as part of the embedded mitigation and design principles.	
Oxfordshire Planning Advice Note Dealing with Land Contamination During Development: A Guide for Developers, Version 4 (Vale of White Horse District Council, 2019) This details the requirements for contamination assessment and for providing adequate investigation to demonstrate contaminated land has been managed appropriately	Similar to LCRM above.	Similar to LCRM above.

10.3 Consultation, engagement and scoping

10.3.1 Feedback from consultation and engagement is used to define the assessment approach and to ensure that appropriate baseline information is used. Feedback is also used to drive the design of the Project to avoid, prevent and reduce any likely significant environmental effects. In particular, feedback from key stakeholders has informed the Project's proposed mitigation measures. Specific mitigation measures relevant to the assessment are summarised in Section 10.8: Embedded design mitigation and standard good practice of this chapter. Engagement is ongoing and will continue to inform the EIA and design process.

Scoping Opinion

10.3.2 The EIA Scoping Report (Thames Water, 2024a) was issued to the Planning Inspectorate (PINS) on 28 August 2024. PINS provided its EIA Scoping Opinion (The Planning Inspectorate, 2024) on 8 October 2024, which included feedback from consultation bodies that it formally consulted.

10.3.3 Table 10.2 captures the key Scoping Opinion comments received from PINS and other key comments received from consultation bodies relevant to the Geology and soils assessment, along with the Applicant's response to these at this stage of the assessment. Key activities to inform the final assessment that will be undertaken between the PEI Report

and ES are covered in Section 10.10 Next steps. The full consultee comments on the EIA Scoping Report and responses to these will be provided in the ES.

Table 10.2 Key Scoping feedback for geology and soils

Stakeholder	Scoping comment	Applicant response
PINS	3.1.10 - Paragraph 6.1.4 Contamination from landfill Sites The Scoping Report lists the landfill sites considered as potential sources for contamination in Table 14-4, however the Environment Agency consultation response identifies some authorised landfill sites missing from the Scoping Report. The ES should present all landfill sites (including historic landfill) that may be potential sources of contamination.	This is addressed in Section 10.6: Baseline conditions and will be addressed in the ES. Both reports present the baseline data and survey information available at the respective reporting stages.
PINS	3.9.6 – Table 6-8 Geological stability The Environment Agency identified the potential for land stability issues such as flow sands. A geotechnical investigation was recommended to ensure foundations of embankments do not destabilise due to increased pore pressures in the subsurface.	Geotechnical ground investigations are ongoing and geotechnical hazards and land stability are being assessed by the design team as part of the application. Geotechnical stability and similar hazards are not assessed in this chapter, in accordance with DMRB LA 109 (Highways England, 2019).

Non-statutory public consultation

10.3.4 Non-statutory public consultation on the emerging proposals for the Project was undertaken with stakeholders and local communities in Summer 2024. Formal responses to this non-statutory consultation feedback have been provided within the 'Statement of Response' (Thames Water, 2025a). Feedback relevant to the Geology and soils assessment has been considered where appropriate.

Ongoing engagement

10.3.5 This section summarises the ongoing technical engagement for geology and soils with key stakeholders since EIA scoping. This includes meetings, written correspondence and a Technical Liaison Group (TLG) attended by the Environment Agency.

10.3.6 Table 10.3 provides a summary of the ongoing technical engagement for geology and soils, including the issues raised and outcomes for the assessment.

Table 10.3 Key ongoing engagement for geology and soils

Stakeholder	Topics	Outcome
Natural England	Letter sent 20/03/2025 detailing the ALC survey methodology and referring to the ALC assessment methodology in the scoping report.	A response was received on 8 April 2024. Natural England confirmed the survey methodology and information the survey would provide would be suitable for assessing impacts on BMV land. No major comments were shared. Links to surveys in the local area were shared for reference. Liaison will continue in the ES stage.
Environment Agency; Natural England, Vale of White Horse and Oxfordshire County Council	Recurring TLG meetings with the Stakeholders to discuss potential contaminated land sites and permitting	A detailed presentation set out the approach to assessing the receptors and aspects in the PEI Report including ground contamination, soil resources, agricultural land and geology. There were no initial comments for contamination during the meeting. A follow up email was sent to the Stakeholders requesting additional details of known contamination and foot and mouth burial pits. A response confirmed none was available or known. Natural England was asked about responsibilities for significant fossil finds. In an email Natural England confirmed the Site is not a designated geological site and suggested watching briefs to ensure any significant material uncovered is recorded. Further information may be available from Oxfordshire Geology Trust. A response from the Environment Agency was received on 16 June 2025. It discussed the potential impacts from South Oxfordshire Cemetery and how a potential change in groundwater levels could impact existing burials and proposed burial considerations. This is to be addressed in the ES. The Environment Agency acknowledged that the information was desk-based but a targeted investigation was proposed. They requested a detailed rationale for targeted locations for comment prior to the investigation being initiated to ensure the scheme is robust and will satisfactorily manage risks from contaminated land. If this is not possible to submit the scheme before investigation it should be included in the reporting of the site investigation.

10.4 Assessment methodology

10.4.1 The project-wide approach to the assessment methodology is set out in Chapter 4: Approach to environmental assessment. This has informed the approach used in this Geology and soils assessment.

10.4.2 This section outlines the methodology followed to assess the likely significant effects of the Project in relation to geology and soils including:

- Effects scoped into the assessment
- Study area
- Criteria for determining likely significant effects
- Assessment of cumulative effects

10.4.3 Any further data collection or site surveys, studies, modelling, or additional assessments that are still to be undertaken to inform the ES are set out in section 10.10: Next Steps.

10.4.4 The assessment for geology and soils is based on the methods set out in the:

- Design Manual for Roads and Bridges (DMRB) LA 104 Environmental Assessment and Monitoring (Highways England (now National Highways), 2020).
- DMRB, (2019) LA 109 Geology and soils (Highways England (now National Highways), 2019).
- Environment Agency Land Contamination: Risk Management (LCRM) guidance (Environment Agency, 2020).
- Institute of Environmental Management and Assessment (IEMA) guide, A New Perspective on Land and Soil in Environmental Impact Assessment (IEMA, 2022).

10.4.5 The Geology and soils assessment considers the potential effects on:

- Bedrock geology and superficial deposits, including geological designations and sensitive/ valuable non-designated features
- Soil resources
- Human health, surface water, groundwater and ecological receptors due to contamination

10.4.6 The effects on mineral deposits as a resource are assessed in Chapter 11: Materials and waste.

10.4.7 A conceptual site model (CSM) and preliminary contamination assessment have been completed and are presented in Appendix 10.1: Desk study and preliminary contamination assessment. This assessment will be updated for the ES to include more detail of the potential risk of harm to human health and the potential risk of pollution to controlled waters, and potential harm to other environmental receptors from contaminated land in accordance with the Environment Agency LCRM guidance (Environment Agency, 2020). More detailed information on the assessment methodology is provided in Appendix 10.1: Desk study and preliminary contamination assessment.

Scope of the assessment

10.4.8 The scope of the assessment has been informed by the EIA Scoping process, including the EIA Scoping Report (Thames Water, 2024a) and Scoping Opinion (The Planning Inspectorate, 2024), combined with subsequent changes to the Project design and an enhanced understanding of the baseline environment.

10.4.9 Matters that have been scoped out of the Geology and soils assessment are documented within Appendix 4.1 Effects scoped out of the EIA, along with justification for this scoping

approach. In summary, matters scoped out are operational effects on geological designations.

10.4.10 Effects that are scoped into the Geology and soils assessment relevant to the construction phase are:

- Geology: While there are no designated geological receptors on Site there is potentially rich fossiliferous geology in the study area. There is a potential for excavations to encounter and/or expose scientifically important fossil information.
- Soils supporting biomass production: Soils will be disturbed during construction and there will be permanent loss of agricultural land and permanent sealing of soil due to development. Soil functions may be affected through degradation during soil handling, remediation, or land use change.
- Soils supporting sites of ecological importance: Soils supporting the Cuttings and Hutchins Copse Local Wildlife Site (LWS) could be affected by construction depending on the location of the proposed rail sidings.
- Soil carbon: Excavation and development will disturb soils during construction. There are also opportunities to enhance various soil functions during operation. Permanent and temporary impacts are anticipated.
- Land contamination: The risk of harm to on site and off site receptors could arise during construction through creation of potential contamination linkages from existing sources within the draft Order limits. Remediation of ground or groundwater contamination may improve soil and water quality in some areas.

10.4.11 Effects that are scoped into the Geology and soils assessment relevant to the operation phase are:

- Soils supporting biomass production
- Soils supporting sites of ecological importance
- Soil carbon
- Land contamination from existing sources within the draft Order limits

Study area

10.4.12 The geology and soils study area is defined by the draft Order limits (for the PEI Report) with the following additional buffer zones applied:

1) For agricultural soils no additional buffer zone is considered. Agricultural soil within the draft Order limits is considered in this assessment. The assessment considers the agricultural land classification (ALC) soil grade distribution and calculates permanent and temporary land take in the draft Order limits. The soil is only likely to be impacted where the Project directly crosses, or interfaces with it.

2) For surface waters, geology, and contamination an additional buffer zone of 250 metres (m) beyond the draft Order limits has been applied. 250m is based on the National House-Building Council (NHBC) Guidance for the Safe Development of Housing on Land Affected by Contamination (NHBC, Environment Agency and Chartered Institute for Environmental Health (CIEH), 2008) states that '*typically offsite historical descriptions* (of potentially contaminative previous uses) *should be concentrated for an area up to 250m*'.

3) A buffer 1 kilometre (km) from the draft Order limits has been applied for considering sensitive groundwater receptors such as source protection zones (SPZ). This is based on the Guidance for the Safe Development of Housing on Land Affected by Contamination (NHBC, Environment Agency and CIEH, 2008) which suggests assessing the potential impact of contamination on groundwater abstractions within a minimum of 1km of the site boundary. The increased buffer of 1km for water receptors allows for the potential for greater travel distances of pollutants and impacts on groundwater abstractions. In simplistic terms SPZ 1 may be defined as either a 50-day travel time or 50m from the abstraction. The outer zone (SPZ2) might be up to 500m from the abstraction. The total catchment extends further than this, but a set distance is not defined.

4) The buffer zones for geology and soils are shown in Figure 10.1: Study area.

Methodology

10.4.13 Following the submission of the Scoping Report, several refinements have been made to the sensitivity and magnitude criteria. These do not change the assessment methodology; rather, they provide more consistent criteria for assessment. The changes are described below.

10.4.14 In Table 10.4 Criteria for establishing the sensitivity of receptors, the human health descriptors have been updated to incorporate additional land use categories across low, moderate, high, and very high sensitivity levels. These revisions enhance clarity and ensure consistency during the assessment process. The expanded descriptors are informed by professional judgement.

10.4.15 In Table 10.4 Criteria for establishing the sensitivity of receptors, the revisions introduce a clearly defined and quantitative descriptor for soil carbon, which was previously absent from the Scoping Report. For each sensitivity level, soil carbon is now characterised based on the percentage of organic carbon and, where applicable, organic matter content, in alignment with Natural England's Technical Information Note TIN037 (2008). This enhancement improves transparency and consistency during the assessment.

10.4.16 The definitions in Table 10.5 Criteria for assessing the magnitude of impact have been amended for geology. The Scoping Report previously referred to improvements to geological features and designations. This wording has been revised to indicate a beneficial contribution to scientific research through the identification and recording of significant geological features or designations, rather than implying potential improvements to the geology itself.

Baseline

Data collection

10.4.17 Baseline data collection has been undertaken to obtain information over the study areas. Baseline conditions have been established initially through a desk-based review of publicly available information sources and through engagement with stakeholders.

10.4.18 The following publicly available data sources have been accessed to inform the baseline with respect to geology and soils:

- British Geological Survey (BGS) Abingdon Solid and Drift geological map (BGS, 1971a and 1971b)
- BGS GeoIndex online viewer (BGS, 2025)
- Multi-Agency Geographic Information for the Countryside (MAGIC) map (Defra, 2025a)
- Natural England Provisional ALC mapping (Natural England, 2024a)
- Natural England detailed Post 1988 Survey ALC mapping (Natural England, 2024b)
- Land Information System Soilscapes Viewer online mapping (LISSV, 2025)

10.4.19 The following supplementary reports have informed baseline conditions:

- Groundsure GeoInsight report including historical mapping (Groundsure, 2025)
- Geoenvironmental desk study and preliminary contamination assessment (Thames Water, 2025b) – Appendix 10.1: Desk study and preliminary contamination assessment
- Desk Study for Unexploded Ordnance (UXO) and Military Uses (Zetica, 2025)

10.4.20 In addition, the Geology and soils assessment draws on environmental baseline data collated for other aspects, specifically, baseline data presented in Chapter 5: Water environment, Chapter 7: Terrestrial ecology, Chapter 11: Materials and waste, Chapter 16: Human health, and Chapter 18: Climate resilience.

Site surveys

10.4.21 The study area baseline surveys undertaken for geology and soils are:

- A ground investigation was started in 2024 and is ongoing 2025. It was designed to address mostly geotechnical and hydrogeological requirements with limited geoenvironmental testing. Relevant details will be included in the ES.
- An ALC survey is being carried out between March 2025 and early 2026. The survey findings are not available to include in the PEI Report and will be included at ES stage in an appendix.

10.4.22 Some limited ground investigation data from the Site has been used to update the CSM and inform the risk assessment. Groundwater and soil samples were collected during the ground investigation and analysed in a laboratory for a range of chemical contaminants. Soil samples include topsoil and subsoils, made ground and reworked soils, natural superficial deposits and bedrock geology. Laboratory results from the samples have been assessed by comparison to appropriate generic assessment criteria (GAC) based on the public open space park (POSP) land use scenario. Other land use GAC have been considered for other contaminant linkages and receptors where appropriate.

10.4.23 The POSP scenario is suitable for much of the proposed land use under consideration. The key sensitive human health receptors are families with children who may use the Site during the operational phase. This is deemed to be a relatively short-term exposure with limited contact with potentially contaminated land. There is also GAC for short-term (acute) exposure which may be appropriate for construction works or in other scenarios. Some areas of the Site may include buildings with occupation staff or maintenance workers, and these are considered based on variations of the commercial GAC. Off site residential or commercial receptors may be considered with variations of the residential or commercial GAC considering the dust pathways only.

Future baseline

10.4.24 The assessment has considered the likely evolution of the baseline without the implementation of the Project. The future baseline for the Geology and soils assessment includes any other relevant developments expected to be operational prior to or during the construction and operation of the Project such as the introduction of new sensitive receptors, for example:

- Geology: exposure of geological strata or fossils of scientific interest and/or new designations
- Soils: new ecological designations supported by soils
- Land contamination: new human health receptors at residential or commercial industrial developments.

10.4.25 It has also considered the removal of sensitive receptors, for example:

- Geology: excavation of fossiliferous rich geological strata (such as sand and gravel extraction)
- Soils: loss of agricultural land
- Land contamination: for example, human health receptors at residential or commercial properties.

10.4.26 The future baseline also considers the introduction of potential sources of contamination by reviewing the changes to land use and possible introduction of new contaminative activities.

10.4.27 The following data sources have been accessed to inform the future baseline with respect to geology and soils:

- Refer to Chapter 20: Cumulative effects for the methodology used to prepare the list of other developments relevant to the future baseline.
- Publicly available data as stated in the early data collection section has been reviewed to assess the Future baseline. This has been supported by relevant planning documents.

Criteria for the assessment of significance

10.4.28 The methodology for assessing effects is based on the principle that the environmental effects of the Project, in relation to a receptor, are determined by identifying the receptor's sensitivity, and assessing the magnitude of impact the Project would have on the receptor. These two elements are then combined to identify the significance of effect (using professional judgement where necessary). Larger impacts on receptors that are more sensitive are considered greater effects than smaller impacts on receptors with lower sensitivity.

10.4.29 Due to the assessment assumptions and limitations set out under paragraph 10.7.3, it has not been possible to confidently assign the magnitude of impacts and therefore categorise the significance of each effect for this preliminary assessment of effects on geology and soils. Instead, the sensitivity of receptor and professional judgement has been used to determine whether effects are likely to be significant or not, and where appropriate adopting a precautionary determination that effects are likely to be significant, where

design, construction or baseline information that informs the assessment is still being developed.

Assessment of sensitivity

10.4.30 Table 10.4 provides further detail on the criteria that have been used for establishing the sensitivity of receptors for the preliminary assessment of effects. The criteria are based on guidance set out in DMRB LA109 and further supplemented with soil specific criteria based on Institute of Environmental Management and Assessment (IEMA) guide, A New Perspective on Land and Soil in Environmental Impact Assessment (IEMA, 2022).

Table 10.4 Criteria for establishing the sensitivity of receptors

Sensitivity of receptor	Receptor type	Typical descriptors
Negligible	Geology	No designated geological designation on or close to the site.
	Soils	**Biomass production**: soils in non-agricultural or urban areas **Biodiversity**: soils outside any of the habitats described below in this table **Soil carbon**: mineral soil (<3.5% organic carbon)
	Land contamination	**Human health**: undeveloped land/non sensitive land use identified or proposed **Surface water**: No surface water present **Groundwater**: unproductive aquifer
Low	Geology	Candidate geological sites
	Soils	**Biomass production**: soils supporting agricultural land of Grades 4 and 5 **Biodiversity:** soils supporting non-designated notable or priority habitats **Soil carbon**: Humose/organic mineral soil (between 3.5 and 12% organic carbon)
	Land contamination	**Human heath**: low sensitivity land use such as highway, rail or a hard cover end use **Surface water:** Watercourses not having a Water Framework Directive (WFD) classification shown in a River Basin Management Plan (RBMP) and Q95 ≤0.001 cubic metres per second (m^3/s) **Groundwater:** Unproductive aquifer
Moderate	Geology	Geology is of regional importance (e.g. local geological sites (LGS))
	Soils	**Biomass production**: soils supporting agricultural land of Subgrade 3b **Biodiversity:** soils supporting non-statutory designated sites (e.g. Local Wildlife Site (LWS) **Soil carbon**: peaty loam or peaty sand soils (between 12 and 20% organic carbon)

Sensitivity of receptor	Receptor type	Typical descriptors
	Land contamination	**Human health**: moderate sensitivity end land use such as commercial or industrial and infrequently used open spaces and countryside **Surface water:** watercourses not having a WFD classification shown in a RBMP and Q95 >0.001m^3/s **Groundwater**: aquifer providing water for agricultural or industrial use with limited connection to surface water **Other**: buildings, crops and livestock
High	Geology	Geology is of national importance such as Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), Geological Conservation Review (GCR) sites
	Soils	**Biomass production**: soils supporting agricultural land of subgrade 3a - BMV land **Biodiversity**: soils supporting UK designated sites (e.g. SSSI, NNR, Local Nature Reserve (LNR)) and Ancient Woodland **Soil Carbon**: loamy peat or sandy peat soils. (>20% organic carbon; Organic matter between approximately 35 and 50%)
	Land contamination	**Human health**: high sensitivity land use such as public open space parks and open land near residential areas, or managed residential properties with limited use of outside space **Surface water**: watercourse classified by the WFD shown in a RBMP and Q95 <1.0m^3/s **Groundwater:** principal aquifer providing locally important resource or supporting a river ecosystem. Groundwater supports a groundwater dependent terrestrial ecosystem (GWDTE), source protection zone (SPZ) 2 **Ecological species** protected by UK legislation
Very high	Geology	Geology is of international importance (e.g. United Nations Educational, Scientific and Cultural Organisation (UNESCO) world heritage sites, UNESCO global geopark and geological conservation review sites where citations indicate features of international importance, SSSI where citation indicate features of international importance)
	Soils	**Biomass production**: soils supporting agricultural land of grades 1 and 2 (BMV land) **Biodiversity**: soils supporting a European designated site (e.g. Special Areas of Conservation (SAC), Special Protection Areas (SPA)) **Soil Carbon:** peat soils (>20% organic carbon; Organic matter between 50 and 100%)

Sensitivity of receptor	Receptor type	Typical descriptors
	Land contamination	**Human health**: very high sensitivity land use such as private residential properties, allotments, schools with grassed sports pitches **Surface water**: watercourse classified by the WFD shown in a RBMP and Q95 ≥ 1.0m^3/s. **Groundwater:** Principal aquifer and/or supporting a site protected under EC and UK legislation. Groundwater in SPZ 1 and GWDTE **Ecological designated sites** protected under European or UK legislation

Magnitude of impact

10.4.31 As noted in paragraph 10.4.29, the preliminary assessment of effects for this aspect has not categorised the magnitude of impacts caused by the Project.

10.4.32 For the assessment that is reported in the ES, the criteria for assessing magnitude of impact in Table 10.5 will be applied based on professional judgment and experience.

10.4.33 Whilst not relied upon for the preliminary assessment, in forming a professional judgement of whether an effect will be significant or not, an indicative consideration of the criteria in Table 10.5 has been made at this stage, although the magnitude of impact is not reported.

Table 10.5 Criteria for assessing the magnitude of impact

Magnitude of impact	Receptor type	Description and nature of change
No change	Geology	No change to characteristics, features or access
	Soils	No loss/reduction of soil functions that restrict current or proposed land use
	Land contamination	Soil contamination assessed as no risk of harm to potential receptors, with no contaminant linkages present
Negligible	Geology	Adverse: very minor loss of/detrimental alteration to one or more characteristics, features or access of/to geological feature/designation; overall integrity not affected Beneficial: Not applicable.
	Soils	Adverse or beneficial: no discernible loss, reduction or improvement of soil functions that restrict or decrease restrictions to current or proposed land use
	Land contamination	Adverse: soil contamination is assessed as a very low risk of harm to potential receptors with one or more contaminant linkages unlikely to be present. Beneficial: A very minor improvement in the ground or groundwater where previously affected by land contamination

Magnitude of impact	Receptor type	Description and nature of change
Minor	Geology	Adverse: minor change in geological feature/designation attributes, quality or vulnerability; minor loss of/detrimental alteration to key characteristics, features or access Beneficial: minor addition to scientific research through exposure of a geological feature/designation
	Soils	Adverse: permanent, irreversible sealing or loss of one or more soil functions (including downgrading of ALC) over an area of less than five hectares (ha), or a temporary, reversible loss of one or more soil functions Beneficial: permanent improvement of one or more soil functions over an area of less than five ha
	Land contamination	Adverse: soil contamination considered a low risk of harm to potential receptors with one or more contaminant linkages possibly present Beneficial: slight betterment of ground or groundwater contamination conditions through remediation and/or mitigation (actual benefit) and actual reduction of risk of harm to some or all receptors
Moderate	Geology	Adverse: partial loss of geological feature/designation, potentially adversely affecting integrity; partial loss of/damage to key characteristics, features or access Beneficial: moderate addition to scientific research through exposure of a geological feature/designation
	Soils	Adverse: physical removal or permanent sealing or loss of one or more soil functions (including downgrading of ALC) over an area between one and 20ha Beneficial: permanent improvement of one or more soil functions over an area of between one and 20ha
	Land contamination	Adverse: soil contamination assessed as a moderate risk of harm to potential receptors with one or more contaminant linkages likely present Beneficial: moderate betterment of ground or groundwater contamination conditions through remediation and/or mitigation resulting in an improvement in water quality for instance
Major	Geology	Adverse: loss of geological feature/designation and/or quality and integrity; complete loss of/severe damage to key characteristics, features or access Beneficial: major addition to scientific research through exposure of a geological feature/designation
	Soils	Adverse: physical removal or permanent sealing of >20ha of agricultural land and/ or loss of one or more soil functions (including downgrading of ALC)

Magnitude of impact	Receptor type	Description and nature of change
		Beneficial: permanent improvement in one or more soil functions (including upgrading of ALC) over an area of >20ha
	Land contamination	Adverse: soil contamination considered to pose a high risk to receptors with one or more contaminant linkages certain to be present Beneficial: substantial betterment of ground or groundwater contamination conditions through remediation and/or mitigation resulting in an actual improvement in quality

10.4.34 In forming a professional judgement of whether an effect will be significant or not in the preliminary assessment, the resilience of the soils to structural damage during handling (i.e. soil stripping, stockpiling and restoration) has also been considered. The interactions between soil texture, moisture, structure and climate are key to understanding soil resilience, and Table 10.6 Resilience of soil receptors sets out the criteria that would be followed. This follows the approach set out in A New Perspective on Land and Soils in Environmental Impact Assessment (IEMA, 2022). Professional judgement informed by desk study would be used to assign provisional soil texture classes for the purpose of assessment where quantitative data are not available.

Table 10.6 Resilience of soil receptors

Resilience	Description
Low	Soils with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay loams) and organic mineral and peaty soils where the field capacity days (FCD) are 150 or greater Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where the FCD are 225 or greater All soils in WC V (usually wet) or WC VI (permanently wet)
Moderate	Clays, silty clays, sandy clays, heavy silty clay loams, heavy clay loams, silty loams and organic mineral and peaty soils where FCD are fewer than 150. Medium-textured soils (silt loams, medium silty clay loams, medium clay. Loams and sandy clay loams where FCD are fewer than 225. Sands, loamy sands, sandy loams and sandy silt loams where the FCD are 225 or greater or are in WC III (occasionally wet) or WC IV (commonly wet)
High	Soils with a high sand fraction (sands, loamy sands, sandy loams and sandy silt loams) where FCD are fewer than 225 and are in wetness class (WC) I (rarely wet) or WC II (seldom wet)

Source: Adapted from Table 4 of IEMA guidance (IEMA, 2022).

Duration of effects

10.4.35 The Project is expected to have impacts of varying durations on the soil, geology and contamination. The durations are categorised as temporary (short-term, medium-term, and long-term effects) and permanent. The duration of effects on soil, geology and contamination have been defined based on professional judgement and are described below:

- Short-term: effects with a duration up to two years
- Medium-term: effect with a duration between two to 10 years
- Long-term: effect with a duration between ten to 25 years
- Permanent: an effect longer than 25 years.

Significance of effect

10.4.36 As noted in paragraph 10.4.29, the preliminary assessment for this aspect has not categorised the significance of each effect (i.e. whether it is major, moderate, minor, neutral or none). Instead, the sensitivity of receptor and professional judgement and experience (with indicative consideration of the criteria in Table 10.5) has been used to determine if each likely effect is anticipated to be 'significant' or not 'significant'.

10.4.37 For the assessment that is reported in the ES, categories of significance will be applied to effects, based on the combination of magnitude of impact and sensitivity of receptor as shown in Table 10.7. Effects that are moderate or major are deemed to be significant. The resultant effects may be either adverse, beneficial or neutral, depending on the nature of the impact. Note that Table 10.7 is based on DMRB guidance and has been adapted to align with the overarching significance categories applied across the SESRO EIA noted in Chapter 4: Approach to the environmental assessment.

10.4.38 Whilst not relied upon for the preliminary assessment, in forming a professional judgement of whether an effect will be significant or not, an indicative consideration of the significance matrix in Table 10.7 has been made in determining if likely effects are anticipated to be 'significant' or not 'significant'.

Table 10.7 Significance matrix

Receptor sensitivity	Magnitude of impact				
	No change	Negligible	Minor	Moderate	Major
Negligible	None	Neutral	Neutral	Minor	Minor
Low	None	Neutral	Minor	Minor	Moderate (significant)
Moderate	None	Minor	Minor	Moderate (significant)	Moderate (significant)
High	None	Minor	Moderate (significant)	Moderate (significant)	Major (significant)
Very High	None	Minor	Moderate (significant)	Major (significant)	Major (significant)

10.4.39 For this preliminary assessment, the assessment of effects has assumed that 'embedded design mitigation' and 'standard good practice mitigation' relevant to the Geology and soils assessment are in place, these measures are presented in Section 10.8: Embedded design mitigation and standard good practice. Nevertheless, as noted in Section 10.4: Assessment methodology, the preliminary assessment assumes that additional mitigation that may reduce any identified likely significant adverse effects is not applied, as the viability, nature, and extent of these are not confirmed at this stage in the EIA process. As a result, consideration of residual effects (those that remain after the implementation of all mitigation, including additional mitigation) has not been completed for this preliminary

assessment; this will be undertaken in the ES. Additional mitigation that is being explored is presented in Section 10.10 Next steps.

Assessment of cumulative effects

10.4.40 The cumulative effects assessment approach for both inter- and intra-project cumulative effects is broadly set out in Chapter 20: Cumulative effects.

10.4.41 A cumulative assessment of geology and contamination has not been undertaken at this stage. Contamination is bound by legislative controls to ensure that each development does not harm the environment. Mitigation measures will be in place for each development to manage and minimise impacts. It is therefore considered unlikely that changes affecting contamination will have a cumulative effect between developments. Effects arising from contamination are anticipated to be neutral or a minor betterment to the current situation.

10.4.42 The methodology for assessing cumulative effects on soils (including loss of agricultural land) is based on the IEMA guide, A New Perspective on Land and soil in Environmental Impact Assessment (IEMA, 2022). As outlined in the guide, an agreed methodology for the Cumulative Effects Assessment (CEA) on land and soils has yet to be established. A suggested approach is given in the guide, which has been adopted for this PEI Report assessment.

10.4.43 The approach considers both national and local effects on soils. For the national assessment, the effects of the project are assessed relative to five-year average land loss for undeveloped, agricultural and BMV land. The local assessment compares the proposed land loss to the total undeveloped and agricultural areas within the Local Planning Authority (LPA). The agricultural land loss data differentiates between losses of varying soil classes, enabling assessment of how cumulative land losses impact the soil's biomass function.

10.4.44 The outcomes of the cumulative effects on soils are reported in Appendix 20.2: Cumulative Soils Assessment and summarised in Chapter 20: Cumulative effects. The intra-project cumulative effects assessment is summarised within Chapter 20: Cumulative effects, and within Chapter 20 signposts are provided to the location of the intra-project cumulative effects assessment (where it has been possible to provide at this stage).

10.5 Study area

10.5.1 The study area is defined according to the sensitivity of the receiving environment and the potential effects of the Project. The methodology used to define the study area is outlined in Section 10.4: Assessment methodology. The study area for geology and soils is shown in Figure 10.1: Study area.

10.5.2 The study area has changed since the EIA scoping stage due to changes to the design and the associated draft Order limits. See Chapter 2: Project description for details of the changes to the Project parameters and assumptions for the PEI Report.

10.5.3 For surface waters, geology, and contamination the study area is the draft Order limits, plus a 250m buffer area. This area is considered appropriate for the historical and current potentially contaminative land uses which impact on receptors in the draft Order limits. Where there is potential for contamination to migrate on site from a source outside the 250m buffer, these sources have been included in the assessment and presented in the PEI Report.

10.5.4 For agricultural soils, the study area is defined by the draft Order limits.

10.5.5 For sensitive groundwater receptors the study area is the draft Order limits plus a 1km buffer.

10.6 Baseline conditions

10.6.1 To assess the significance of effects arising from the Project in relation to geology and soils, it is necessary to identify and understand the baseline environment within the study area. This provides a reference state against which potential effects on geology and soils can be assessed.

10.6.2 This section outlines the existing and expected future baseline conditions of geology and soils in the study area. This baseline section is hybrid in that much of it describes the baseline of the 2024 draft Order limits based on various surveys and detailed desk-based data for that area. The boundary changed in March 2025 and data for areas added to the draft Order Limits is being obtained, reviewed and assessed.

10.6.3 Some descriptions of baseline, such as geology, hydrology, hydrogeology, soils, and provisional ALC, include the areas added in 2025 as that information was readily available. The land contamination section, including UXO and military uses, and various other environmental data have been partially updated for the areas added in 2025. This will be updated based on desk-based data, ground investigation, and assessment for the ES.

Existing baseline

10.6.4 This assessment has considered the known receptors within the study area. Key existing baseline features for geology and soils are shown in PEI Report Figures:

- Figure 10.1: Study area
- Figure 10.2: Superficial geology
- Figure 10.3: Bedrock geology
- Figure 10.4: Controlled waters
- Figure 10.5: Ground investigation
- Figure 10.6: Natural England provisional agricultural land classification
- Figure 10.7: Potentially contaminated land
- Figure 10.8: Ecological receptors

Ground conditions and environmental setting

Artificial ground

10.6.5 Artificial ground is a term used by the BGS for those areas where the ground surface has been significantly modified by human activity. The term includes:

- Made ground includes man-made deposits such as reservoir embankments and spoil heaps on the natural ground surface or areas where the level of the land has been raised.
- Worked ground includes areas where the ground has been cut away such as quarries and road cuttings or areas where existing ground has been excavated and placed back.

- Infilled ground includes areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground areas where the surface has been reshaped.
- Disturbed ground is areas of shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

10.6.6 The study area for surface waters, geology and contamination consists primarily of agricultural land, where artificial ground is rarely encountered. Previously disturbed and developed areas may contain made ground, including those with historic or current land uses. Additionally, made ground may be present in locations not documented as having been disturbed.

10.6.7 Suspected areas of artificial ground in the draft Order limits include the railway and historical railway sidings, the reservoir embankments associated with the A34, Abingdon sewage works, Steventon Depot and the disused Wiltshire and Berkshire Canal which is partially infilled.

Superficial geology

10.6.8 River Terrace Deposits (RTD) consisting of various layers of sands and gravel members are mapped across the study area. These include the Northmoor Sand and Gravel Member Lower Facet, Northmoor Sand and Gravel Upper Facet, Summertown Radley Sand and Gravel Member and the Wolvercote Sand and Gravel Member. Head Deposits consisting of clay, silt and gravel are mapped in the south and eastern part of the Site. Alluvium is present within the north and east as well as a small area along the centre of the study area for geology. The alluvium comprises clay, silt, sand and gravel. The published superficial geology is presented in Figure 10.2: Superficial geology.

10.6.9 The ground investigations to date have found unmapped deposits of alluvium in the south of the Site and have confirmed the presence of alluvium in the east. The investigations have found that where RTD are present. The thickness of the RTD varied between 1m and 1.85m, however, the RTD are absent at some locations, particularly in the south.

Bedrock geology

10.6.10 The Gault Formation is present beneath the south-eastern area of the study area for geology. The Gault Formation is underlain by a thin horizon of the Lower Greensand Group Sandstone which crosses the study area for geology from south-west to east. Most of the draft Order limits is underlain by the Ampthill and Kimmeridge Clay Formations, in the form of mudstone. Limestone (Stanford Formation) is present in the north of the Site, along with a small, isolated section of the Kingstone Sandstone Formation. The Upper Greensand Formation is present immediately south of the draft Order limits boundary. The published bedrock geology is presented in Figure 10.3: Bedrock geology.

10.6.11 The logs from the current investigation generally align with the published geological maps from the BGS. To the south of Hanney Road, the Gault Formation is present beneath the topsoil and superficial deposits if present, with the Lower Greensand and Kimmeridge Clay Formation present below that. The Kimmeridge Clay Formation is present beneath the topsoil and superficial deposits to the north of Hanney Road.

Hydrology

10.6.12 The Project is located within the Thames River Basin District and Ock Operational Catchment. Surface water bodies here include Childrey Book, Northbrook at Common Barn, Sandford Brook, Letcombe Brooke, Marcham Brook, Cow Common Brook, Portobello Ditch, Ginge Brook, River Ock, and River Thames. Except for Ginge Brook and Mill Brook, all are tributaries of the River Ock. The River Ock, Ginge Brook, and Mill Brook flow into the River Thames. The surface water features are shown in Figure 10.9: Surface Water receptors.

Hydrogeology

10.6.13 The study area for groundwater is underlain by secondary A and secondary undifferentiated aquifers, as well as unproductive aquifers. The Upper Greensand Formation is a principal aquifer and is present along the southern boundary. Aquifers are summarised in Table 10.8. Hydrological and hydrogeological baseline conditions are described in full in Chapter 5: Water environment.

Table 10.8 Summary of aquifer designations

Strata	Aquifer designation
River Terrace Deposits	Secondary A
Alluvium	Secondary A
Head Deposits	Secondary (undifferentiated)
Upper Greensand Formation	Principal
Lower Greensand Group Stanford Formation Kingston Formation	Secondary A
Gault Formation Ampthill and Kimmeridge Clay Formation	Unproductive

Ground investigations and surveys

Previous ground investigation

10.6.14 Six ground investigations have been undertaken within the draft Order limits. The ground investigations are summarised in Appendix 10.1: Desk study and preliminary contamination assessment. The locations of the ground investigations are shown in Figure 10.5: Ground investigation.

10.6.15 The previous ground investigations are listed in Table 10.9 Summary of previous ground investigations.

Table 10.9 Summary of previous ground investigations

Investigation	Description
Ground investigation, July to October 1991	60 cable percussive/rotary core boreholes and 20 trial pits. No environmental testing carried out within this investigation.

Investigation	Description
Upper Thames Reservoir volume 1, September to December 2005	Six cable percussive boreholes, 51 rotary boreholes and 44 trial pits. Geoenvironmental testing was carried out within 20 soils samples covering total organic carbon (TOC), total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), leachate, phenols and volatile and semi-volatile organic compounds (VOC/SVOC). Chloride and sulphate testing was carried out within nine of these samples. 13 water samples were submitted for general water quality and metals analysis.
Upper Thames Reservoir, volume 2, August to September 2006	Seven rotary boreholes and eight trial pits. No geoenvironmental testing was carried out within this investigation.
SESRO Ground Investigation Phase 1, January to March 2024	18 rotary core holes, three trial pits, one geophysical survey and eight cone penetration tests. 19 soil samples were submitted for a general suite consisting of asbestos screening, fraction of organic carbon (FOC), sulphate, cyanide and metals analysis. Five water samples were submitted for metals and water quality analysis.
SESRO Ground Investigation Phase 2a, April to August 2024	Seven cable percussive boreholes (two with rotary follow on), 15 rotary core holes, one geophysical survey and seven cone penetration tests. Six soil samples were submitted for a general suite as described in the Phase 1 works. In addition, three of these soil samples were submitted for per- and polyfluoroalkyl substances (PFAS) analysis, and one of these samples also had TPH, PAH and waste acceptance criteria (WAC) testing. It should be noted that the samples submitted for PFAS were carried out in agricultural fields where no sources of PFAS have been identified. Four water samples were submitted for metals and water quality analysis.

Ongoing ground investigation

10.6.16 The most recent SESRO investigation is being completed in three phases, Phase 1, Phase 2a and Phase 2b. Phase 1 and 2a are complete and summarised in Table 10.9. Phase 2b started in August 2024 and is ongoing and is summarised in Table 10.10. The investigation was scoped based information on the Project in 2024. Some large areas within the Order limits are not investigated. The scope is shown in Figure 10.5: Ground investigation. Additional geoenvironmental ground investigation has been scoped and will be included in the ES.

Table 10.10 Summary of the ongoing investigation

Investigation	Description
SESRO Ground Investigation Phase 2b, August 2024 to March 2025	Nine dynamic samplers with rotary follow on, 12 cone penetration tests and two cable percussion with rotary follow on.
SESRO Ground Investigation Phase 2b	30 dynamic samplers with rotary follow on, five cable percussion with rotary follow on, 12 cable percussion, two geophysical surveys and seven cone penetration tests.

Geodiversity

10.6.17 There are no geological designations and sensitive/valuable non-designated features recorded within the study area for geology. The Kimmeridge Clay Formation is rich in fossils and may include Jurassic marine fossils, such as Ichthyosaurs, and flying reptiles such as Pterosaurs. A partial wing bone from a Jurassic Pterosaur was exposed in the base of a quarry to the east, in the upper Kimmeridge Clay, in the study area for geology.

10.6.18 The study area is situated within area of significant environmental sensitivity. To the north of the study area lies the Frilford Heath SSSI.

Soil

10.6.19 The Cuttings and Hutchins Copse Local Wildlife Site (LWS), which abuts the Great Western Railway in the south of the Site, contains soils supporting a Site of ecological importance.

Soilscapes

10.6.20 MAGIC maps online viewer identifies the following soilscapes within the study area for agricultural soils:

- Soilscape 3 is shallow lime-rich soils over chalk or limestone.
- Soilscape 5 is freely draining lime-rich loamy soils.
- Soilscape 7 is freely draining slightly acid but base-rich soils.
- Soilscape 18 is slowly permeable seasonally wet slightly acid but rich loamy and clayey soils.
- Soilscape 20 is loamy and clayey floodplain soils with naturally high groundwater.

10.6.21 The data indicates that mineral and organic-mineral soils such as those with less than 20 to 25% organic matter, and various clay content are present on Site.

Agricultural land classification

10.6.22 Agriculture is the main land use within the draft Order limits and surrounding areas. Figure 10.6: Natural England provisional Agricultural Land Classification shows the provisional agricultural land classifications across the draft Order limits. ALC surveys are ongoing and the results will be included in the ES.

10.6.23 The principal physical factors influencing agricultural production are climate, site and soil. These factors and interactions form the basis for classifying agricultural land into one of five grades: Grade 1 land is excellent quality to Grade 5 land being very poor quality. Grade 3 land is divided into two subgrades designated 3a and 3b. BMV agricultural land includes ALC Grades 1 to 3a.

10.6.24 Most soils in the draft Order limits are provisionally mapped as ALC Grades 2 to grade 4. There are also non-agricultural land and urban land within the draft Order limits.

Land contamination

10.6.25 Most of the study area is agricultural land and unlikely to be significantly contaminated. There are no areas designated as contaminated land under Part 2a of the Environmental Protection Act 1990. Potentially contaminative current land uses include fuel stations, Abingdon Sewage Treatment Works, Landmead Airstrip, various isolated and small tanks

and silos likely to be associated with agricultural use, and solar farms which reposition is being considered as part of the Project. The Great Western Railway crosses the south of the site.

10.6.26 Steventon Depot has been operational since World War 2 (WW2) as a storage and transport depot and is reported by Zetica based on historic records to have stored aircraft parts. Zetica suggest there was no maintenance of aircraft parts on site. After WW2, Steventon Depot was used to store miscellaneous government equipment including 50 'Green Goddess' fire engines. The site contained tanks, sewage works, filter beds, a water tower and reservoir. The site is currently used for light industrial storage.

10.6.27 Other historic land uses associated with the military or WW2 include Marcham Bombing Range, Steventon Bombing Decoy, a rifle range and potentially an infilled anti-tank trench.

10.6.28 There is one active and three historic landfills in the east of the study area for contamination, in an area which will not have surface excavations. Numerous former gravel pits are recorded adjacent to the historic landfills. Some have been infilled and are now lakes and nature reserves. Further details are provided in Appendix 10.1: Desk study and preliminary contamination assessment.

10.6.29 Current and historic land uses are shown in Figure 10.7: Potentially contaminated land, with key, onsite potential sources of contamination summarised in Table 10.11 and discussed in more detail in Appendix 10.1: Desk study and preliminary contamination assessment.

Table 10.11 Potential sources of contamination

Source	Comments
Steventon Depot	Contained over 100 buildings for storing aircraft parts, pumps and fire engines. There were numerous fuel tanks, a sewage works, and a reservoir. This has a moderate potential for significant contamination.
Tanks and miscellaneous activities on agricultural land	The study area is predominantly agricultural, with several farms. This has a very low potential for significant widespread contamination but with small, localised hotspots for spills around tanks or other features such as pits or burials.
Landmead air strip	Existing private, unpaved airstrip. This has a low potential for significant contamination associated with maintenance and fuelling
Wiltshire and Berkshire Canal	The canal opened in 1810 and is partially backfilled from the early 20th century. The type of backfill is unknown and might be uncontaminated based on location, although this is uncertain.
Abingdon Sewage Treatment Works	Operational from 1970 to present day. Contains sludge lagoons, tanks and filter beds.
Historic landfills	Sutton Wick No.1 and Southern Town Park within the study area. South of A34 at Drayon and Drayton Golf Course within 100m.
Current landfills	Owned by CEMEX UK Materials Ltd and operational since 1986 taking non-biodegradable wastes.
Historical rifle range	Volunteer rifle range at Abingdon Common from 1875 to 1932. This has a low potential for significant contamination

Source	Comments
Solar farms	Present since 2013 to 2014. This has a low potential for significant contamination.
Kimmeridge Clay	This formation can be a source of naturally occurring hydrocarbons although this is unlikely to be significant in the local area. Investigations are ongoing.
Marcham bombing range	Classified as a high potential for UXO but a low potential for significant chemical contamination. Devices have been found and its likely more will be encountered.

10.6.30 The summary of the UXO risk assessment, presented in Appendix 10.3: Desk study for unexploded ordnance and military uses, states that approximately 100ha, within the centre of the draft Order limits, is classified as a high risk area due to its historical relation to the Marcham bombing range.

Future baseline

10.6.31 The preliminary assessment of effects considers the likely evolution of the baseline without the implementation of the Project as described in Chapter 4: Approach to the environmental assessment. Where climate change may alter future geology and soils baseline conditions and therefore likely significant effects, this is discussed as part of the In-combination Climate Change Impact (ICCI) assessment which brings together all climate related impacts on aspect assessments and is presented in Appendix 18.3: In-combination Climate Change Impact Assessment.

10.6.32 There are no relevant policies identified that will influence the future baseline for geology and soils.

10.6.33 At this point, no future developments that affect the geology and soils future baseline have been identified with the study area for contamination.

Geology and soils receptors considered in the Preliminary Assessment

10.6.34 Table 10.12 shows the geology and soil receptors in the study area that have been considered in the preliminary assessment for the PEI Report. In some cases, individual receptors have been grouped where anticipated effects and mitigation are likely to be very similar. The sensitivity of each receptor is defined in the table with commentary justifying the sensitivity category assigned. The table also identifies the area ID and effect ID(s) relevant to each receptor. The effect IDs are unique identifiers of each effect assessed (discussed further in Section 10.9: Preliminary assessment of likely significant effects and Appendix 10.4 Preliminary assessment of effects for Geology and soils), whilst the area ID relates to the spatial extent of the receptor assessed. Figure 10.2: Superficial geology, Figure 10.3: Bedrock geology, Figure 10.6: Natural England provisional Agricultural Land Classification and Figure 10.8: Ecological receptors show the locations of the receptors that have been spatially defined for the preliminary assessment for the PEI Report, with relevant Area IDs noted. Table 10.12 signposts to which figures show which area IDs. Note that certain receptors have not been spatially mapped where data is not sufficiently complete to allow this, or where spatial representation is not applicable, Table 10.12 notes where this is the case. Further data gathering to inform the ES will inform any revisions to the defined spatial extents of receptors.

Table 10.12 Receptors assessed in the preliminary assessment

Receptor Name	Sensitivity	Sensitivity Commentary	Effect-ID(s)	Area-ID
Human health receptors (not spatially mapped)				
Human health: Residential and allotments	Very high	Very high sensitivity land use such as private residential properties, allotments, schools with grassed sports pitches.	GS-185, GS-209	EIA-896
Human health: Public open space	High	High sensitivity land use such as public open space parks and open land near residential areas, or managed residential properties with limited use of outside space.	GS-205	EIA-896
Human health: Public open space parks and open land near residential areas	High	High sensitivity land use such as public open space parks and open land near residential areas, or managed residential properties with limited use of outside space.	GS-176	EIA-896
Human health: Users of commercial and industrial sites	Moderate	Medium sensitivity end land use such as commercial or industrial and infrequently used open spaces and countryside.	GS-207	EIA-896
Human health: Users of commercial and industrial sites	Moderate	Users of commercial or industrial sites and infrequently used open spaces and countryside are considered to have a moderate sensitivity in the assessment methodology (Table 10.4).	GS-183	EIA-896
Human health: Users of highways and railways	Low	Low sensitivity land use such as highway, rail or a hard cover end use.	GS-181, GS-206	EIA-896
Human health: Users of undeveloped land	Negligible	Undeveloped land / non sensitive land use identified or proposed.	GS-184, GS-208	EIA-896
Aquifer receptors – superficial (shown on Figure 10.2: Superficial geology)				
Secondary (undifferentiated) aquifer: (superficial) Head Deposits	Moderate	Aquifer providing water for agricultural or industrial use with limited connection to surface water.	GS-178, GS-204	EIA-18
Secondary A aquifer: (superficial) Alluvium	Moderate	Aquifer providing water for agricultural or industrial use with limited connection to surface water.	GS-182, GS-202	EIA-19

Receptor Name	Sensitivity	Sensitivity Commentary	Effect-ID(s)	Area-ID
Secondary A aquifer: (superficial) River Terrace Deposits	Moderate	Aquifer providing water for agricultural or industrial use with limited connection to surface water.	GS-179, GS-201	EIA-20
Aquifer receptors – bedrock (shown on Figure 10.3: Bedrock geology)				
Secondary A aquifer: (bedrock) Lower Greensand Group, Stanford Formation and Kingston Formation	Moderate	Aquifer providing water for agricultural or industrial use with limited connection to surface water.	GS-180, GS-203	EIA-22
Surface water receptors (shown on Figure 10.8: Ecological receptors)				
Surface water bodies (WFD)	High	Watercourses classified by the WFD shown in a RBMP and Q95 <1.0 m3/s.	GS-198, GS-211	EIA-896
Surface water bodies (non-WFD)	Moderate	watercourses not having a WFD classification shown in a RBMP and Q95 >0.001 m3/s.	GS-197	EIA-896
Surface water bodies (Non-WFD Q95 >0.001m3/s)	Moderate	watercourses not having a WFD classification shown in a RBMP and Q95 >0.001m3/s.	GS-212	EIA-896
Agricultural land receptors (shown on Figure 10.6: Natural England provisional agricultural land classification)				
Soils: ALC grade 1 and 2	Very high	The receptor sensitivity for ALC grade 1 and 2 soils is very high as described to in Section 10.4: Assessment methodology.	GS-175	EIA-23
Soils: ALC grade 3a	High	ALC grade 3a soils are classed as high receptor value (sensitivity) as described in Section 10.4: Assessment methodology.	GS-173	EIA-30
Soils: ALC grade 4	Low	ALC grade 4 are classed as low receptor value (sensitivity) as described in Section 10.4: Assessment methodology.	GS-174	EIA-31
Soils: ALC urban land	Negligible	Non-agricultural land/ previously developed land in 'hard uses' is classed as negligible receptor value (sensitivity) as described in Section 10.4: Assessment methodology.	GS-177	EIA-920
Soils receptors (shown on Figure 10.8: Ecological receptors)				

Receptor Name	Sensitivity	Sensitivity Commentary	Effect-ID(s)	Area-ID
Soils: non-statutory designated sites	Moderate	Soils supporting non-statutory designated sites (such as Cuttings and Hutchins Copse Local Wildlife Site) is considered to have moderate sensitivity in the methodology (table 10.4).	GS-186, GS-214	EIA-919
Soils: non-designated notable or priority habitats	Low	Soils supporting non-designated notable or priority habitats and humose/ organic mineral soil.	GS-187, GS-210	EIA-2

10.7 Project parameters, assumptions and limitations

10.7.1 Chapter 2: Project description relies on the use of relevant parameters and assumptions to allow flexibility in the final design of the Project, in accordance with the Rochdale envelope approach (Planning Inspectorate, 2018). This preliminary assessment for the Geology and soils aspect uses the parameters and assumptions outlined in Chapter 2: Project description as well as additional parameters and assumptions specific to this aspect to ensure that the reasonable worst-case scenario is considered within this assessment.

Project parameters and assumptions specific to this aspect

10.7.2 Table 10.13 identifies the Project parameters, components and activities relevant to this assessment where assumptions specific to the preliminary Geology and soils assessment have been generated.

Table 10.13 Project parameters and assumptions forming the basis of assessment

Project parameter / component / activity	Assumption (basis of assessment)
Most / all Project Components	The maximum dimensions (lateral and height) for all new structures including the highest vertical limit of deviation (as noted in Chapter 2) have been assumed for the assessment.
Recreational buildings	It is assumed that the buildings would be sited in locations which had already experienced direct impacts on geology and soils during the construction phase.
Material stockpiling	Stockpiling will generally be stored outside of reservoir embankment footprint in line with Defra code of practice. Maximum stockpile heights for topsoil and subsoil will be used for the assessment (up to 2m high for topsoil and 8m high for subsoil).
Material excavation and handling	Topsoil, subsoil and overburden from within the reservoir site and excavation of conveyance tunnel to the River Thames will be managed through best practise management principles during construction, enforced through relevant management plans.

Assessment assumptions and limitations

10.7.3 This section identifies the aspect-specific assumptions and limitations for the preliminary Geology and soils assessment including those related to the availability of data to inform the assessment and assumptions used in the methodology. The assessment of effects in this chapter is preliminary. The assessment of effects will be revisited in the ES considering data available at that time and the design taken forward for submission. Assessments reported within this PEI Report chapter are considered a reasonable 'worst case' as a precautionary approach has been taken where design, construction or baseline information is incomplete. Nevertheless, the preliminary assessment is sufficiently robust to enable consultees to understand the likely significant environmental effects of the Project, based on current design information and understanding of the baseline environment. Information gaps identified within the PEI Report will be considered and addressed as part of the assessment during the production of the ES, as noted in Section 10.10: Next steps.

Assumptions and limitations identified in relation to the preliminary Geology and soils assessment include:

- Baseline information: A draft geoenvironmental desk study and preliminary contamination assessment (Thames Water, 2025b) has been completed and is included in Appendix 10.1: Desk study and preliminary contamination assessment. More detailed assessments will be completed to inform the ES.
- Additional supporting baseline information is being collated, and further detail will be provided to inform the ES.
- ALC soil data: A detailed ALC soils survey is in progress at time of writing. It has not yet been possible to survey all areas identified within the draft Order limits. As a consequence, this PEI Report is based on the Natural England provisional maps. Therefore, provisional published data has been used in this report. This may not be an accurate reflection of the soil conditions compared with detailed site-specific survey data. Surveys are ongoing and further details will be provided to inform the ES.
- Geoenvironmental ground investigation: A ground investigation is currently in progress across the draft Order limits. It is mainly geotechnical to inform engineering design. Limited geoenvironmental investigation has taken place. A geoenvironmental ground investigation has been designed, and further information will be provided to inform the ES. The ground investigation scope and rationale will be submitted and discussed with the Environment Agency.

10.7.4 While some information gaps have been identified within the PEI Report there is a significant amount of information available for the site which has informed the assessment. The gaps are typical for this stage of project delivery. The assessment is comprehensive and satisfies the requirements of the statutory consultation stage. It is appropriate and sufficiently detailed in the context of early-stage consultation and iterative project development.

10.8 Embedded design mitigation and standard good practice

10.8.1 As described within Chapter 4: Approach to the environmental assessment, identified embedded design (primary) mitigation and standard good practice (tertiary) measures are assumed to be applied within this preliminary assessment, to reduce the potential for environmental effects.

10.8.2 Embedded design mitigation identified for the Project at this stage are noted in Chapter 2: Project description. These, and standard good practice measures to be applied, are described in greater detail within the Draft commitments register in Appendix 2.2.

10.8.3 Table 10.14 and Table 10.15 list the embedded design mitigation and standard good practice measures applicable to the preliminary Geology and soils assessment during construction and operation respectively, including the unique commitment IDs that relate to the Draft commitments register (where further detail on each can be referred to). The tables also state the purpose of each mitigation and the applicable securing mechanisms.

Table 10.14 Construction: Relevant embedded design mitigation and standard good practice measures, their purpose and the securing mechanisms

Embedded design mitigation or standard good practice measure (unique commitment ID)	Purpose of mitigation measure	Indicative securing mechanism
Seek to maximise reuse of excavated materials on site where practicable (ED-24)	To prevent loss or damage to soil structure.	CoCP
Application of circular economy principles and the waste hierarchy during design (ED-55)	To prevent loss or damage to soil structure.	Under the terms of the DCO
Manage material resources during construction in accordance with standard good practice (SGP-14)	To prevent damage to soil structure (and thus, damage to the soil's ability to support agriculture) and to prevent damage to the environment.	CoCP
Manage all soil resources during construction in accordance with standard good practice (SGP-15)	This mitigation is a standard practice for reducing as much as practicable the damage to soil structure (and thus, damage to the soil's ability to support agriculture).	CoCP
Standard good practice measures to prevent soil pollution (SGP-16)	Appropriate drainage systems prevent the creation of pathways between these receptors and contamination.	CoCP
Measures to reduce impacts on the health of construction workers during site preparation and construction (SGP-17)	To prevent harm to human health during construction.	CoCP
Control and handling of asbestos (SGP-31)	To prevent harm to human health from asbestos during construction.	CoCP
Pause earthworks during the winter months if appropriate (SPG-32)	To prevent damage to soil structure (and thus, damage to the soil's ability to support agriculture) and to prevent damage to the environment.	CoCP
Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination (SGP-43)	To prevent harm to the environment during construction.	CoCP

Table 10.15 Operation: Relevant embedded design mitigation and standard good practice measures, their purpose and the securing mechanism

Embedded design mitigation or standard good practice measure (unique commitment ID)	Purpose of mitigation measure	Indicative securing mechanism
Standard good practice measures for establishment of trees and other planting (SGP-12)	To improve soil function.	CoCP Under the terms of the DCO
Standard good practice measures to prevent soil pollution (SGP-16)	To prevent risk to the environment during operation.	CoCP
Management and maintenance of plants and habitats to ensure soil health and functions are sustained (SGP-42)	To improve soil function.	Under the terms of the DCO

10.9 Preliminary assessment of likely significant effects

Introduction

10.9.1 This section summarises the findings of the preliminary assessment of effects for Geology and soils, focusing on key effects that are initially anticipated to be 'significant', be they adverse, beneficial or neutral. The judgement of significance has been made assuming that embedded design mitigation and standard good practice mitigation relevant to geology and soils is applied (these are noted in Table 10.14 and Table 10.15, and provided in detail in the Draft commitments register in Appendix 2.2). Nevertheless, the assessment assumes that additional mitigation is not yet applied, as the precise nature and extent of any additional mitigation measures is not confirmed at this stage in the EIA process. As a result, consideration of residual effects (those that remain after the implementation of all mitigation, including additional mitigation) has not been completed for the PEI report.

10.9.2 As noted in paragraphs 10.1.6 and 10.1.7, assessments reported within this PEI Report chapter are considered a reasonable 'worst case' in line with the precautionary approach that has been taken. Where initial likely significant effects are identified at this stage, these may ultimately be determined as not significant in the ES once data gaps are addressed, and the design and mitigation are further developed. The next steps for the Geology and soils assessment, including further exploration of relevant additional mitigation, are set out in Section 10.10: Next steps.

10.9.3 Appendix 10.4: Preliminary assessment of effects for Geology and soils sets out the preliminary assessment of effects, receptor by receptor, for construction and operation phases respectively. The appendix is split into tables that list effects that are initially anticipated to be significant, and tables that list effects that are not anticipated to be significant. The tables identify the following for each effect:

- Receptor name, the Effect ID (a unique identifier for each effect), and sensitivity category.
- Project components and activities giving rise to the effect.

- Relevant embedded mitigation and standard good practice mitigation (with unique Commitment ID, which relates to Appendix 2.2: Draft commitments register).
- Initial effect significance, including whether it is adverse, beneficial or neutral (taking account of embedded design mitigation and standard good practice mitigation).
- Description and duration of the effect.
- Any additional mitigation and monitoring identified at this stage (with unique Additional Mitigation ID to enable cross reference to the measures noted in Section 10.10: Next steps).

Summary of likely significant construction effects

10.9.4 This section summarises the construction effects that are initially anticipated to be 'significant' through the preliminary assessment of effects for Geology and soils. It pulls out the key potential causes and receptors affected.

Key potential causes of effects

10.9.5 Chapter 2: Project description explains the construction components and activities for the Project. Key effects on geology and soils may result from the following:

Geology

10.9.6 It is considered that, without mitigation, a number of potential impacts could arise associated with the disturbance or mobilisation of contamination during construction. The relevance and significance of these impacts will vary according to the nature and levels of contamination present for different sources, the proximity and nature of receptors and works proposed. General impacts could include disturbance of potentially contaminated soils during excavation, earthworks and construction of piled foundations for structures. This may cause adverse impacts to human health, groundwater and surface water bodies.

Soils

10.9.7 The Project would result in adverse impacts to soils and agricultural land resources through temporary land take, excavation and construction.

10.9.8 Temporary land take would consist of land required for the site compounds, construction working space, haul roads, storage and stockpiling, for example, during the construction phase. This may mean covering soil with impermeable materials, effectively sealing it and resulting in adverse long-term impacts on soils' physical, chemical and biological properties, including drainage characteristics.

10.9.9 Land used for temporary construction may be subject to adverse changes in soil structure and other characteristics due to compaction by heavy plant and vehicles or through handling and storage. Compacted soil reduces water infiltration and can lead to increased rates of surface water runoff and associated soil erosion as well as reduced agricultural productivity.

10.9.10 Soil quality can be adversely impacted by mixing topsoil with subsoil and/or mixing it with construction waste or contaminated materials.

10.9.11 Poor reinstatement of any temporary land take could lead to a loss in agricultural land and soil functions. There is potential for soils outside of the land take areas to be affected by construction works, through dust and runoff waters.

10.9.12 Soil and vegetation disturbance during construction, such as soil stripping and storage or vehicle movements can also create suitable conditions for the establishment of invasive plants from which seeds can spread.

10.9.13 During construction and excavation there will be a loss of agricultural soils, some of which will be High Value soils, falling within the BMV classification (i.e. Grades 1, 2 and 3a). This loss will largely result in Project-wide impacts.

Key likely significant construction effects

10.9.14 Whilst receptor sensitivity and the specific nature of effects are always critical, distance between receptors and the Project has a clear influence on geology and soils. The likely significant construction effects on geology and soils receptors are summarised below and provided in full in Appendix 10.4: Preliminary assessment of effects for Geology and soils.

10.9.15 The likely significant adverse construction effect identified is the loss and/or permanent sealing of over 20ha of BMV and non BMV agricultural soils Project-wide.

10.9.16 Soils with ALC Grades 1, 2 and 3a are considered likely to experience significant adverse construction effects.

10.9.17 The likely adverse construction effect identified is the loss of one or more soil functions. Soil functions may be affected through degradation during soil handling, remediation, or land use change as a result of the construction works. This may lead to a long-term or permanent irreversible effects on the soil and its effectiveness to function and support ecosystems.

10.9.18 Soils supporting non-designated notable or priority habitats are considered likely to experience significant adverse construction effects.

Summary of likely non-significant construction effects

10.9.19 This section summarises the justification for construction effects that are initially anticipated to be 'non-significant' through the preliminary assessment of effects for Geology and soils. In particular, it pulls out the key embedded design mitigation and standard good practice mitigation that will be applied and are anticipated to reduce adverse effects to be non-significant.

Geology

10.9.20 Effects on human health, groundwater and surface water receptors would be reduced to non-significant as a result of the following embedded design mitigation and standard good practice:

- Manage material resources during construction in accordance with standard good practice
- Standard good practice measures to prevent soil pollution
- Measures to reduce impacts on the health of construction workers during site preparation and construction
- Control and handling of asbestos
- Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination

10.9.21 Negligible or low sensitivity human health receptors include users of highways and railways and users of undeveloped land. Users of highways and railways generally spend limited amounts of time at a site or undertaking activities that are likely to expose them to potential contamination. Undeveloped land has a low contamination potential. As a result, these receptors are likely to have limited exposure to potential contamination and subsequently non-significant effects.

Soils

10.9.22 Other soil receptors with non-significant effects include non-statutory designated sites and ALC urban land grade 4 land.

10.9.23 Whilst these receptors may be impacted by the Project, the effects are considered likely to be non-significant as the soils would still be functional for their designated use.

10.9.24 Embedded design mitigation and standard good practice measures that are included in the Project and will reduce effects on soils include:

- Manage material resources during construction in accordance with standard good practice
- Manage all soil resources during construction in accordance with standard good practice
- Standard good practice measures to prevent soil pollution
- Measures to reduce impacts on the health of construction workers during site preparation and construction
- Application of circular economy principles and the waste hierarchy during design
- Pause earthworks during the winter months if appropriate
- Seek to maximise reuse of excavated materials onsite where practicable

Summary of likely significant operation effects

Key potential causes of effects:

10.9.25 Chapter 2: Project description explains the operation components and activities for the Project. Key effects on geology and soils may result from the following:

Geology

10.9.26 It is anticipated that most contamination risks would be dealt with during construction as part of standard good practice, therefore there would be no significant adverse effects on human health, groundwater and surface water receptors at operation. This would remain so throughout operation as a result of embedded design mitigation and standard good practice measures to prevent soil pollution

10.9.27 There are potential long-term and permanent beneficial effects at operation in relation to remediation of contamination. If contamination is identified, a remediation strategy would be designed and implemented. Some forms of remediation, such as permeable reactive barriers, provide long-term benefits in the reduction of contamination and require long-term maintenance, which would continue during operation. This could lead to a moderate or substantial betterment of ground or groundwater contamination conditions resulting in an improvement in quality which would be a significant beneficial effect.

10.9.28 At this stage of the assessment, contamination inferences are from desk-based sources and limited ground investigation, and the requirement for remediation is not yet known. Beneficial effects in relation to remediation of contamination cannot be effectively assessed at this stage but remain possible.

Soils

10.9.29 Effects on soils are defined by the loss or sealing of an area or reduction or improvement in soil function or structure. Loss of an area of soils would not occur at operation.

10.9.30 Reduction or improvement in soil function or structure would continue at operation through the management and maintenance of plants and habitats to ensure soil health and functions are sustained. This may lead to long-term or permanent significant beneficial effects on the soil and its effectiveness to function and support ecosystems.

Key likely significant operation effects

10.9.31 As with construction effects, whilst receptor sensitivity and the specific nature of effects are always critical, distance between receptors and the Project has a clear influence on geology and soils operation effects. The likely significant effects on geology and soils receptors are summarised below and provided in full in Appendix 10.4: Preliminary assessment of effects for Geology and soils.

- The likely beneficial construction effect identified is the permanent improvement of one or more soil functions over an area between 1 to 2ha. Soil functions may be affected through the appropriate reuse of high quality soils or ongoing maintenance and management of planting and habitats. This may lead to a long-term or permanent impact on the soil and its effectiveness to function and support ecosystems.
- A beneficial effect on non-designated notable or priority habitats. This is due to an increase in soil functions in habitat and woodland areas as a result of the Project.

Summary of likely non-significant operation effects

10.9.32 This section summarises the justification for operation effects that are initially anticipated to be 'non-significant' through the preliminary assessment of effects for Geology and soils. In particular, it pulls out the key embedded design mitigation and standard good practice mitigation that will be applied and are anticipated to reduce adverse effects to be non-significant.

Geology

10.9.33 Embedded design mitigation and standard good practice measures to prevent soil pollution will prevent new contamination that may otherwise result from operation of the Project.

10.9.34 It is anticipated that any contamination risks would be removed during construction as part of standard good practice, therefore effects on human health receptors at operation are neutral and non-significant.

10.9.35 There is potential for non-significant beneficial effects on groundwater and surface waters at operation if contamination is identified prior to or during construction and this is remediated. This would result in a slight betterment of contamination conditions and reduction of risk of harm to some or all receptors.

Soils

10.9.36 Soil receptors with beneficial non-significant operation effects include non-statutory designated sites, such as Cuttings and Hutchins Copse Local Wildlife Site. An increase in biodiversity and BNG surrounding the Local Wildlife Site has the potential to increase soil biodiversity and improve soil functions and structure. This increase is unlikely to result in a discernible improvement of soil functions so it is a non-significant effect.

10.9.37 Embedded design mitigation and standard good practice measures that are included in the Project and will reduce effects on soils include:

- Standard good practice measures for establishment of tree and other planting
- Manage all soil resources during construction in accordance with standard good practice
- Standard good practice measures to prevent soil pollution
- Application of circular economy principles and the waste hierarchy during design
- Management and maintenance of plants and habitats to ensure soil health and functions are sustained

10.10 Next steps

10.10.1 As part of next steps, the Project is proactively developing the design, refining the construction approach and continuing to define the environmental baseline, in conjunction with ongoing consultation and engagement. These activities will inform the EIA process and provide a robust evidence base for the ES. The aim is that where initial likely significant effects are identified at this stage, these may ultimately be determined as not significant in the ES once data gaps are addressed, and the design and mitigation proposals are further developed. Effects that remain after the implementation of all mitigation are referred to as 'residual effects'. These effects are not reported in the PEI Report as additional mitigation is not assumed to be implemented at this stage of the assessment. The assessment of the significance of residual effects after all mitigation is applied is a key outcome of the EIA process and will be reported within the ES, which will be submitted with the DCO application.

10.10.2 The next steps anticipated to be undertaken in relation to the Geology and soils assessment prior to completion of the ES and submission of the DCO application are explained below.

Further exploration of additional mitigation

10.10.3 A key aspect of the next steps is to further explore additional mitigation that may reduce adverse effects that the preliminary assessment has initially identified as likely to be significant. Additional mitigation that has been identified for the Geology and soils assessment is noted against relevant likely significant effects in Appendix 10.4: Preliminary assessment of effects for Geology and soils. All additional mitigation that has been identified in relation to the Geology and soils assessment to date is listed below in Table 10.16 along with a description of what each measure entails. Each measure has a unique Additional Mitigation ID to enable cross reference between Appendix 10.4: Preliminary assessment of effects for Geology and soils and Table 10.16. As noted previously above, the preliminary assessment presented in the PEI Report assumes that additional mitigation

is not yet applied, as the precise nature and extent of any additional mitigation measures is not confirmed at this stage in the EIA process.

Table 10.16 Additional mitigation identified to date in relation to the Geology and soils assessment

Mitigation ID	Mitigation name	Mitigation description
AM-72	Establish a framework for the reuse of excavated material offsite	A framework will be established for the reuse of excavated material offsite. This will include a structured selection process to identify and assess potential receiver sites for surplus excavated material, ensuring a standardised, transparent, and sustainable approach that reduces environmental and community impact.
AM-73	Investigate, assess and remediate contaminated land	Investigate, assess and remediate contaminated land based on sustainable remediation options, in accordance with the Environment Agency Land Contamination: Risk Management (LCRM)
AM-74	Measures to ensure the efficient use of surplus topsoil	Investigate and where possible implement options to identify beneficial and sustainable use for surplus topsoil, prioritising reuse instead of landfill where feasible.

Other next steps

10.10.4 Other steps that are continuing or are planned to be undertaken to support the Geology and soils assessment prior to completion of the ES and submission of the DCO application are noted below with an explanation of how these will inform the EIA process:

- A site reconnaissance walkover of the draft Order limits will be undertaken of relevant areas by specialist staff . The aim will be to assess the current land uses, support the design and implementation of the ground investigation, target potentially contaminative sources and identify any sources which may not have been identified by the desk-based information.
- An ALC survey is ongoing in line with Natural England guidance, Revised guidelines and criteria for grading the quality of agricultural land (Ministry of Agriculture, Fisheries and Food (MAFF), 1988). The survey was designed at one auger location per hectare and one observation pit per ten hectares in accordance with Natural England guidance. In addition, soil samples are collected at one sample per five hectares for laboratory analysis to include general topsoil testing for soil carbon and nutrient content. The scoped and survey methodology has been discussed and agreed with Natural England. The findings from the survey will form part of the baseline information and inform the assessment to be presented in the ES.
- A targeted geoenvironmental investigation is planned to provide baseline information regarding the chemical quality of the ground and groundwater and define the type and level of potential contamination at specific locations on site. This would form a preliminary geoenvironmental investigation at this stage. A more detailed ground investigation would follow after DCO examination.
- The geoenvironmental ground investigation will include:

  - Targeting some sources with a higher potential for contamination such as Steventon Depot and some backfilled features including the Wiltshire and Berkshire Canal.
  - Testing of soils that will be excavated including some preliminary reuse classification and waste testing. This will inform both EIA and construction logistics.
  - Testing of water in the aquifers and porewater in the Kimmeridge Clay to inform assessment of hydrocarbon content in the Kimmeridge Clay.
- Some general coverage for testing and installation of groundwater and ground gas monitoring wells and subsequent groundwater and ground gas monitoring rounds.
- The findings from the investigations will inform the assessment in the ES. It will also inform the earthworks for mitigation, remediation, and waste classification and soil reuse and storage management.
- Following the geoenvironmental ground investigation a risk assessment will assess the findings. This will include generic quantitative risk assessment (GQRA) and depending on the outcome of the GQRA a detailed quantitative risk assessment (DQRA) may be required to determine the potential contamination risks and inform remedial strategies.
- Engage with Oxfordshire Geology Trust regarding fossil potential at the site and prepare a fossil response strategy. This will be implemented by Contractors during construction and provide a process when encountering significant fossil finds.
- Ongoing engagement with key stakeholders will continue to take place throughout project design development with regards to geology and soils. Discussion will include, but is not limited to, ground investigation, remediation, material reuse and permitting, see paragraph 10.3.5.
- A material management and handling strategy (MMHS) will outline the site-specific approach and appropriate methods for planning, implementation, and monitoring of the excavation, movement, storage and placement of all excavated materials and soils onsite. The MMHS will be written in accordance with industry guidance to minimise impacts on soil and excavated materials and maximise the reuse of excavated acceptable materials in the main earthworks such that the works will be compliant with regulations and standard good industry practice. It will outline how the Project will implement the requirements of the Definition of Waste: Development Industry Code of Practice (CL:AIRE, 2011), the permitting regulations and other relevant guidance.
- The MMHS will describe a soil resource strategy to provide a comprehensive approach to manage and protect soil resources including topsoil. It will set out methods to maintain soil function during excavation and Pstorage and enable sustainable reuse and restoration of suitable soils related to specific end uses and habitats. Site soil data will be used to inform the relocation and reuse of suitable topsoil and subsoil in areas required for ecological and landscape mitigation planting.
- Collaboration between the design, engineering, and environmental technical teams will be integral through the development of the Project. This collaborative approach is focused on knowledge sharing and the identification of innovative strategies to minimise the environmental impact of earthworks, with particular emphasis on material reuse.

References

The Institute of Environmental Management and Assessment (IEMA) has recently rebranded as the Institute of Sustainability and Environmental Professionals (ISEP). Guidance that was historically published by IEMA is still referenced under that institute name.

British Geological Survey (BGS) (2025). GeoIndex online viewer. Accessed January 2025. https://mapapps2.bgs.ac.uk/geoindex/home.html

British Geological Survey (1971a). Abingdon Solid geological map. Sheet 253, Scale 1:63,360. Accessed January 2025. https://webapps.bgs.ac.uk/data/MapsPortal/map.html?id=9895300009895

British Geological Survey (1971b). Abingdon Drift geological map. Sheet 253, Scale 1:63,360. Accessed January 2025. https://webapps.bgs.ac.uk/data/MapsPortal/map.html?id=9894300009894

CL:AIRE (2011). Definition of Waste: Development Industry Code of Practice Version 2. Accessed January 2025. https://claire.co.uk/projects-and-initiatives/dow-cop/28-framework-and-guidance/111-dow-cop-main-document

CL:AIRE (2016). Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials. Accessed January 2025. https://claire.co.uk/projects-and-initiatives/asbestos-in-soil

Cranfield University (2025). LandIS Soilscapes Viewer. Accessed April 2025. https://www.landis.org.uk/soilscapes/

Department for Environment, Food & Rural Affairs (Defra) (2009). Safeguarding our Soils: A Strategy for England (Defra, 2009). Accessed April 2025. https://assets.publishing.service.gov.uk/media/65fd6fddf1d3a0001132adb8/CD1.I_DEFRA__Safeguarding_our_Soils_A_Strategy_for_England.pdf

Defra (2018). Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. Accessed April 2025. https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites

Defra (2023). Environmental Improvement Plan 2023. Accessed April 2025. https://www.gov.uk/government/publications/environmental-improvement-plan

Defra (2025a). Multi-Agency Geographic Information for the Countryside (MAGIC) map. Accessed April 2025. https://magic.defra.gov.uk/

Defra (2025b) National Policy Statement for water resources infrastructure. Accessed August 2025. https://www.gov.uk/government/publications/national-policy-statement-water-resources-infrastructure

Environment Agency (2019). Manual for the Production of Groundwater Source Protection Zones. Accessed January 2025.

https://assets.publishing.service.gov.uk/media/5d41a020e5274a0a0bf7757c/Manual-for-the-production-of-Groundwater-Source-Protection-Zones.pdf

Environment Agency (2020). Land Contamination: Risk Management (LCRM). Accessed January 2025. https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm

Environmental Protection Act 1990. Accessed February 2025. https://www.legislation.gov.uk/ukpga/1990/43/contents

Groundsure (2025). Groundsure Insight Report (including Geo, Enviro and Map Insight reports). Reference: GS-BNB-MTP-FY3-UC8_A.

Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended). Accessed January 2025. https://www.legislation.gov.uk/uksi/2017/572/contents

Institute of Environmental Management & Assessment (IEMA) (2022). A New Perspective on Land and Soil in Environmental Impact Assessment. Accessed April 2025. https://www.iema.net/media/3xejdu0u/2022-iema_land_and_soils_guidance.pdf

Land Information System Soilscapes Viewer (LISSV) (2025). Soilscapes Viewer. Accessed January 2025. https://www.landis.org.uk/soilscapes/

Ministry of Agriculture, Fisheries and Food (1988) Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.

Ministry of Housing, Communities & Local Government (2024). National Planning Policy Framework (NPPF): Paragraphs 180–188. Accessed April 2025. https://www.gov.uk/government/publications/national-planning-policy-framework--2

National Highways (2019). Design Manual for Roads and Bridges (DMRB): LA 109 – Geology and soils. Revision 0. Accessed April 2025. https://www.standardsforhighways.co.uk/search/adca4c7d-4037-4907-b633-76eaed30b9c0

National Highways (2020). Design Manual for Roads and Bridges (DMRB): LA 104 – Environmental assessment and monitoring. Revision 1. Accessed April 2025. https://www.standardsforhighways.co.uk/search/0f6e0b6a-d08e-4673-8691-cab564d4a60a

National House Building Council, Environment Agency and Chartered Institute of Environmental Health (2008). Guidance for the Safe Development of Housing on Land Affected by Contamination

Natural England (2021) Guide to assessing development proposals on agricultural land. Accessed January 2025. https://www.gov.uk/government/publications/agricultural-land-assess-proposals-fordevelopment/guide-to-assessing-development-proposals-on-agricultural-land

Natural England (2023) Data on Chalk Rivers. Accessed August 2025. https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::chalk-rivers-england/explore

Natural England (2024a). Provisional Agricultural Land Classification (ALC). Accessed January 2025. https://www.data.gov.uk/dataset/952421ec-da63-4569-817d-4d6399df40a1/provisional-agricultural-land-classification-alc2

Natural England (2024b). Agricultural Land Classification detailed Post 1988 survey ALCL14793. Accessed January 2025. https://www.data.gov.uk/dataset/5e6619fe-dffd-48ca-bc34-9884f2b56db1/agricultural-land-classification-detailed-post1988-survey-alcl147931

Oxfordshire Growth Board, (2021). Oxfordshire Strategic Vision for Long-Term Sustainable Development. Accessed April 2025. https://mycouncil.oxfordshire.gov.uk/documents/s55528/CA_APR2021R05%20Appendix%201%20-%20Strategic%20Vision.pdf

Planning Inspectorate (2018). Nationally Significant Infrastructure Projects - Advice Note Nine: Rochdale Envelope. Accessed June 2025. https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope

Planning Inspectorate (2024). Scoping Opinion: Proposed South East Strategic Reservoir Option (SESRO). Accessed April 2025. https://nsip-documents.planninginspectorate.gov.uk/published-documents/WA010005-000017-SESRO%20Scoping%20Opinion%202017%20EIA%20Regs%20FINAL.pdf

Thames Water (2024a). South East Strategic Reservoir Option EIA Scoping Report. Accessed April 2025. https://nsip-documents.planninginspectorate.gov.uk/published-documents/WA010005-000010-SESRO%20EIA%20Scoping%20Report.pdf

Thames Water (2025a). South East Strategic Reservoir Option (SESRO) - Non-statutory Public Consultation 2024 - Our Statement of Response. Accessed July 2025. https://thames-sro.co.uk/media/mpicfw51/sesro-statement-of-response-to-our-non-statutory-public-consultation-2024.pdf

Thames Water (2025b) ArB SESRO Desk study and preliminary contamination assessment. Document reference: J696-ARB-XXXX-XXXX-RP-EN-000148. (See Appendix 10.1)

The Contaminated Land (England) Regulations 2006. Accessed April 2025. https://www.legislation.gov.uk/uksi/2006/1380/contents

The Control of Asbestos Regulations 2012. Accessed April 2025. https://www.legislation.gov.uk/uksi/2012/632/contents

Vale of White Horse District Council (2016). Local Plan 2031. Accessed April 2025. https://www.whitehorsedc.gov.uk/vale-of-white-horse-district-council/planning-and-development/local-plan-and-planning-policies/local-plan-2031/

Vale of Whitehorse District Council (2020). Oxfordshire Planning Advice Note. Dealing with Land Contamination During Development: A Guide for Developers Version 4. Accessed January 2025. https://www.oxford.gov.uk/downloads/file/1096/dealing-with-land-contamination-during-development-advice-note

Water Act 2014. Accessed April 2025. https://www.legislation.gov.uk/ukpga/2014/21/contents

Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. Accessed April 2025. https://www.legislation.gov.uk/uksi/2017/407/contents

Water Resources Act 1991. Accessed February 2025. https://www.legislation.gov.uk/ukpga/1991/57/contents

Zetica (2025). Desk Study for UXO and Military Uses. Reference: P15306-25-R1 Revision D.

It's everyone's water