South East Strategic Reservoir Option

Preliminary Environmental Information Report

Chapter 19 - Major accidents and disasters

Date: October 2025

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19.1 Introduction

19.1.1 This chapter of the Preliminary Environmental Information (PEI) Report provides the preliminary assessment of likely significant environmental effects from major accidents and disasters arising from the construction and operation of the proposed SESRO Project (the Project, as detailed in Chapter 2: Project description).

19.1.2 In addition, in relation to major accidents and disasters in particular, the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 require a description of the expected significant adverse effects of the development on the environment, arising from the vulnerability of the development to risks of major accidents and/or disasters that are relevant to that development (Regulation 5(4)).

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

- Legislation, policy and guidance (Section 19.2)
- Consultation, engagement and scoping (Section 19.3)
- Assessment methodology (Section 19.4)
- Study area (Section 19.5)
- Baseline conditions (Section 19.6)
- Project parameters, assumptions and limitations (Section 19.7)
- Embedded design mitigation and standard good practice (Section 19.8)
- Preliminary assessment of likely or expected significant effects (Section 19.9) and
- Next steps (Section 19.10)

19.1.4 The terminology used for the chapter is as follows:

- A major accident is defined as '*an event… that threatens immediate or delayed serious environmental effects to human health, welfare and/or the environment and requires the use of resources beyond those of the client or its appointed representatives (i.e. contractors) to manage'* (p.3, IEMA, 2020).
- A disaster is defined as '*a man-made/external hazard (such as an act of terrorism) or a natural hazard (such as an earthquake) with the potential to cause an event or situation that meets the definition of a major accident*' (p. 3, IEMA, 2020).

19.1.5 The assessment identifies sources of Project-specific potential events and hazards; how they may affect the environment, people or infrastructure using professional judgement; and how risks can be avoided or reduced. Mitigation can include actions to reduce the likelihood of major accidents and disasters or the severity of effect. Where risks are mitigated to As Low as Reasonably Practicable (ALARP), the risk is weighed against the measures and resources needed to control it.

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

- Chapter 5: Water environment – identifies environmental receptors that may be affected and sources of risk, such as flooding
- Chapter 6: Aquatic ecology – identifies environmental receptors that may be affected

- Chapter 7: Terrestrial ecology – identifies environmental receptors that may be affected
- Chapter 9: Historic environment – identifies environmental receptors that may be affected
- Chapter 10: Geology and soils – identifies environmental receptors that may be affected and sources of risk, such as contamination
- Chapter 12: Traffic and transport – identifies infrastructure that may be affected and sources of risk, such as road traffic
- Chapter 15: Socio-economics and communities – identifies human receptors that may be affected
- Chapter 16: Human health – identifies human receptors that may be affected
- Chapter 18: Climate resilience – identifies sources of risk, such as extreme weather events

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

- Figure 19.1: Major accidents and disasters study area
- Appendix 19.1: Stage 1: Hazard identification assessment
- Appendix 19.2: Stage 2: Preliminary risk assessment
- Appendix 19.3: Information to support assessment of risks

19.1.8 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 expected or 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 19.10: Next steps.

19.1.9 The ES will be submitted with the Development Consent Order (DCO) application and will provide the final assessment of expected or likely significant effects; this will be informed by the ongoing Environmental Impact Assessment (EIA) process and ongoing consultation and engagement.

19.2 Legislation, policy and guidance

19.2.1 Table 19.1 lists the legislation, policy and guidance relevant to Major accidents and disasters 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.

19.2.2 National Policy Statements (NPS) form the principal policy for developments progressing through the Planning Act 2008 process. The NPS for Water Resources Infrastructure (NPSWRI) 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.

19.2.3 The Project is located mainly within the Vale of White Horse District, with the exception of 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 19.1.

Table 19.1 Relevant legislation, policy and guidance for Major accidents and disasters

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
Legislation		
Reservoirs Act 1975 (as amended by the Flood and Water Management Act 2010) stipulates the risk assessment process and safeguards to be followed in design to ensure reservoirs are built safely. The Flood and Water Management Act provides a framework for management of flood risk from reservoirs and requires creation of flood plans.	The preliminary assessment assumes that, as a legal requirement, the design meets the requirements of the Reservoirs Act 1975 as amended.	Design requirements in the Reservoirs Act as amended are included in Section 19.8: Embedded design mitigation and standard good practice. The assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment, summarised in Section 19.9: Preliminary assessment of likely or expected significant effects, include the Reservoirs Act in consideration of risk.
The Water Industry Act 1991, section 208 includes provision for Security & Emergency Measures Direction (SEMD) to provide essential water supply. SEMD 2024 is the latest Direction.	The preliminary assessment assumes that, as a legal requirement, the reservoir will operate in compliance with the Water Industry Act, including SEMD which requires water companies to identify and address security risks and vulnerabilities and regularly review security measures.	Operational requirements in the Water Industry Act are included in Section 19.8: Embedded design mitigation and standard good practice. The assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment, summarised in Section 19.9: Preliminary assessment of likely or expected significant effects, include the Water Industries Act in consideration of risk.
The Water Resources Act 1991 (as amended by the Water Act 2003) provides the framework for managing water resources including preparing Water Resource Management Plans (WRMP), regulation of abstracting and impounding water, regulation of water quality and pollution as well as regulation of flood risk emergency response.	Provides context for risks including risk of flooding from the reservoir, provision of water supply and risk of pollution.	The assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment assess, risk of water supply, risk of pollution from battery fire and storage of chemicals. These are summarised in Section 19.9: Preliminary assessment of likely or expected significant effects.

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
The Control of Major Accidents Hazards Regulations 2015 (COMAH) aims to prevent and mitigate the effects of major accidents involving dangerous substances which can cause serious damage / harm to people and/or the environment.	The SESRO Project is not classified as a COMAH site, however as part of baseline data collection, COMAH sites have been identified as a potential source of major accidents and disasters. However, the Planning Inspectorate has agreed to scope out COMAH sites given the distance between the Project and the nearest COMAH facilities.	Section 19.6: Baseline conditions and Figure 19.1: Major accidents and disasters study area identifies the closest COMAH sites to the Project. The Stage 1 Assessment in Appendix 19.1: Stage 1: Hazard identification assessment scopes out risk, due to the controls on COMAH sites, including the Regulations.
The Construction (Design and Management) Regulations 2015 (CDM) impose legal responsibilities on stakeholders to reduce risks and prevent accidents that may arise during construction work.	The preliminary assessment assumes that, as a legal requirement, the design and construction of the Project meets CDM requirements.	Design and construction requirements from the CDM Regulations are included in Section 19.8: Embedded design mitigation and standard good practice. The Stage 1 Assessment in Appendix 19.1: Stage 1: Hazard identification assessment scopes out related construction risk to workers due to CDM requirements. CDM is considered as mitigation in Section 19.8: Embedded design mitigation and standard good practice.
Health and Safety at Work Act 1974 (HSW Act) covers occupational health and safety, setting out duties employers have towards employees and members of the public.	The preliminary assessment assumes that, as a legal requirement, the construction and operation of the Project meets HSW Act requirements.	The HSW Act is mitigation (Section 19.8: Embedded design mitigation and standard good practice) for specific construction and operational risks identified.
Workplace (Health, Safety and Welfare) Regulations 1992 requires the employer to manage health and safety and assess and manage risks to their employees.	The preliminary assessment assumes that, as a legal requirement, the construction and operation of the Project meets these requirements.	The Regulations are mitigation (Section 19.8: Embedded design mitigation and standard good practice) for specific construction and operational risks identified.
Management of Health and Safety at Work Regulations 1999 (MHSWR), support the HSWA above and set out	The preliminary assessment assumes that, as a legal requirement, the	The Regulations are mitigation (Section 19.8: Embedded design mitigation and standard good

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
minimum requirements to protect employees and others from harm, including undertaking a risk assessment and measures to eliminate hazards and control risks.	construction and operation of the Project meets the requirements of the MHSWR.	practice) for specific construction and operational risks identified.
Civil Contingencies Act 2004, Part 1 establishes a set of roles and responsibilities for emergency preparation and response at a local level. Schedule 1 of the Act sets out Category 1 organisations, core to planning and response to emergencies, and Category 2 organisations who are co-operating bodies.	The District Councils of South Oxfordshire, Vale of White Horse and County Council of Oxfordshire are Category 1 organisations under the Act and consulted on the Scoping Report (via the Joint Oxfordshire Resilience Team). These organisations form Thames Valley Local Resilience Forum (LRF). Thames Water is a Category 2 organisation.	Feedback from scoping consultation is set out in Table 19.2 below and engagement with the Thames Valley LRF is set out in Table 19.3 below.
National Policy Statement for Water Resources Infrastructure (NPSWRI)		
NPSWRI Section 3.10 covers Safety, including consultation with local authorities and the Health and Safety Executive (HSE), and reference to the Reservoirs Act (covered above). It refers to online guidance for reservoir owners and operators, and states that structural design aspects relating to safety should not be compromised against other design considerations.	Local authorities and the HSE responded to the scoping consultation. The preliminary assessment assumes that the reservoir will operate according to industry guidance and structural design standards are as per Reservoirs Act (above).	Responses from local authorities and HSE to the Scoping Report are set out in Table 19.2 below. Design and operational requirements are also set out in Section 19.8: Embedded design mitigation and standard good practice.
NPSWRI Section 3.11 covers security considerations. Defra and Centre for the Protection of National Infrastructure have a role to reduce vulnerability of the water sector to terrorism and other national security threats and determining whether proportionate protective security measures	Engagement with Defra and National Protective Security Authority (previously the Centre for the Protection of National Infrastructure) regarding security considerations has not been undertaken for the PEI stage. The Project has engaged with the MoD (via the	Table 19.3 sets out ongoing engagement with the DIO and further planned engagement with Defra and where appropriate, the National Protective Security Authority.

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
are designed into new infrastructure projects. It also covers considerations relating to water resources infrastructure in the vicinity of an existing Ministry of Defence (MoD) site, consultation with the MoD on potential impacts, including any mitigation.	Defence Infrastructure Organisation (DIO) on safeguarding for Royal Air Force (RAF) Benson.	
Other national policy		
National Planning Policy Framework (NPPF) (MHCLG, 2024) The NPPF sets out the UK Government's planning policies for England, emphasising sustainable development, economic growth, and environmental protection, including promoting healthy and safe communities. Paragraph 102 states that *'policies and decisions should promote public safety and take into account wider security and defence requirements by:* *a) Anticipating and addressing possible malicious threats and hazards (whether natural or man-made), especially in locations where large numbers of people are expected to congregate…the layout and design of developments, should be informed by the most up-to-date information available from the police and other agencies about the nature of potential threats and their implications. This includes appropriate and proportionate steps that can be taken to reduce vulnerability, increase resilience and ensure public safety and security…; and*	The assessment considers risk of terrorist attacks and security measures required. The SESRO Project supports water security, and the assessment considers sources of risk from other sites.	Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment include Stage 1 and Stage 2 assessments of risks including terrorism and other sources, such as industrial sites. Section 19.9: Preliminary assessment of likely or expected significant effects summarises the assessment of effects.

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
b) Recognising and supporting development required for operational defence and security purposes, and ensuring that operational sites are not affected adversely by the impact of other development proposed in the area.'		
Regional and local policy		
South Oxfordshire Local Plan 2011-2035, (South Oxfordshire District Council, 2020). Sets out the future for development in South Oxfordshire up to 2035. Policies ENV11 and ENV12 consider impact from existing land uses on development as well as impact of development on human health and the environment. Considerations include including hazardous substances and land instability.	The assessment considers existing hazards as well as potential risks arising from the Project, including hazardous substances and land instability.	Section 19.6: Baseline conditions and Figure 19.1: Major accidents and disasters study area identify existing sources of risk. The assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 9.2, summarised in Section 19.9: Preliminary assessment of likely or expected significant effects, cover potential impacts from the Project on human health and the environment.
Vale of White Horse Local Plan 2031, Sets out the spatial strategy and strategic policies for the district to deliver sustainable development. Core Policy 14 Strategic Water Storage Reservoirs states that a proposal must include measures to avoid or mitigate significant adverse effects.	Potentially significant adverse effects have been identified by the assessment. At this preliminary stage, measures to avoid or mitigate effects are being fully developed.	Section 19.9: Preliminary assessment of likely or expected significant effects identifies significant environmental effects.
South Oxfordshire and Vale of White Horse District Councils, Emerging Joint Local Plan 2041, The Draft Local Plan will guide the kinds of new housing and jobs needed and where they should go, informing planning application decisions for the two districts. It contains developing planning policies that help address the climate emergency,	The assessment considers safety aspects including embankment failure, in addition to responses from the Environment Agency and HSE to the Scoping Report.	Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment comprise Stage 1 and Stage 2 assessment of risks, including embankment failure. Appendix 19.3: Information to support assessment of risks provides further information on reservoir safety in design, construction and operation. Table 19.2 below includes responses to the Environment Agency and HSE.

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
restore nature, and meet the needs of residents. Proposed Policy IN7 SESRO Safeguarding states that the applicant must ensure that structural design of the reservoir is safe and explain how the design has taken on board the recommendations of the Health and Safety Executive and the Environment Agency.		
Guidance		
Institute of Environmental Management and Assessment. (2020) Major Accidents and Disasters in EIA: A Primer shares best practice to promote a consistent approach, including methodology.	The approach to the assessment is based on this guidance.	Section 19.4: Assessment methodology sets out the methodology, which is consistent with the guidance.
UK Civil Aviation Authority (2020) Safeguarding of Aerodromes CAP738 provides guidance on the planning process and describes safeguarding systems satisfying International Civil Aviation Organisation (ICAO) standards and National Regulations.	Safeguarding is the process by which the Aerodrome Operator can protect the environment surrounding the Aerodrome from developments and activities that have the potential to impact on the aerodrome's safe operation. For SESRO potential risks include tall structures and birdstrike. Following submission of the DCO application, the Defence Infrastructure Organisation (DIO) will undertake a safeguarding assessment and take relevant steps to ensure safe operation.	Safeguarding is a consideration in both defining the study area (paragraph 19.4.24 and Figure 19.1: Major accidents and disasters study area) and presence of aerodromes covered under Baseline (in paragraph 19.6.9) and Future baseline (in paragraph 19.6.13). Risks relating to birdstrike and tall structures are covered in the assessment in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment and assessment of effects in Section 19.9: Preliminary assessment of likely or expected significant effects. The safeguarding assessment is an assumption referred to in paragraph 19.7.3.

19.3 Consultation, engagement and scoping

19.3.1 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 or expected significant

environmental effects. In particular, feedback from key stakeholders has informed the Project's proposed mitigation measures. Specific mitigation measures relevant to the Major accidents and disasters assessment are summarised in Section 19.8: Embedded design mitigation and standard good practice. Engagement is ongoing and will continue to inform the EIA and design process.

Scoping Opinion

19.3.2 The EIA Scoping Report (Thames Water, 2024) 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.

19.3.3 Table 19.2 captures the key Scoping Opinion comments received from PINS and other key comments received from consultation bodies relevant to the Major accidents and disasters 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 19.10: Next steps. The full consultee comments on the EIA Scoping Report and responses to these will be provided in the ES.

Table 19.2 Key Scoping feedback for Major accidents and disasters

Stakeholder	Scoping comment	Applicant response
PINS	3.13.2 *'Table 19-2 of the Scoping Report explains that extended periods of drought or heatwaves could result in the embankment clay drying out. It states this would not compromise the integrity of the thick embankments to the level where they could fail or leak, however no evidence has been presented to support this. The Inspectorate agrees that low temperatures, heavy snow, hail, lightning and tornado can be scoped out of the assessment, the topic of severe weather cannot be scoped out in its entirety. The Environmental Statement (ES) Should take a precautionary approach and include assessment of heatwaves, droughts, rain, and high winds. Accordingly, the ES should include an assessment of these matters or information demonstrating agreement with the relevant consultation bodies and the absence of Likely Significant Effect (LSE).'*	Severe weather (heatwaves, droughts, high winds and rain) is scoped in to the assessment in Section 19.4: Assessment methodology. The Stage 1 and Stage 2 assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment include severe weather. Chapter 5: Water environment and Chapter 18: Climate resilience also cover aspects of design relating to extreme weather. Further engagement and consultation with the Environment Agency will be undertaken.
PINS	3.13.3	Landslides/ mass movements are scoped in to the assessment in

Stakeholder	Scoping comment	Applicant response
	'Table 19-2 proposes to scope out landslides from further assessment as whilst a possible risk of landslides during construction is identified, the Scoping Report suggests any risk can be mitigated through a Safety Management Plan. In view of the Environment Agency's (EA) advice (see Appendix 2 of this Opinion) that mass land movement could adversely affect flood storage and flood flow routes and increasing flood risk, the Inspectorate therefore does not agree with the approach in the Scoping Report, and this topic should be scoped in to the ES for the construction phase of the development. Accordingly, the ES should include an assessment of these matters or information demonstrating agreement with the relevant consultation bodies and the absence of an LSE.'	Section 19.4: Assessment methodology, the Stage 1 and Stage 2 assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment reflect include landslides, mass movements and ground instability during construction. Further engagement and consultation with the Environment Agency will be undertaken.
PINS	3.13.4 *'Table 19-2 explains that sinkholes are proposed to be scoped out of the assessment given the underlying clay geology, however the Scoping Report states that baseline assessments are currently still on going and not yet complete. In view of the EA's advice that sinkholes could lead to changes in land levels that may increase flood risk, the Inspectorate does not agree to scope this topic out of further assessment. Accordingly, the ES should include an assessment of these matters or information demonstrating agreement with the relevant consultation bodies and the absence of an LSE.'*	Sink holes are scoped in to the assessment in Section 19.4: Assessment methodology. The Stage 1 and Stage 2 assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment include sink holes. Effects are summarised in Section 19.9: Preliminary assessment of likely or expected significant effects. Appendix 19.3: Information to support assessment of risks provides further information regarding safety in relation to geology. Further engagement and consultation with the Environment Agency will be undertaken.
PINS	3.13.5 *'Table 19-2 explains that the Applicant proposes to scope reservoir/dam breach/collapse out of further assessment, as the design of the*	Embankment breach is scoped in to the assessment in Section 19.4: Assessment methodology. The Stage 1 and Stage 2 assessments in Appendix 19.1: Stage 1: Hazard

Stakeholder	Scoping comment	Applicant response
	reservoir will follow the Reservoir Act 1975 to reduce the likelihood of dam failure to a low level. In view of the Environment Agency's advice (see Appendix 2 of this Opinion), the Inspectorate does not agree that this matter can be scoped out of further assessment at this stage. Accordingly, the ES should include an assessment of these matters or information demonstrating agreement with the relevant consultation bodies and the absence of an LSE.'	identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment includes embankment breach, and effects are summarised in Section 19.9: Preliminary assessment of likely or expected significant effects. Appendix 19.3: Information to support assessment of risks provides further information on legislation and standards for reservoir design. Engagement and consultation with the Environment Agency is ongoing.
PINS	3.13.9 *'Table 19-2 explains the Applicant proposes to scope this matter out of further assessment as there is little risk of ground instability given the design of the Proposed Development and states the works will be undertaken according to Reservoirs Act 1975. However, in view of the EA's advice (see Appendix 2 of this Opinion) that land movement has the potential to adversely affect flood storage and flood flow routes, increasing flood risk. the Inspectorate does not agree to scope this matter out at this stage. Accordingly the ES should include an assessment of these matters or information demonstrating agreement with the relevant consultation bodies and the absence of an LSE.'*	Ground instability is included in the risks scoped in to the assessment in Section 19.4: Assessment methodology. The Stage 1 and Stage 2 assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment include ground instability (alongside landslides and mass movements), and effects are summarised in Section 19.9: Preliminary assessment of likely or expected significant effects. Appendix 19.3: Information to support assessment of risks provides further information regarding safety in relation to geology. Further engagement and consultation with the Environment Agency will be undertaken.
PINS	3.13.12 *'Table 19-2 explains that measures will be put in place to reduce any risks of drowning or water sports accidents, such as lifeguards and rescue boats, as well as the preparation of a Safety Management Plan. The Inspectorate agrees this matter can be scoped out of further assessment, but the ES should*	Until further information is available, risks associated with water sports are scoped in to the preliminary assessment in Section 19.4: Assessment methodology. The Stage 1 and Stage 2 assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk

Stakeholder	Scoping comment	Applicant response
	explain how these measures would be secured.'	assessment include water sports and the effects are summarised in Section 19.9: Preliminary assessment of likely or expected significant effects.
PINS	3.13.13 *'The Scoping Report explains even though the likelihood of a terrorist attack occurring is low, security measures will be put in place (such as CCTV, infra-red security and a manned gatehouse) to prevent such an event from occurring. The Inspectorate agrees that this matter can be scoped out of the further assessment, but the ES should explain how these measures will be secured.'*	Until further information is available, risks associated with terrorist attacks are scoped in to the preliminary assessment in Section 19.4: Assessment methodology. The Stage 1 and Stage 2 assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment include terrorist attacks and the effects are summarised in Section 19.9: Preliminary assessment of likely or expected significant effects.
PINS	3.13.14 *'Paragraph 2.7.7 of the Scoping Report explains that electricity may be generated and stored on the site, the ES should include consideration of drainage and pollution prevention at this potential electricity storage site, including an explanation of how firewater would be managed.'*	Pollution associated with battery storage and firewater is scoped in to the assessment in Section 19.4: Assessment methodology. The Stage 1 and Stage 2 assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment include risk of pollution including firewater. Effects are summarised in Section 19.9: Preliminary assessment of likely or expected significant effects.
Environment Agency	Comments are referenced in 3.13.2-5 and 3.13.9 in PINS response above	Refer to responses to PINS comments above.
Environment Agency	*'[…] we [the EA] would suggest testing the emergency drawdown with larger flows in the River Thames such as bank full and more extreme events'*	Further engagement and consultation with the Environment Agency is ongoing regarding emergency drawdown.
Oxfordshire County Council Vale of White Horse District Council Abingdon Town Council	A reservoir dam breach or collapse should be scoped in to the assessment.	Embankment breach is scoped in to the assessment in Section 19.4: Assessment methodology. The Stage 1 and Stage 2 assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2:

Stakeholder	Scoping comment	Applicant response
East Challow Parish Council		Preliminary risk assessment include embankment breach, effects are summarised in Section 19.9: Preliminary assessment of likely or expected significant effects. Appendix 19.3: Information to support assessment of risks provides further information on legislation and standards for reservoir design.
Oxfordshire County Council (Joint Oxfordshire Resilience Team)	The potential for a terrorist attack on the reservoir infrastructure should be considered.	Until further information is available, terrorist attacks are scoped in to the assessment in Section 19.4: Assessment methodology, The Stage 1 and Stage 2 assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment include terrorist attacks, and the effects are summarised in Section 19.9: Preliminary assessment of likely or expected significant effects.
Vale of White Horse District Council Culham Parish Council East Challow Parish Council	The safety of the reservoir and its water quality are not adequately addressed, emergency discharge will have an impact on residents and the river.	Emergency discharge is scoped in to the assessment in Section 19.4: Assessment methodology. The Stage 1 and Stage 2 assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment include emergency drawdown.
Abingdon Town Council	Landslips and severe weather should be scoped in to the assessment.	Landslides and severe weather (heatwaves, droughts, high winds and rain) are addressed as per responses to PINS above, they are scoped in to the assessment in Section 19.4: Assessment methodology, and covered in the Stage 1 and Stage 2 assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment. Effects are summarised in Section 19.9: Preliminary assessment of likely or expected significant

Stakeholder	Scoping comment	Applicant response
		effects. Appendix 19.3: Information to support assessment of risks provides further information regarding safety in relation to geology. Chapter 18: Climate resilience also covers aspects of design relating to extreme weather.
National Grid Electricity Abingdon Town Council	Energy infrastructure including high voltage underground cables, Didcot/Drayton 132 kilovolt (kV) cable and Steventon electricity substation	PINS is satisfied that Critical infrastructure failure is scoped out of the assessment, however infrastructure within or adjacent to the draft Order limits are noted as part of the baseline in Section 19.6.
Health and Safety Executive Wantage Town Council	Consideration of whether a hazardous substances consent is needed for the storage of hazardous chemicals in relation to water treatment plant.	Pollution from storage of chemicals is scoped in to the assessment in Section 19.4: Assessment methodology, The Stage 1 and Stage 2 assessments in Appendix 19.1: Stage 1: Hazard identification assessment and Appendix 19.2: Stage 2: Preliminary risk assessment include pollution from storage of chemicals. Consideration of hazardous substances will be undertaken for the Environment Statement when further information is available.

Non-statutory public consultation

19.3.4 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, 2025). Any feedback relevant to the Major accidents and disasters assessment has been taken into account where appropriate.

Ongoing engagement

19.3.5 This section summarises the ongoing technical engagement for Major accidents and disasters with key stakeholders since EIA scoping. This includes on-line meetings attended by Thames Water and key stakeholders.

19.3.6 Table 19.3 provides a summary of the ongoing technical engagement for Major accidents and disasters, including the issues raised and outcomes for the assessment.

Table 19.3 Key ongoing engagement for Major accidents and disasters

Stakeholder	Topics	Outcome
Defence Infrastructure Organisation	Aerodrome safeguarding in relation to tall structures and bird strike risk– RAF Benson	Can be dealt with through safeguarding assessment following DCO application and measures such as charting and mapping of changes. SESRO will keep MoD updated with design and any changes.
Harwell (nuclear decommissioning site)	Status of site	Harwell is in the process of decommissioning. It is not a COMAH site and is no longer designated under the Radiation Emergency Preparedness and Public Information Regulations (REPPIR) 2019.
Thames Valley Local Resilience Forum	Embankment breach and inundation mapping relating to off-site emergency planning. Terrorism and security risk to reservoir infrastructure.	An update has been provided on the Project and risk of embankment breach has been included within the assessment. Engagement is ongoing and further consultation will be undertaken for the ES.
Environment Agency	Design of reservoir for extreme weather (heatwaves, droughts, high winds and rain); risk of landslides, sinkholes, land instability during construction; embankment breach or collapse.	Engagement with the Environment Agency is ongoing. To date flood risk has been discussed with respect to the climate change scenario to be used. Further engagement will be undertaken for the ES.
Defra and where applicable National Protective Security Authority (previously the Centre for the Protection of National Infrastructure)	Vulnerability to terrorism	Engagement will be undertaken for the ES.

19.4 Assessment methodology

19.4.1 This section outlines the methodology followed to assess the likely or expected significant risks of the Project in relation to Major accidents and disasters including:

- Risks scoped in to the assessment
- Study area
- Criteria for determining expected or likely significant effects
- Assessment of cumulative effects.

19.4.2 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 19.10: Next steps.

19.4.3 The assessment methodology followed for the Major accidents and disasters assessment differs from the project-wide approach to the assessment methodology as set out in Chapter 4: Approach to environmental assessment and instead follows the standard industry approach in the Institute of Environmental Management and Assessment (IEMA) Major Accidents and Disasters in EIA: A Primer (IEMA, 2020).

19.4.4 The assessment of major accidents and disasters is undertaken on a risk assessment basis in two stages: Stage 1 – hazard identification assessment, and Stage 2 – risk assessment. These stages are explained below.

Stage 1: Hazard identification assessment

19.4.5 As noted in the Scoping Report (see Appendix 19.1: Stage 1: Hazard identification assessment) an initial hazard and identification assessment was carried out in consultation with the design engineers and Thames Water to establish the vulnerability of the Project to major accidents and disasters. 'Vulnerability' describes the potential for harm as a result of an event, the latter being an unplanned occurrence that has the potential to result in a major accident or disaster.

19.4.6 Risk categories were considered in the Scoping Report according to the National Risk Register (HM Government, 2023) as follows:

- Human, animal and plant health
- Natural and environmental
- Geological
- Hydrological
- Engineering
- Industrial accidents
- Accidents
- Terrorism/civil unrest/public disorder

19.4.7 These risk categories were considered to define a long list of potential risks which could occur as a result of the Project, or risks that could affect the Project. Following categorisation, these risks were assessed as to whether they could ultimately result in a major accident or disaster and therefore have the potential to cause an expected or likely significant effect.

19.4.8 The assessment considered the Project's location and intended use and was undertaken using the following sources:

- IEMA Major Accidents and Disasters in EIA: A Primer (IEMA, 2020)
- International Federation of Red Cross website (IFoRC, 2024)
- National Risk Register (NRR) (United Kingdom Government, 2023)
- Thames Valley Community Risk Register (Thames Valley Local Resilience Forum, 2022)

19.4.9 Professional judgement has been applied when considering the environmental constraints in the area and the nature of the Project.

19.4.10 The approach at scoping stage further refined the risks requiring assessment from a long-list to a short-list using the following questions, based on IEMA guidance:

- Does the risk pose a specific risk to the Project?

- Is a level of response to the potential consequences of a risk required outside of the Project, for example, from the emergency services?
- Is the Project a source of hazard that could result in a major accident and/or disaster and is there a pathway to cause a significant effect to a receptor?
- Does the Project interact with any external hazard (such as a terrorist attack or extreme weather event)? If yes, does the presence of the Project increase the risk of that hazard occurring at its source?
- If an external man-made or natural hazard occurred, would the presence of the Project increase the risk of a significant effect occurring?
- Do existing design measures or legal requirements, codes and standards adequately control the potential major accident and/or disaster, or will it be adequately covered/assessed by another assessment aspect?

19.4.11 The focus of the Major accidents and disasters assessment is on low-likelihood, high consequence risks. Risks which are scoped out generally include those that could affect other developments in the area but are not caused by the Project; those already addressed by existing or standard controls; low-consequence (regardless of likelihood) risks; high-likelihood, high-consequence risks that should be designed out as would be unacceptable; and any hazards for which there is no credible source-pathway-receptor linkage (IEMA, 2020).

19.4.12 An updated Stage 1 assessment, which takes into account the PINS Scoping Opinion, is provided in Appendix 19.1: Stage 1: Hazard identification assessment. The Stage 1 Assessment also identifies where risks are considered in other PEI Report chapters and therefore not included in this chapter.

Stage 2: Risk assessment

19.4.13 A revised Stage 2 Risk assessment will occur at ES stage when the Project design is further refined. Any further embedded design (see Section 19.8: Embedded design mitigation and standard good practice) and standard good practice measures, which have been developed since the scoping and PEI Report stages, and which will be applied in accordance with the Project, will be taken into consideration and the likely or expected environmental impacts on receptors identified. The assessment considers whether the risk is 'as low as reasonably practicable' (ALARP) or if additional mitigation, which goes beyond standard measures, is required to reduce it to ALARP.

19.4.14 For this chapter, a preliminary Stage 2 risk assessment, set out in (Appendix 19.2: Stage 2: Preliminary risk assessment) has been undertaken. This has included the results from the Stage 1 Hazard identification updated with the results of the EIA Scoping Opinion received from PINS, on behalf of the Secretary of State, and the design information available at the time of assessment.

19.4.15 Risks that have been fully scoped out at scoping stage and agreed in the Scoping Opinion have not been included in the Stage 2 Assessment. Risks that have been covered in other PEI Report chapters are also not assessed within the Stage 2 risk assessment. The risks covered in this chapter and other PEI Report chapters are listed in paragraphs 19.4.17-19.4.23 below.

Assumptions and limitations

19.4.16 The following assumptions have been applied to the preliminary Stage 2 risk assessment when considering risks:

- Major accidents and/or disasters associated with construction and operation activities that fall entirely within the scope of health and safety legislation (see Table 19.1 in the Legislation, policy and guidance section) and associated obligations are not considered. This is because the health and safety legislation provides adequate regulation of these activities and that the Project will adhere to these controls.
- The risk identification exercise does not consider risks where there is no 'source-pathway-receptor' linkage, because all three need to present for an effect or risk.
- The risk identification exercise does not consider major accidents and/or disasters where risks are not applicable to the geographic location of the Project e.g. volcanic activity.
- Risks that are low likelihood and low consequence are not considered as they do not meet the criteria to be classed, within a risk assessment, as a significant environmental effect and therefore do not satisfy the definition of a major accident and/or disaster.
- Risks that are considered to be high likelihood and high consequence are not present as they would have already been mitigated or designed out.

Risks scoped in to and out of the assessment

19.4.17 The scope of the assessment has been informed by the EIA Scoping process, including the EIA Scoping Report (Thames Water, 2024) and Scoping Opinion (The Planning Inspectorate, 2024), combined with subsequent changes to the Project design parameters as set out in Chapter 2 Project Description, and an enhanced understanding of the baseline environment.

19.4.18 Risks that have been scoped out are documented within Appendix 4.1: Matters scoped out of the EIA, along with justification for this scoping approach taken. In summary, the risks scoped out are:

- Construction risks of defence / military accidents (unexploded ordnance)
- Construction and operational risks of critical infrastructure failure/utilities failure not associated with the Project
- Construction and operational risks of industrial sites (COMAH facilities)
- Construction and operational risks of animal strike (vehicle collision)
- Construction and operational risks of critical failure of the existing electrical substation (Steventon)
- Operational risks of insect infestation/disease
- Operational risks of severe weather (low temperature, heavy snow, hail, lightning and tornado)
- Operational effects of building fire/failure

19.4.19 Risks that are scoped in at the construction phase, but have been covered in other chapters are:

- Ground hazards/mobilisation of contamination (to be covered in Chapter 10: Geology and soils)
- Road traffic accidents (to be covered in Chapter 12: Traffic and transport)

- Accidents involving pedestrians (to be covered in Chapter 12: Traffic and transport)

19.4.20 Risks that have been covered in the preliminary assessment for major accidents and disasters at the construction phase are:

- Landslides/mass movements
- Ground instability
- Reservoir embankment collapse
- Rail accidents
- Aircraft collision

19.4.21 Risks that are scoped in at the operation phase, but have been covered by other chapters are:

- Severe weather events - ice and fog (covered in Chapter 12: Traffic and transport).
- Inland and groundwater flooding (covered by Chapter 5: Water environment, although embankment failure and emergency draw-down risks are covered in this chapter)
- Traffic accidents (covered in Chapter 12: Traffic and transport)
- Accidents involving pedestrians (covered in Chapter 12: Traffic and transport)

19.4.22 Risks that have been covered in the preliminary assessment for major accidents and disasters at the operational phase are:

- Aviation risks - bird strike and tall structures
- Health risks from algal blooms
- Water supply affected (various factors)
- Severe weather events - heatwaves, drought, rain, high winds (note some aspects are also covered in Chapter 18: Climate resilience).
- Sinkholes
- Emergency drawdown to the River Thames
- Reservoir embankment collapse
- Renewable energy battery storage drainage and pollution from firewater
- Accidents from storage of chemicals.

19.4.23 In addition, operational risks agreed by PINS to be scoped out of the assessment, providing further information on mitigation is available, have been included at this stage, these comprise:

- Risk of water sports accidents
- Risk of terrorist attack.

19.4.24 PINS state that these matters can be scoped out but the ES should explain how the measures being proposed to reduce or avoid these risks would be secured. It is also acknowledged that all risks to be included in other chapters listed above, will not be fully developed at this preliminary stage, and the need for and extent of the inclusion will be reviewed in the ES.

Study area

19.4.25 Guidance for COMAH safety report assessments states that the area over which pathways and receptors should be identified depends on the nature of potential major accidents, but

it would be expected that a range of up to 10 kilometres (km) would be reasonable (COMAH, 2015). While the Project is not a COMAH site, it provides a useful benchmark for a range of accidents.

19.4.26 An outer buffer of 10km from the draft Order limits has been used for the preliminary assessment to reflect the study area for environmental and human receptors at potential risk of major accidents and disasters. It takes into account study areas defined by other PEI Report aspects:

- Chapter 5: Water environment
- Chapter 6: Aquatic ecology
- Chapter 7: Terrestrial ecology
- Chapter 8: Historic environment
- Chapter 10: Geology and soils
- Chapter 12: Traffic and transport
- Chapter 16: Human health
- Chapter 18: Climate resilience

19.4.27 For aviation risks, consultation on safeguarding can extend up to 13km from an aerodrome (CAA, 2017 and 2020). Therefore, aerodromes within 13km of the Project have also been considered. Figure 19.1: Major accidents and disasters study area shows the study area for major accidents and disasters for the preliminary assessment.

Methodology

Baseline

Data collection

19.4.28 Baseline data collection has been undertaken to obtain information over the study area. This section provides the approach to collecting baseline data.

19.4.29 Data sources that have been accessed to inform the baseline with respect to major accidents and disasters include:

- Information on the historical and current land use of the EIA Scoping Boundary (Google, 2024)
- Thames Valley Community Risk Register - a document held by all Local Resilience Forums (LRFs), describing the risks for the community and assessing their likelihood to lead to an emergency and their potential impact (Thames Valley Local Resilience Forum, 2022)
- International Federation of Red Cross (IFoRC) website – IfoRC webpage with information on disasters and different hazard types (International Federation of Red Cross, 2025)
- National Risk Register 2023 – The National Risk Register outlines the most serious risks facing the United Kingdom (HM Government, 2023)
- National Risk Register 2025 – The National Risk Register outlines the most serious risks facing the United Kingdom (HM Government, 2025)
- HSE's COMAH 2015 - Public Information Search engine on establishments subject to COMAH 2015 (Health and Safety Executive, 2015)

19.4.30 In addition to these data sources, the Major accidents and disasters assessment also draws on environmental baseline data collated for other aspects, specifically, baseline data presented in Chapter 5: Water environment, Chapter 6: Aquatic ecology, Chapter 7: Terrestrial ecology, Chapter 8: Historic environment, Chapter 10: Geology and soils, Chapter 12: Traffic and transport, Chapter 16: Human health, and, Chapter 18: Climate resilience.

Site surveys

19.4.31 Baseline data collection for the Major accidents and disasters assessment is desk based in line with the IEMA Primer (IEMA, 2020). No surveys specific to the Major accidents and disasters assessment have informed the PEI Report, however information is drawn from other aspects and design which involves site surveys.

Future baseline

19.4.32 The Major accidents and disasters assessment does not have an aspect-specific future baseline due to reliance on other aspects within the EIA for baseline and mitigation. Refer to the chapters listed in the paragraph below for relevant future baselines and associated assessments.

19.4.33 Chapter 5: Water environment, Chapter 6: Aquatic ecology, Chapter 7: Terrestrial ecology, Chapter 8: Historic environment, Chapter 10: Geology and soils, Chapter 12: Traffic and transport, Chapter 16: Human health, and Chapter 18: Climate resilience.

Criteria for the assessment of significance

Significance of effect

19.4.34 The significance of effect for Major accidents and disasters differs from the standard EIA methodology as set out in Chapter 4: Approach to environmental assessment, and is set out in Table 19.4.

19.4.35 IEMA 2020 identifies significance, based on criteria adopted from Annex VI of the Seveso III Directive (European Parliament, Council of the European Union, 2012), a Directive which details the general classifications and labelling requirements of dangerous substances and preparations.

19.4.36 Using this reference, the significance threshold for risk of major accidents and disasters, in relation to the Project, is set at anything which may cause loss of life or permanent injury, serious damage to property[1] and/or long-lasting damage to an environmental receptor. This exceeds what might be considered as 'usual' incidents with mitigation covered by other aspects, such as localised incidents with small or short-term effects.

19.4.37 In the UK the Health and Safety Executive (HSE) has adopted a tolerability of risk framework. Tolerability of risk ranges from being regarded as 'unacceptable', despite the benefits to society, to 'broadly acceptable' for risks which are regarded as insignificant and adequately controlled. In between these are risks which are tolerable, in that people are prepared to tolerate them in order to secure the societal benefits of that activity, for

[1] Annex VI of the Seveso Directive which is translated into the COMAH Regulations 2015 defines this as €2,000,000 of damage within the Project or €500,000 outside the Project.

example water supply. The application of mitigation to a risk so that it is ALARP (described in paragraph 19.1.5 above) can be used to reduce a risk to tolerable.

19.4.38 Should a major accident and disasters risk be present, it is considered inherently negative, and potentially significant and unacceptable. However, if accidents and disasters risks have been mitigated to ALARP (e.g. through management plans or design to ensure they are very unlikely), they are assessed as tolerable and not significant. Equally, if further analysis demonstrates that the source (e.g. project component or activity), pathway (interaction) or receptor is not present, risks may be reduced to broadly acceptable.

Table 19.4 Major accidents and disasters significance of effect

EIA Significance of effect	Description for Major accidents and disasters
Significant	The risk is unacceptable and further measures would need to be applied.
Not Significant	The risk is tolerable or broadly acceptable. For example, it has been mitigated to ALARP or it can be demonstrated that a source, pathway and receptor linkage is not present.

Assessment of cumulative effects

19.4.39 The Major accidents and disasters assessment looks at high consequence, low likelihood events (paragraph 19.4.11). It is therefore highly unlikely that two events, whether both arising from within the Project or from external sources on the Project, would occur in the same time period or affect the same receptors.

19.4.40 The two types of cumulative effects assessed within the PEI Report, inter-project cumulative effects (effects with other developments) and intra-project cumulative effects (effects within the Project) are not considered with the Major accidents and disasters assessment.

19.4.41 With regard to intra-project cumulative effects, the risks identified through the Major accidents and disasters assessment combine environmental receptors, baseline information and study areas from other environmental aspects, including Chapter 5: Water environment Chapter 6: Aquatic ecology, Chapter 7: Terrestrial ecology, Chapter 8: Historic environment, Chapter 10: Geology and soils, Chapter 12: Traffic and transport, Chapter 16: Human health, and Chapter 18: Climate resilience. Therefore, the risks identified in Section 19.9: Preliminary assessment of likely or expected significant effects are considered to be inherently cumulative.

19.4.42 To avoid double counting between the Major accidents and disasters assessment and the intra-project cumulative effects, a separate assessment of intra-project cumulative effects for Major accidents and disasters is excluded from this assessment.

19.4.43 Regarding inter-project cumulative effects, the Major accidents and disasters assessment identifies potential external sources of risk, as per the methodology set out in paragraphs 19.4.5 - 19.4.15), which could increase the risk of a major accident or disaster affecting the Project.

19.4.44 To avoid double counting between these external sources of risk identified by the Major accidents and disasters assessment and the inter-project cumulative effects, a separate

assessment of inter-project cumulative effects for Major accidents and disasters is excluded from this assessment. Therefore, inter-project cumulative effects are assessed within the Major accident and disasters assessment at Section 19.9: Preliminary assessment of likely or expected significant effects.

19.5 Study area

19.5.1 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 19.4: Assessment methodology above. The study area for Major accidents and disasters extends 10km from the draft Order limits, as shown in PEI Report Figure 19.1: Major accidents and disasters study area.

19.5.2 The study areas have changed since the EIA scoping stage as a result of changes to the design and the associated draft Order limits. See Chapter 2: Project description for details of the Project parameters and assumptions for the PEI Report.

19.6 Baseline conditions

19.6.1 To assess the significance of effects arising from the Project in relation to Major accidents and disasters it is necessary to identify and understand the baseline environment potentially at risk and sources of existing risk within the study area.

19.6.2 This section outlines the existing and expected future baseline conditions of the Major accidents and disasters study area.

19.6.3 This assessment has considered the known receptors within the study area. It also considers existing sources of risk (hazards) for Major accidents and disasters and these are shown in PEI Report Figure 19.1: Major accidents and disasters study area.

19.6.4 Receptors can be divided into environmental receptors, human receptors and infrastructure.

19.6.5 Environmental receptors comprise:

- The water environment as set out in Chapter 5, including surface waters in the River Ock Catchment and groundwater
- Aquatic ecology as set out in Chapter 6, including designated sites, habitats and species
- Terrestrial ecology as set out in Chapter 7 including designated sites, habitats and species
- Historic environment as set out in Chapter 8 including designated and non-designated heritage assets
- Geology and soils as set out in Chapter 10 including sources of contamination.

19.6.6 Human receptors include people living, visiting or working in the study area. Residential areas, community facilities, business and tourism facilities are described further in Chapter 15: Socio-economics and communities and demographic, socio-economic and health data for the study area are provided in Chapter 16: Human health. The nearest population

centres are Marcham to the north, Abingdon to the north-east, Drayton to the east, Steventon to the south-east, and Grove and East Hanney to the south-west.

19.6.7 Infrastructure includes road and rail infrastructure described in Chapter 12: Traffic and transport, in addition to other infrastructure such as water, energy and telecommunications infrastructure, present within the 10km study area. For the purposes of the assessment, this is not described in detail for the entire study area but assumed to be present. The following infrastructure is present within or adjacent to the draft Order limits:

- The A415 runs through the north, A34 dual carriageway to the east, the A338 to the west and Western Main Line through the south.
- The Abingdon sewage treatment works lie to the east.
- There are three solar farms within the draft Order limits: Landmead solar farm, Goose Willow solar farm and Steventon solar farm, producing a combined 69.5 megawatt (MW).
- The Steventon sub-station lies within the draft Order limits and Didcot/Drayton 132kV line runs adjacent to the east of the Order limits.

19.6.8 Existing hazards have been identified and are shown on Figure 19.1: Major accidents and disasters study area. There is potential for unexploded ordnance (UXO) within the draft Order limits. The nearest COMAH site is Didcot Air Products approximately 2.3km to the east. The Harwell former Atomic Energy Authority is located approximately 4km to the south-east.

19.6.9 Abingdon airfield lies approximately 500m to the north of the draft Order limits and is used as a diversion airfield and for helicopter training by RAF Benson. RAF Benson is a support helicopter main operating base located approximately 12km to the east of the draft Order limits. As stated in paragraph 19.4.27 safeguarding can extend up to 13km from an aerodrome (CAA, 2017 and 2020). This includes risks of bird collision with an aircraft and collision with tall structures. There are also likely to be small, private airstrips within this area, including a small airstrip south of the railway.

19.6.10 Other existing hazards are identified in their respective chapters; flood risk is identified in Chapter 5: Water environment and contamination in Chapter 10: Geology and soils.

Future baseline

19.6.11 As set out in Chapter 4: Approach to the environmental assessment, the preliminary assessment of effects considers the likely evolution of the baseline without the implementation of the Project. The Project is being delivered to address the need for future water resources due to a growing population and more severe and frequent droughts as a result of climate change, summarised in the background to the Project in Chapter 3: Assessment of alternatives. In terms of future baseline, the Project itself is being delivered to avoid and reduce risks of a major disaster in relation to water supply.

19.6.12 The future baselines for environmental, human and infrastructure receptors are covered in their respective chapters (referred to in paragraphs 19.6.5 -19.6.7 above). In general, it is anticipated that environmental receptors will be enhanced, and urban populations will grow with corresponding improvements in infrastructure.

19.6.13 Abingdon Airfield is allocated in the Vale of White Horse and South Oxfordshire emerging Joint Local Plan 2041 for housing (Dalton Barracks Garden Village, AS10 & AS14), so it is

therefore assumed that it will no longer operate as an airfield and safeguarding risks will not apply to the Project. Otherwise, the future baseline is not anticipated to differ materially from the current baseline with regards to the vulnerability of the SESRO Project to the risk of Major accidents and disasters, other than in relation to climate change as referred to above.

19.7 Project parameters, assumptions and limitations

19.7.1 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 Major accidents and disasters 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

19.7.2 Table 19.5 identifies the Project parameters, components and activities relevant to this assessment where assumptions specific to the preliminary Major accidents and disasters assessment have been generated.

Table 19.5 Project parameters and assumptions forming the basis of assessment

Project parameter / component / activity	Assumption (basis of assessment)
Reservoir/ All construction project activities, Operation	The assessment assumes that the reservoir design and construction methodology will ensure protection against failure of reservoir embankments, through the controls within the Reservoirs Act, design standards and independent expert verification as set out in Chapter 2: Project description and Appendix 19.3: Information to support assessment of risks. Operational monitoring and inspections as part of the Reservoir Safety Management Plan and Operation & Maintenance Manual will identify any issues, remedial action and procedures such as emergency draw-down to reduce risk to ALARP.
Reservoir/ Operation	The reservoir will have adequate capacity to allow for events where additional storage may be required including heavy rainfall and pumps failing to switch off.
Reservoir embankments/ Operation	The reservoir will be designed to allow for wind and wave effects, including an adequate freeboard, wave and erosion protection. This includes riprap on the inner face at higher levels, in addition to other materials. The outer face includes additional landscaping as protection and may require additional measures for example against burrowing animals through the reservoir's operational life as set out in Chapter 2.
Reservoir/ all construction activities, Operation	The assessment assumes that both an on-site emergency flood plan and information for an off-site flood plan will be prepared under the Reservoirs Act 1975 (as modified by the Water Act 2003 and the Flood and Water Management Act 2010) and related Environment Agency

Project parameter / component / activity	Assumption (basis of assessment)
	Guidance (Environment Agency, 2021) in order to meet regulatory requirements, (see Section 19.10: Next steps).
All project components/ Operation	Reservoir security measures developed as part of a Security Strategy will be sufficient to reduce risk of terrorist attacks to ALARP (tolerable). Measures would include controlled vehicular access to maintenance roads and crest through the use of gates or fencing; security measures for critical buildings and areas, such as use of cameras.

Assessment assumptions and limitations

19.7.3 This section identifies the aspect-specific assumptions and limitations made for the preliminary Major accidents and disasters assessment including those related to the availability of data to inform the assessment. The assessment of effects in this chapter is preliminary and will be revisited in the ES in light of 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 considered sufficiently robust to enable consultees to understand the likely or expected 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 19.10: Next steps. Assumptions and limitations identified in relation to the preliminary Major accidents and disasters assessment comprise:

- Unless otherwise specified in the assessment, it considers receptors in the study area under broad categories of human, environment and infrastructure. Chapters referenced in paragraph 19.1.6 describe some of these in further detail, however data collection in relation to these receptors is not always complete, therefore these chapters should be referred to for assumptions on receptor data limitations.
- The Ministry of Defence is the Aerodrome Operator for RAF Benson and if applicable, Abingdon Airfield. Under CAA guidance the DIO will undertake a Safeguarding Assessment covering tall structures/ buildings and wildlife hazards following submission of the DCO Application. Where required measures will be taken, for example update of aviation charting, to avoid any identified hazards. As this will be undertaken by a third party as part of their statutory duty, this is an assumption of the assessment rather than mitigation provided by the Project.
- The Thames Valley Local Resilience Forum (LRF) is responsible for preparing the Reservoir Emergency Offsite Plans according to Government Guidance (Cabinet Office, 2009). While collaboration with Thames Water will be needed, including sharing on-site plans, as the off-site plans are prepared by a third party, this is an assumption of the assessment rather than mitigation provided by the Project.
- The preliminary assessment assumes that a number of further assessments and plans will be undertaken as the design develops to comply with standards and best practice. While the details of these are not yet available, it is reasonable to assume these will be

in place for the ES. These include management plans referred to in Section 19.8: Embedded design mitigation and standard good practice below.

19.8 Embedded design mitigation and standard good practice

19.8.1 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.

19.8.2 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.

19.8.3 Table 19.6 and Table 19.7 list the embedded design mitigation and standard good practice measures applicable to the preliminary Major accidents and disasters aspect during construction and operation respectively, including the unique commitments ID 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 19.6 Construction: Relevant embedded design mitigation and standard good practice measures, their purpose and the securing mechanisms

Embedded design mitigation or standard good practice measures (unique commitment ID)	Purpose of mitigation measure	Indicative securing mechanism
Construction sequencing to mitigate flood risk (ED-03)	The embankment toe drain and groundwater drain will be constructed alongside the construction of the reservoir embankment, reducing risk of runoff leading to land-slips.	CoCP
Measures for safe reservoir operation (ED-17)	The measure ensures consistency with Basis of Design which sets out national and international standards for reservoir, embankment, and associated tower, tunnels and other structures. Design and construction of large, raised reservoirs in England must be carried out in compliance with the Reservoirs Act 1975 as modified by the Water Act 2003 and Schedule 4 (Reservoirs) of the Flood and Water Management Act 2010.	Requirement of existing legislation
Managing construction works within flood zones (SGP-05)	Measures taken to reduce the risk of on-site flooding reduces risk of erosion or runoff leading to landslips.	CoCP
Provision of information for off-site reservoir emergency plan (SGP-37)	Ensures that information from the on-site emergency plan and reservoir inundation maps, produced for the purposes of emergency planning are provided to the Environment Agency and Thames Valley LRF (subject to National Protocol for the Handling, Transmission	Requirement of existing legislation

Embedded design mitigation or standard good practice measures (unique commitment ID)	Purpose of mitigation measure	Indicative securing mechanism
	of Reservoir Information and Flood Maps) for emergency planning purposes.	
Management of risks of working near railways (SGP-40)	Safety risks will be managed in accordance with the CDM Regulations in addition to health and safety legislation. Construction will be undertaken in liaison with Network Rail including signalling design and physical segregation between personnel and trains.	Requirement of existing legislation

Table 19.7 Operation: 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
Measures to address the risks of increased temperatures, including prolonged periods of hot weather and drought (ED-12)	Assets are designed to accommodate future anticipated climatic events including the risk of shrink-swell due to below ground temperature changes.	Under the terms of the DCO
Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding (ED-13)	The design will incorporate measures to provide an allowance for future climatic events. There will be adequate freeboard to allow for wind and wave effects, precipitation and events such as embankment settlement or pumps failing to switch off when full. The design includes wave protection on the inner face of the embankment.	Under the terms of the DCO
Security and emergency measures to prevent sabotage (ED-15)	Design measures will restrict or prevent access as well as provide security and surveillance.	Under the terms of the DCO
Measures for safe reservoir operation (ED-17)	The location of the reservoir has been chosen to reduce risk in relation to flat topography, land stability and underlying geology. The reservoir, embankment and associated tower, tunnels and other structures will be designed to national and internal standards. Design, construction and operation of the Reservoir will be in compliance with the Reservoirs Act 1975. Further information is provided in Appendix 19.3: Information to support assessment of risks.	Requirement of existing legislation
Maintain water quality in the reservoir (ED-28)	There will be an aeration system within the reservoir to manage the occurrence of algal blooms and other water quality issues. Water quality sampling equipment and warning	Under the terms of the DCO

Embedded design mitigation or standard good practice measure (unique commitment ID)	Purpose of mitigation measure	Indicative securing mechanism
	systems will be installed to detect unsafe water conditions.	
Emergency fire management system for Battery Energy Storage System (BESS) (ED-46)	This will set out how fire is managed in the BESS and requirements for design and construction information such as battery type and systems for detection and suppression of fire.	Under the terms of the DCO
Operational management of surface and groundwater quality and quantity at the Water Treatment Works (SGP-36)	Chemical storage within the Water Treatment Works, including sodium hypochlorite will be stored in accordance with regulatory requirements and industry standards to reduce risk of pollution.	Requirement of existing legislation
Provision of information for off-site reservoir emergency plan (SGP-37)	In the very unlikely event of flooding from the reservoir, Thames Water will work with the Thames Valley Local Resilience Forum to implement emergency plans.	Requirement of existing legislation
Water sports safety measures (SGP-41)	Regulatory requirements include health and safety legislation. Good practice measures to avoid conflict with operations, provide appropriate life-saving equipment and other safety measures.	Under the terms of the DCO and a requirement of existing legislation

19.9 Preliminary assessment of likely or expected significant effects

Introduction

19.9.1 This section summarises the findings of the preliminary assessment of effects for Major accidents and disasters, focusing on effects that are initially anticipated to be likely or expected '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 Major accidents and disasters is applied (these are noted in Table 19.6 and Table 19.7 and provided in detail in the Draft commitments register in Appendix 2.2).

19.9.2 As noted in paragraph 19.1.8, assessments reported within this PEI Report chapter are considered a reasonable 'worst case' in line with the precautionary approach that has been taken. The next steps for the Major accidents and disasters assessment, are set out in Section 19.10: Next steps.

19.9.3 Appendix 19.1: Stage 1: Hazard identification assessment reports the Stage 1 Risk Assessment, which has been updated from Scoping to identify risks to be taken forward to Stage 2.

19.9.4 Appendix 19.2: Stage 2: Preliminary Risk Assessment sets out the preliminary assessment of effects, risk by risk, for construction and operation phases. The tables identify the following for each effect:

- Accident / Disaster Risk Category and the Effect ID (a unique identifier for each effect).
- Risk and consequence
- Potential receptors
- Project components and activities giving rise to the effect
- Relevant embedded design mitigation and standard good practice mitigation (with unique Commitment ID, which relates to Appendix 2.2: Draft commitments register)
- Description of the effect
- Risk rating (tolerability)
- Initial significance of effect

19.9.5 Appendix 19.3: Information to support assessment of risks provides further information on existing conditions and statutory requirements for SESRO. It covers the geological conditions at the SESRO site and reservoir safety.

Summary of likely or expected significant construction and operation effects

19.9.6 From the Stage 1 and Stage 2 risk assessments, no likely or expected significant effects from major accidents and disasters have been identified from the construction and operation of the project. Where applicable, assessed risks of accidents and disasters have been mitigated to tolerable (ALARP) levels using embedded design mitigation and standard good practice described above.

Summary of construction effects that are not expected or likely to be significant

19.9.7 This section summarises the justification for construction effects that are initially anticipated to be 'non-significant' through the preliminary assessment of effects for Major accidents and disasters. 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.

19.9.8 The creation of sinkholes causes damage and/ or injury, and change in land levels can also result in damage and flooding, affecting human and environmental receptors, as well as infrastructure. Rainfall and changes to groundwater can lead to erosion of surface rock, eventually leading to collapse and a sinkhole. The site is underlain by two thick clay to mudstone strata, namely Kimmeridge Clay and Gault Clay. The clay is low permeability which reduces water flow and thus the potential for sinkhole features, with no related features recorded from surveys.

19.9.9 Landslides/ mass movements/ ground instability during construction, in particular of the dam embankments, could cause injury to construction workers and direct damage to adjacent works, including machinery and materials. Landslips can adversely affect flood storage and flood flow routes, increasing flood risk. Given the flat topography, the area affected by the slipped embankment material would be confined to the immediate environs of the landslip and limited in length.

19.9.10 As the reservoir is filled, there is also the unlikely risk of embankment breach or failure. The application of legislative requirements and international standards for the design, construction and inspection of the reservoir, means that risks are effectively designed out, mitigated or managed throughout the Project lifetime. Appendix 19.3: Information to support assessment of risks sets out geological information and that construction will be

supervised by an independent construction engineer, who will verify design and construction methods.

19.9.11 There is a risk of aircraft collision with temporary tall structures, such as cranes. The north-east of the Project falls within the RAF Benson safeguarding zone and there are private airstrips operating in the area. The Defence Infrastructure Organisation (DIO) will undertake a safeguarding assessment following submission of the DCO application and take standard measures, such as changes to mapping, to warn aircraft of any tall structures. Private operators will need to take similar measures.

19.9.12 Risk of rail accidents from the use of temporary sidings for movement of freight during construction can lead to injury to passengers, construction workers or damage to rail line. The presence of Overhead Line Electrification (OLE) Railway and Scottish and Southern Energy (SSE) overhead line cause a hazard for cranes and other tall plant. There is a risk of collision, from a potential obstruction of operational line from freight movements and between freight movements and construction workers. These risks would be managed through adherence to Construction Design and Management (CDM) regulations, Health and Safety requirements and engagement with the relevant statutory undertakers.

Summary of operation effects that are not expected or likely to be significant

19.9.13 This section summarises the justification for operation effects that are initially anticipated to be 'non-significant' through the preliminary assessment of effects for Major accidents and disasters. 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.

19.9.14 There is the risk of bird collision with aircraft resulting in severe injury or fatality to RAF personnel or private aircraft pilots and passengers. SESRO will create new habitats which will attract birds. Safeguarding systems will apply to new or increased wildlife hazards up to 13km from an aerodrome. SESRO habitats are outside the RAF Benson Safeguarding Zone for birdstrike so no further management measures have been applied, but the risk is being kept under review as design develops.

19.9.15 There is the also the risk of aircraft collision with tall structures such as the reservoir embankment and diverted 132kV overhead line, resulting in severe injury or fatality, particularly to RAF personnel or users of private aircraft, and damage to infrastructure (also see damage to embankments below). The north-east of the Project falls within the RAF Benson safeguarding zone. The DIO will undertake a safeguarding assessment following submission of the DCO application and take standard measures, such as changes to mapping, to warn aircraft of any tall structures. Operators of private airstrips will need to take similar measures.

19.9.16 There are health risks to reservoir workers undertaking maintenance and operations, or visitors undertaking water sports, due to harmful algal blooms. These are from toxins produced by blue-green algae which could come into contact with skin or be swallowed causing rashes, fever and muscle pain, vomiting and diarrhoea. To reduce occurrence of algal blooms, the reservoir includes a mixing system and the water will be aerated via pipes located on the reservoir bed.

19.9.17 There is a risk of failure of water supply due to failure of infrastructure which could affect populations using water supply as well as surface water ecosystems. The effects would be

similar to the future baseline without the Project. Customers of Thames Water, Southern Water and Affinity Water would be affected. If the Project failed to release water into the River Thames for any reason, this could reduce flow and over-abstraction from other waterbodies could also lead to impacts on aquatic ecology. However, the design working life of the main reservoir embankment, tower, tunnels and other safety critical assets is 120 years. Security measures, regular inspections and maintenance would manage the risk.

19.9.18 Extended periods of drought or heatwaves could lead to the reservoir embankments drying out. This could lead to cracks leading to leakage or resulting in catastrophic landslip and flooding, affecting human and environmental receptors, as well as infrastructure. The design includes an embankment core sized and designed to prevent internal cracking. Internal drainage has also been designed to prevent internal erosion. Earthworks and landscape design of outer banks avoids steep slope gradients and uses additional landscaping materials to reduce the risk from surface water erosion.

19.9.19 Flooding from overflowing of reservoir embankments due to severe weather events (high winds, rain) could also affect human and environmental receptors, as well as infrastructure. There is a risk that heavy rainfall could reduce capacity in the reservoir, eventually leading to overflowing of embankments. The reservoir has been sized to accommodate the design rainfall landing within it (probable 'Maximum Pluvial event', the theoretical worst-case storm that can occur within the area). High winds could lead to wave action which could also result in a risk of overflowing and/or erosion of the crest. Overflowing can lead to erosion of downstream face, in addition to flooding. The design follows guidance and standards to limit wave overtopping to safe amounts (essentially spray). To prevent erosion the inner face of the dam is lined with wave protection measures such as riprap (rock armour) and considers wave loading on waterside structures. In addition, the downstream face of the reservoir is covered in extensive landscaping fill, which acts as a protective buffer to the structural fill beneath.

19.9.20 The assessment of sinkholes is similar to that for construction, the underlaying clay is low permeability which reduces water flow and thus the potential for sinkhole features, with no related features recorded from surveys.

19.9.21 Emergency drawdown to the River Thames could result in flooding, affecting human and environmental receptors, as well as downstream infrastructure. Emergency drawdown would only occur if needed to reduce the load on the dam structure to reduce the risk of failure. In the very unlikely event that emergency drawdown is required (see paragraph 19.9.23 below), then the reservoir would discharge into the River Thames, which has the potential to cause flooding if flows in the river are already high, and emergency planning would be required. Based on flows at Sutton Courtenay gauging station and Culham lock[2], the median flow in the River Thames is 17m^3/s and with the addition of emergency drawdown flow of 1m of reservoir depth per day, the river would still be below capacity (110m^3/s is the flow at which Thames weir gates are open, "bankfull" will be slightly higher). With normal or low flows in the River Thames, the emergency drawdown flow would be fully contained in the river without flooding.

[2] Gauging station flows at Sutton Courtenay can be found at https://nrfa.ceh.ac.uk/data/station/meanflow/39046. Observed water level records upstream of Culham lock can be found at:https://environment.data.gov.uk/hydrology/station/255a860c-247c-4f7d-a38a-01f22c27a149

19.9.22 Risks that could cause emergency drawdown have been mitigated to ALARP through embedded and standard practices, and they are considered very unlikely (see below). If Emergency drawdown is required, it may not need to discharge at maximum capacity (for example to lower the water levels to examine a minor irregularity in the inner embankment face). Furthermore, a flood event or high flows would also need to occur at the time that the emergency drawdown occurs, further reducing the overall likelihood of flooding. Emergency planning, including provision of information for-off-site emergency plans would be required prior to filling the reservoir. The risk is assessed as tolerable. .

19.9.23 The risk of damage to embankments leading to a possible breach or embankment failure, could cause damage and/or injury, also resulting in flooding affecting human and environmental receptors, in addition to infrastructure. Risks of damage leading to leaks and flooding could arise from surface runoff, cracking and settlement, deliberate or accidental damage (also covered separately) or other risks. The application of legislative requirements including Reservoirs Act 1975 (as updated and amended) and international standards for the design, construction, operation, maintenance and inspection of the reservoir, means that risks are effectively designed out, mitigated or managed throughout the Project lifetime. In the unlikely event that a risk, such as structural integrity, is identified during the lifetime of the Project, emergency drawdown would quickly lower water levels either as a precaution while the problem is investigated or as an emergency measure. This reduces the load on the embankments, enables remedial measures to be taken, or in a worst-case reduces wider flood risk in the event of failure.

19.9.24 Fire in the battery energy storage system can cause harm to people and the environment, in particular staff, water environment and aquatic ecology. While small or isolated battery fires would have limited potential for injury or contamination, for larger-scale fires from battery storage systems, there is greater potential for harm, including contaminants in the firewater used to suppress fire or entering the environment in the event of a flood. Battery energy storage systems contain lithium ion and other components (metals, oxides, solvents). Design measures, including locating the BESS adjacent to foul water pumping station (to offsite sewage treatment facility) and adequate containment of firewater (connected to foul pumping station), in addition to compliance with design safety standards is anticipated to manage this risk.

19.9.25 Large volumes of chemicals stored at the water treatment works (WTW) could lead to accidents affecting workers at the WTW, water environment, and aquatic ecology. Spillage of chemicals such as sodium hypochlorite could cause injury to workers, either through burns from direct contact with skin or respiratory issues from inhalation. A spillage could also affect water quality and be toxic to aquatic organisms. At this stage in the design, it is anticipated that chemical storage volumes on Thames Water to Southern Water Transfer (T2ST) will be below the lower tier threshold levels for COMAH. Chemical storage and incident planning would be required to comply with the Control of Substances Hazardous to Health (COSHH) Regulations to prevent harm.

19.9.26 Use of the reservoir and lakes for recreation and water sports could result in accidents and drowning. The risk of drowning is possible given that the SESRO Project comprises the creation of a large expanse of water and is likely to be a visitor attraction for water sports such as sailing, swimming and paddleboarding. The Safety Management Plan will set out requirements and measures needed for safe operation, including water sports.

19.9.27 There is a risk that a terrorist attack could cause damage and/ or injury, particularly to human receptors and infrastructure. The risk of a terrorist attack could be aimed at

members of the public visiting the reservoir or infrastructure such as the reservoir or water treatment works. The nature of the attack could range from direct injury or physical damage to malicious disruption of water provision. Security measures would be in place to manage the risk.

19.9.28 Given embedded and standard mitigation, there are no likely or expected significant effects from major accidents and disasters.

19.10 Next steps

19.10.1 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.

19.10.2 The next steps anticipated to be undertaken in relation to the Major accidents and disasters assessment prior to completion of the ES and submission of the DCO application are explained below.

Further exploration of additional mitigation

19.10.3 From the Stage 1 and Stage 2 risk assessments, no likely or expected significant effects from major accidents and disasters have been identified from the construction and operation of the project. Where applicable, assessed risks of accidents and disasters have been mitigated to tolerable (ALARP) levels using embedded design mitigation and standard good practice described above. As such no additional mitigation has been required at this stage of the assessment.

Other next steps

19.10.4 Other steps that are continuing or are planned to be undertaken to support the Major accidents and disasters 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:

- Further design in relation to risks such as firewater and containment for battery energy storage system risks
- Development of mitigation (Table 19.6 and Table 19.7) to provide more information on how risks will be managed, including the security and emergency measures to prevent sabotage and Watersports Safety Plan. Risk of terrorist attacks and water sports accidents would then be scoped out in accordance with the PINS Scoping Opinion.
- Further information on the volume of chemicals will be provided. It is anticipated that this will confirm the WTW is below the lower tier for COMAH.

19.10.5 Note that modelling will need to be undertaken for embankment breach and provided to the Environment Agency to inform emergency planning under the Reservoirs Act (as amended by the Flood and Water Management Act 2010). However, this will not be part of the DCO Application as it is a requirement to obtain a 'preliminary certificate' prior to filling the reservoir.

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